

Introduction to Compute and Internet

Teaching Material

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Course Description.....	0
Course Objectives	0
Introduction to the course	1
How to study this course.....	2
Chapter one: Introduction to computer overview	3
Objectives:	3
Introduction.....	4
1.1 Definition of terms and concepts	4
What is data?	4
What is Information?	5
What is Knowledge?	6
Sources of Information	7
Characteristics of information.....	8
Factors that measure the quality of information	9
Constituents of Information Technology	10
What is technology?	10
What is Information Technology (IT)?	10
What is a computer?	11
Historical development of computers.....	11
Data processing.....	15
Table1 B.....	17
Applications of IT	18
Information System.....	18
What is system?	18
Components and purpose of information system.....	19
1.2 Methods of data processing.....	19
1.3 Characteristics of computers	21
Additional Characteristics of computers.....	22
Application of Computers.....	23
1.5 Classification of computers	28
Types of computers.....	28

Generations of computers	32
1.6 Computer system component.....	36
1.7 Computers and the Legal system.....	63
EXERCISE 1.1	64
Chapter two: Operating system.....	70
Objectives:	70
Introduction.....	71
2.1 Introduction to Ms-windows.....	71
Starting MS Windows and working with windows	72
How do you start MS Windows?	72
To start MS Windows.....	72
2.2 Icons and desktop.....	73
2.3 Mouse operations	74
Elements of a window.....	75
Menus, Toolbars and Dialog boxes of a Window.....	78
Windows Applications.....	81
Running windows applications.....	81
Installing and removing application software.....	83
Copying and moving information.....	84
Using the keys on the keyboard	84
To Copy and Paste information:	85
Viewing the content of the clipboard.....	86
Exiting an application	86
2.4 Working with folders and files.....	86
Managing files	86
2.5 Windows explorer	89
2.6 Customizing the desktop	91
2.7 Customizing the taskbar.....	91
2.8 Customizing the start menu	93
2.9 Accessories utility programs.....	94
2.10 Getting online help and support	100

SUMMARY	100
CHECK LIST.....	101
SELF TEST EXERCISE.....	101
Chapter three: Ms-Words.....	104
Objectives:	104
Introduction.....	105
3.1 Working on word document: creating, saving, closing, opening.....	105
3.2 Editing and formatting word document	110
3.3 Working with tables.....	120
3.4 Working with graphics and drawings	122
Symbols and Characters in Microsoft Office.....	126
Character Map.....	128
3.5 Creating header/footer, endnote, footnote.....	135
Page Numbers	136
3.6 Mail merge operations.....	136
3.7 Printing	138
SELF-TEST EXERCISES	141
Chapter Four: Ms-Excel.....	147
Objectives:	147
4.1 Introduction.....	148
4.2 Creating, saving, closing, opening a work book.....	149
4.6 Working with charts and graphics.....	163
4.7 Page properties and printing	165
SUMMARY	167
SELF TEST EXERCISE.....	167
Chapter Five: Ms-Access.....	173
Objectives:	174
5.1 Introduction.....	174
Working on basics of MS Access	175
5.2 Creating Tables	178
5.3 Creating Queries	187

5.4	Creating Forms	190
5.5	Creating Reports	198
	Printing Reports	200
2.6	Working on Legal Databases	201
	SUMMARY	205
	SELF-TEST EXERCISE	206
Chapter six: Ms- PowerPoint		212
	Objectives	212
6.1	Introduction	212
	Definitions	21Error! Bookmark not defined.
6.2	Creating, saving, closing, and opening a presentation	214
	Content inserted from other sources	215
	Creating a presentation using suggested content	216
	Creating a presentation using blank slides	216
	Create a presentation using a design template	217
	Creating a new presentation from an existing one	218
	To Save a presentation	218
	File formats for saving presentations	219
	Open a file	220
6.3	Editing slides	221
6.4	Using animations and multi media in presentation	221
	Add a movie or animated GIF to a slide	221
	Preview a movie or animated GIF in a presentation	225
	Using Microsoft Windows Media Player for movies	125
	Loop a sound or movie	225
	Handouts	226
	Previewing your handout	226
	Handout master	226
	Additional layout options	226
	About right-to-left presentations	227
	Print notes pages	227

Create notes while working on a presentation	229
Summary	229
Self test Exercises	230
Chapter seven: Internet Basics	232
Objectives:	232
Introduction	232
7.1 Introduction to networking and evolution of the Internet	233
7.2 Setting up an Internet connection	236
7.3 Domain name system	238
What is .et domain name?	238
What makes Internet an important source of information?	239
Working on Web browsers/ communicators.....	240
Identification of resources on Internet	242
7.4 Internet services (WWW, E-mail, News groups, Use net)	243
7.5 Searching information on the Internet	246
SUMMARY	249
SELF TEST EXERCISE	250

INTRODUCTION TO COMPUTER AND THE INTERNET

Course Description

The course covers basic concepts of the computer, computer operating systems, Microsoft office applications and the Internet. The participatory teaching method is used to provide students with the concept of using windows operating system, Microsoft office applications that are used for processing words, calculations, presentations and using the database, and the Internet that is used for search and retrieval services. The students will be assessed basically by class works, project works, tests, mid semester and final exams.

Course Objectives

Up on the completion of this course the students will be able to:-

- ❖ identify different application areas of computers;
- ❖ distinguish hardware and software components of the computer system;
- ❖ use Ms-windows operating system;
- ❖ make use of the basic Microsoft office applications for office use;
- ❖ handle word processing duties for the production of documentary materials;
- ❖ manage electronic worksheet for activities involving various chart analysis using rows and columns;
- ❖ store, retrieve, update data and information on various subjects and in various formats using electric database management application packages;
- ❖ demonstrate how to use PowerPoint facilities for presentation and demonstration purposes;
- ❖ identify information resources and services available on the Internet; and
- ❖ make use of search and retrieval services on subjects of their interest.

Introduction to the course

Welcome to introduction to computer and the Internet course. Dear students, these days knowledge of information technology is becoming very important. A basic knowledge of information technology is necessary for human being because it is becoming the agent of change. This course introduces you the general concept of information technology in general and computers in particular. It will help you to understand what information technology is, the basics of computer, how to use basic applications, why, how and when to use computer networks and the Internet, etc. It also exposes you to the fundamental notions, which prepares you to advance in the use of information technology.

The course is written in a way that can be understood by each student easily. The approach used focuses on the student's ability to perform specific tasks at the end of each section. Completing the course allows you to develop your knowledge of Information Technology that can improve your effectiveness and productivity. Welcome Again!!

The course consists of seven chapters. The first chapter deals with basics of computer including definition of terms and concepts (data, information, knowledge, knowledge spectrum, computers, computer systems, information processing and basics of IT).

The second chapter discusses the functions and uses of windows operating system. The third, fourth, fifth, and sixth chapters discuss the most popular application software namely: Microsoft word, Microsoft Excel, Microsoft access and Microsoft PowerPoint respectively. In the last chapter, i.e chapter seven, Internet and its services are discussed. The major concepts are discussed in each chapter. The chapters also have an introduction and objectives at the beginning and summary and exercises at the end.

At the beginning of each chapter there is an introduction that shortly describes the core contents of the chapter and objectives that you will achieve by studying that chapter. Then the main content of the chapter is presented. In-text questions are found throughout the

course material. They will make you stop and think. Please, whenever you face problems in the in-text questions don't run to the next part before trying to get solutions for them.

You are expected to give answer for each activity in the section. Check lists are included to help you summarize the major points and assist you to go back and check points, which you didn't understand. You can use some additional materials or references to get more information. But, if you cannot find additional reference, don't worry; the course material by itself is quite enough to provide sufficient information. Self-test exercises, which are found at the end of each section help you to test yourself.

How to study this course

Most of the chapters are composed of both theoretical concepts and practical aspects.

The method you should use in studying this course is to attend the class according to the schedule set you. The practical part needs attending laboratory sessions frequently by allocating time for getting free access to the labs so that you will have better understanding of the theoretical concepts through practice. Therefore, according to the programs arranged by the universities/faculties, the course will be demonstrated so as to get hands on experience and practical skills of using different applications.

Chapter one: Introduction to computer overview

Objectives

After completing this chapter, you will be able to:

- ❖ define data ,information, knowledge, wisdom, information technology, information systems and computers;
- ❖ identify sources of information;
- ❖ explain the characteristics of information;
- ❖ identify components of information technology;
- ❖ discuss the relationship among data ,information, knowledge and wisdom;
- ❖ explain the development of IT;
- ❖ discuss data processing, data processing operations, methods of data processing and data processing cycles;
- ❖ explain how data is organized and application areas of IT;
- ❖ identify the different components of computer systems;
- ❖ identify characteristics ,classification, advantages and uses of computers,
- ❖ explicate how computers are used in the legal system;
- ❖ identify and discuss the computer system;
- ❖ identify the classification and types of computers;
- ❖ define hardware and software components of a computer system;
- ❖ explain roles and functions of computer hardware components ;
- ❖ identify types of storage devices;
- ❖ identify the constituents and the categories of software; and
- ❖ discuss programming languages.

Introduction

Having introductory knowledge on computers and/or information technology is of vital importance for everyone. Nowadays, the life of every one relies on information more than ever before. Computers and millions of jobs have become interrelated because workers rely on computers for needed information.

In this chapter, you will learn basic concepts and principles of information, data processing, computers, and computer systems and the application of IT in data and information organization.

Computer generated Information has become a vital resource in today world. It is necessary for each of your personal use. Information is also very important for institutions, governmental and non-governmental organizations, and societies at large but it is rarely possible to have such kind of resource with out having computers. In this chapter, you will learn the meaning, importance, sources and categories of information in general and computer generated information in particular, different application areas of computers; the components of computer system and what information technology is and its applications.

1.1 Definition of terms and concepts

What is data?

To understand more what information is, it is better to relate it with data that is used in the production of information. The meaning of data varies like that of information. Try to understand the following definition of data and then relate it with the meaning of information. Data is a collection of raw facts that represent figures, or details about people, objects, places, ideas or events. Data is a fact or figure collected from measurements or

observations about people, events or objects. To illustrate data in detail let us take the administrative function of certain institution.

In many institutions, the following activities are common:- Workers are paid salary, raw materials are ordered, finished goods are supplied, etc. The details (e.g. Name, Age, Sex Salary, Tax, Pension, Deductions, Net salary, Remark, etc.) of each employee and facts and figures about each material and product of the institution are referred to as data. In a library environment, to identify a certain book, the following could be considered as details (data): Title, Author, Publication date, Edition, Publisher, Place of publication, unique number (Call number) of the book, etc.

Data can be defined as un processed information (information which is not organized, analyzed, or classified). One can associate data with raw facts, symbols or figures.

What is Information?

In popular usage, the term information refers to facts and opinions provided and received during the course of daily life. It is a collection of meaningful facts and figures that can be used as a base for guidance and decision-making. Any fact or figure is not necessarily information. To call it information, it has to be useful and meaningful for you (individual, group, organization, or society).

Information can also be defined as something that some one did not know before.

Information is something that reduces uncertainty.

Information is a processed data.

Information is a clue.

What is Knowledge?

In fact, defining knowledge is difficult as it includes many intangibles such as experience, intuition, judgment, skill and lessons learned. Oxford English Dictionary defines knowledge as "...the awareness and understanding of facts, truth or information gained in the form of experience or learning, the theoretical and practical understanding of a subject or what is known in a particular field". The term knowledge is used very loosely as it may refer to recorded information such as documents and reports, available within the organization or internalized information which includes experience, emotions, values, hunches and contextual information. Knowledge can also be defined as "fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of the knower".

According to the above definitions, knowledge and information are terms used interchangeably to describe the same concepts. The basic building block of knowledge is data.

"Knowledge is something that comes from information processed by using data". Data is specific numerical or symbolic representations of facts about an item, concept or event out of context and with no relation to other things. On the other hand, information is useful organization and selection of facts by adding context through relationship of data. Therefore, knowledge is something that comes from the interpretation and understanding of information with respect to human interests and purposes. However, knowledge is subjective and has different meanings to different people, what is knowledge for one person can be information for the other.

Wisdom can be defined as knowledge that has been implemented /utilized through application.

The knowledge spectrum can be demonstrated as the collection of events becomes data, data when processed becomes information, information when understood becomes knowledge and knowledge when implemented becomes wisdom. Below event and above wisdom there is nothing, it is more if spiritual rather than material.

Sources of Information

From where do you get information?

You can obtain information directly from other living beings, from mass media, from electronic data bank, from purchased books and documents, and from all sorts of observable phenomenon in the surrounding environment. In general, the various sources of information are classified in to two major categories: **Documentary** and **Non-documentary** sources.

I. **Documentary Sources:** are documents or recorded sources of information in different forms. They are further categorized as Primary, Secondary, or Tertiary Sources.

- 1) **Primary Documentary Sources:** Primary documentary sources are the first published records of original research works. These documents represent unfiltered and original idea. They highly contribute to the development as well as strengthening of a given subject or discipline. Some examples of primary documentary sources include: journals and periodicals, conference proceedings, reports, patents, standards, thesis and dissertations, government publications, etc.
- 2) **Secondary Documentary Sources:** these sources are sources either compiled from the primary sources or referred to the primary sources. They consist distilled or refined information. They are produced after the primary sources. Some examples of secondary sources include: periodicals of some type, guides to books, indexes, bibliographies, text books, reference books such as encyclopedias, dictionaries, etc.

3) Tertiary Documentary Sources: these sources do not contain subject matter knowledge, but guides to literatures or documents that are categorized under primary and secondary sources. Examples of tertiary sources include: catalogs in your library, indexing journals, guides to journals, telephone directories, subject guides, general guides, bibliographies of bibliographies, etc.

II. Non-Documentary Sources: are sources that are not purposely organized and documented. They provide information that the primary and secondary sources do not. They are categorized into two: **formal** and **informal**.

Formal non-documentary sources include professional societies, industries, research organizations, universities, government departments, etc. while the **informal** ones include conversation with colleagues, visitors, attendance to professional meetings, etc.

Documentary sources by themselves do not satisfy your information need. Therefore, you have to be aware of what is found where and how you can get them. People, groups of professionals, organizations, information Bureaus and brokers, audiovisual materials, archives, etc are some examples of non-documentary information sources that provide you with necessary information that documentary sources lack.

Characteristics of information

In order for information to be of value in decision making or taking action, it must satisfy the requirement of users and valuable and useful information has got the following characteristics: accuracy, timeliness, completeness, relevance, economic accessibility, flexibility, reliability, expandable/diffusive, substitutable, transportable, and sharable.

Information is said to be:

Accurate- When it is free from any kind of errors;

Timely - If it is delivered at the right time when it is needed;

Complete- If it contains all important facts and figures required for specific purpose;

Relevant - If it is related and necessary to the problem at hand;

Economical- When its cost of production is less than or equal to the benefit gained from it;

Accessible - If you get the necessary information easily in the right format;

Flexible - If the same information is used for various purposes;

Reliable - If it is dependable,

Expandable /diffusive- if it can reach every side of the world

Substitutable- if it can substitute every thing (land, financial capital, human being)

Transportable- if it can be transported easily in the form of its electronic form; and

Sharable- if it one can give information without losing it.

Factors that measure the quality of information

- Accuracy-the measurement of error,
- Timeliness-the time laps between the need and access,
- Reliability-the degree of confidence that the users have on information, and
- Relevance-the importance of information for the purpose,

Factors that measure the quantity of information include:

- Volume- university library has large volume than small college library,
- Accessibility-is removing any barriers that protect the dissemination and transfer of information from one person to the other or from one place to the other place. These barriers include politics, religion, culture ,Technology, economy, illiteracy, distance, jargon, etc
- Completeness -regardless of the volume, the university library might have incomplete information.

Constituents of Information Technology

You have seen what information is and its characteristics. Now you will learn what technology is and what information technology constitutes.

What is technology?

You use the term technology in daily conversation at all places. Technology refers to all the means people use, their inventions and discoveries to satisfy their needs and desires.

What is Information Technology (IT)?

Information Technology is an interdisciplinary academic field that deals with the generation, collection, organization, storage, retrieval, and dissemination of recorded knowledge whether in the form of numerical data, text, sound, or image.

The three basic constituents of information technology are:

1. **Computers:** to accept, process, store, and present information
2. **Communication networks:** to allow information to be moved between points of communication. (A network will be explained in detail later in this module); and
3. **Know-how** is the ability to draw on the power of IT to solve problems and to take advantage of the opportunities it creates.

The current IT is the result of centuries of development. The first form of humans' communication was by use of speaking and drawing pictures which later developed into writing on clay, papyrus plant, leather, etc. before modern paper was invented. The Arab trade had also a great contribution to bring today's numbering system (0-9) in 12th century. The invention of movable metal-type printing process in 1450 by Johann Gutenberg speeds up the process of printing. Book indexes make information retrieval possible, and the earlier concept of computer (slide rules, abacus, etc) contributed a lot for today's information technology.

What is a computer?

A computer is an electronic data processing machine that is designed and organized to automatically accept and store data, process them, and produce output under the direction of a stored detailed step-by-step set of instructions. From this definition, you can infer that data processing consists of gathering raw data (input), evaluating and bringing order to the data, and placing it in proper perspective so that useful information is produced.

In other words, a computer is an electronic device that accepts data, performs computations, and makes logical decisions according to instructions that have been given to it; then produces meaningful information in a form that is useful to humans.

In very brief terms, a computer is a data processing device that converts raw data (facts and figures) into useful information that give meaning to the user.

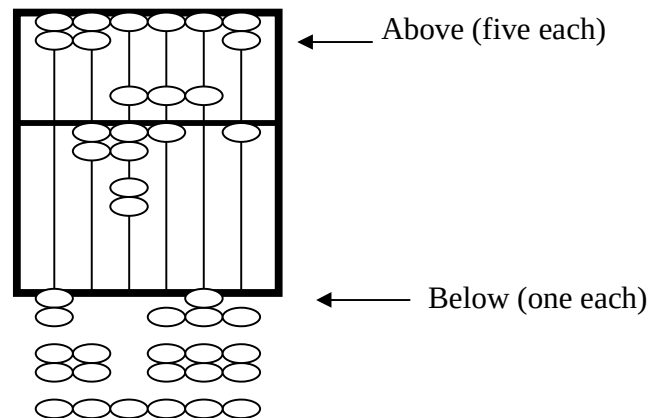
Historical development of computers

We have all heard stories of primitive peoples counting their sheep by moving sticks or stones. Our base ten number systems undoubtedly grew from the use of 10 fingers as counting objects. Together with the development of people, the need to calculate and keep track of information had become a popular issue. So, they soon develop a simple computing device and it has a power of storing small information. However, many thousands of years elapsed before developing mechanical calculator.

Some of the calculating devises are mentioned bellow:

a) The Abacus

It is one of the earliest mechanical computational devices. It was in use in the Middle East as early as 2500 BC The familiar Chinese abacus (dating approximately 1200 AD) is composed of a frame and a number of wires. The wires correspond to position of digits in decimal number-units, tens, hundreds, and so on-and the beads represent digits. Beads above the cross bar represent 5 and those below the cross represent 1.



The abacus shows zero, if all the beads below the cross bar are at the lower frame and above are at the upper frame.

Addition of two numbers on the abacus can be performed by representing the first number and the second number without resetting the first. On any wire showing 10 or more, the two beads above the cross bar are moved back, and an extra 1 (the Carry) is added to the wire on the left. This process can be easily generalized to addition and subtraction of more than two numbers.

B) Pascal's calculator

It is the first true mechanical calculator. In 1642, at the age of 19, the French philosopher and mathematician Blaise Pascal developed a rotating wheel calculator, the predecessor of the latter popular desktop calculator. He built it largely to assist his father, who was a tax collector in the town of Rouen. Pascal's calculator has one wheel corresponding to each power of 10; each wheel has 10 positions, one for each of the digits (0,...9). Although Pascal's calculator could only add and subtract; it could be used indirectly for multiplication (by successive addition) and division (by successive subtraction) as well.

C) The difference engine

It is the forerunner of the modern computer. Charles Babbage (1792-1871), a British mathematician and engineer, is considered by many to be the real father of today's computer. He was the developer of the difference engine and designer of the analytical engine. The

difference engine was also based on the rotating wheels principle and was operated by means of a single crank. This device has a power of calculation and print the out put with out human intervention. He finally designed significantly improved version of the difference engine (but not built) called Analytic Engine. It has the following different key components:

- The store: A memory wheel consisting of a set of counter wheels
- The mill: An arithmetic unit capable of performing the four basic arithmetic operations. It operated on pairs of mechanical registers and produced a result stored in another register, all of which were located in the store.
- Operation cards: These cards selected one of the four arithmetic operations by activating the mill to perform the selected function.
- Variable cards: These cards select the memory locations to be used by the mill for a particular operation (a source of operand and the destination of the result).
- Out put: was used to print or a card punch device.

But, finally the design halt largely due to the technology of the day is not far enough too supply the required raw materials.

D) Herman Hollerith's tabulating machine

Herman Hollerith was a statistician who in 1880 develop his machine commissioned by the U.S. Census Bureau to develop a technique for speeding up the processing of census data that took at least 8 years before. He developed his machine and it uses the punched card to punch the census data and tabulated by using his machine. This machine processes the 1890 American census data with in 3 years. It was really a great development. He finally began the tabulating Machine Company, which later becomes the International Business Machine Corporation (IBM)

E) Mark I

It was developed by Howard Aiken at Harvard University (1944), and it was the first electromechanical computer. Instruction was provided by means of punched paper tape,

which combined the functions of Babbage's operation cards and variable cards. Each instruction had the format:

A1 A2 OP where A1 and A2 are registers storing the operands OP is the operation to be performed (e.g. +, -, x, ÷) Mark I could do a single addition in 6 seconds and division in 12 seconds

F) ENIAC (Electronic Numerical Integrator and Computer)

It was developed by Eckert and Mauchly at the University of Pennsylvania. This was the first electronic calculator and the first general purpose digital computer. This machine was enormous, weighing 30 tones occupying 15,000 square feet of floor space and containing over 18,000 vacuum tubes. When operating, it consumed over 140 kWh of power. It had a capability of performing 5,000 additions per second. Its memory consists of 20 "accumulators" each capable of holding a 10 digit decimal number. Each digit was represented by a ring of 10 vacuum tubes. At any time, only one of the 10 tubes was in ON state, representing one of the 10 digits.

- ❖ ENIAC did not use internally stored programs. Programs were wired on boards similar to a telephone switch board.
- ❖ One of the major drawbacks of ENIAC was that it had to be programmed manually by setting switches and plugging and unplugging cables.

G) The Von Neumann Machine

The task of entering and altering programs for the ENIAC was extremely tedious. Von Neumann was the consultant on the ENIAC project and forward the stored program concept, i.e. designing the computer to get its instruction by reading them from memory alongside the data and a program could be set or altered by setting the values of a portion of a memory. Based on this concept, the first true electronic computers were developed by the name EDVAC (electronic Discrete Variable Computer) and EDSAC (Electronic Delay Storage Automatic Computer).

H) Commercial Computers

The 1950s saw the birth of computers industry with two companies, Sperry and IBM, dominating the market place. In 1947, Eckert and Mauchly develop their successful commercial computer called UNIVAC I (Universal Automatic Computer).

UNIVAC was the division of Remington Rand (later Sperry_Rand Corporation). IBM was also the major manufacturer of punched card processing equipment, and delivered its first electronic stored program computer, the IBM 701 in 1953.

Data processing

Data, a collection of characters which has the lowest level of meaning (i.e. raw facts and figures), is converted into information which is more meaningful than data and used for decision making. Later on, this in turn is changed into knowledge (information stored for future use). Knowledge has the highest level of meaning. It represents information that can be potentially useful for further decision making conditions. Knowledge represents an intellectual capability far beyond facts and figures.

However, the distinction between data, information, and knowledge is not as such simple and clear. There is no a clear cut boundary between them.

For example, certain data can be used as information by one user at one time and as knowledge by another user. The three steps in data processing are **input**, **processing**, and **output**.

Input gathers or collects the necessary data items into the system for processing.

Processing creates new information. The processing activity involves any method for using, handling, adding to or changing data. **Output** is the delivery of processed information. To get quality output, determine the type of input, and organize the processing activities.

Data processing is the activity of converting raw facts (data) in to information. Data processing may involve any number of the following steps:

- Data collection: means gathering original data to be entered in to the information system.
Examples: - filling out evaluation paper of instructors, Gathering the number of hours

each week that hourly employee worked is essential to calculating the weekly payroll.

- Data entry (recording): it is the process of expressing data in a form that is recognizable by either a person or machine. This is accomplished by input device of the computer.
- Data manipulation: This includes classifying, sorting, and verifying the data.
- **Classifying:** grouping the recorded data in to different category based on some logical relationship. Example: putting students and instructors information at different pages of the document.
- **Sorting:** putting data in ascending or descending order.
- **Verifying:** involves checking the data for validity before being used for processing.
- **Calculating:** The process of performing mathematical or other operation on data. It is the only data processing functions that produce new data.

- Storing and retrieving: storing data means recording them on storage media from which they may be retrieved when needed.

Retrieving is the process of locating the stored data and making the available one for other processing activity.

Fig 1:1 shows the order and direction of data movement in a data processing cycle.

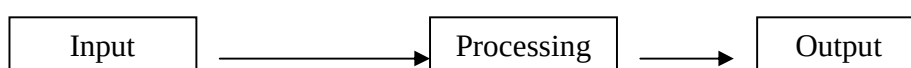


Figure 1.1: Data processing cycle

Data organization

The simplest unit of data is a data item (field). A set of related fields form a record. All similar records form a file, and the collection of file will give you a database.

ID NO, NAME, F. NAME, G.F NAME, SEX AND SALARY are fields, and the following table is a record of one employee from the file.

1 Kebede Lemma Samuel M 200 00

Table 1 A file of Employee

ID. NO.	NAME	F.NAME	G.F NAME	Sex	Salary	
					Birr	cent
1	Hailu	Lemma	Samuel	M	6200	00
2	Challa	Daniel	Dani	F	1450	00
3	Kedir	Indris	Hasen	M	2980	00
4	Lula	Nama	Gugsa	F	5000	00

Table1 B

Data processing operations

Before you get an information (processed data), the data should pass through several processing operations namely: recording (capturing), duplicating, verifying, sorting, merging, calculating, storing, searching, retrieving, summarizing and reporting.

Recording (Capturing) data: the writing of data by hand or by the keying of data on a machine. It is the first step in data processing cycle.

Duplicating data: making multiple copies for multiple purposes or controlling purposes by using carbon copies, photocopies or equivalent machines.

Verifying data: checking recorded data carefully to find errors.

Classifying data: grouping data into different categories based on the common elements that data have.

Sorting data: arranging data in a specific order (ascending or descending).

Merging data: combining set of records from different files.

Storing data: retaining data for further reference on some storage devices.

Retrieving data: finding a specific stored data.

Calculating data: applying arithmetic operations on numeric data at processing stage.

Summarizing data: condensing data into a smaller volume to make it more coincide and useable.

Reporting is the output of data processing.

Applications of IT

In modern societies, all individuals need information to do something. Information is necessary for individuals, organizations, and societies in general. It is possible to say that there is no sector that does not need information technology. The following are some of the areas where you can apply information technology: in the home, in the office, in factories and industries, in transport and communication, in education and training, in the arts, in law enforcement and defense, etc.

Information System

What is system?

A system is an organized set of ideas or theories, or a particular way of doing something. It can also be defined as a group of things, pieces of equipment, etc. that are connected or work together. It is also the interaction of people, machines, and procedures. From these you can infer that a system is an interrelated set of components with an identifiable boundary working together for some purpose.

What is an information system then?

In a very simple and few words, information system is the system which outputs (provides) information. An information system can be simply defined as the system that provides people with either data or information relating to an organization's operations. Briefly, information

system is the set of elements working together to process input and distributes output (processed data) data or information.

Components and purpose of information system

The components of information system may include: computers, software, people (operators), peripherals, procedures and processes, transfer mechanisms, etc. irrespective of its size and kind. Every information system in any organization performs the following information processing activities:

Input Raw data collected or captured from internal or external environments;

Processing Manipulation and consolidations of the data captured. Processing consists of conversion of raw input data into a meaningful form;

Output This transfers the processed information to the people or activities where it will be used (products and services); and

Feedback process A necessary output activity that is used to evaluate or refine the output.

1.2 Methods of data processing

- A. Manual data processing
- B. Mechanical data processing
- C. Electronic data processing
- D. The synthesis of the above

Manual data processing: is the processing of data by using pen/pencil, paper, and your own brain.

Mechanical data processing: is the processing of data by using mechanical machine like simple adding machine and/or punched cards.

Electronic data processing: is the processing of data by using electronic machine called computers

The **synthesis (combination)** can be using manual with mechanical/manual with electronically/ mechanical with electronic/manual, mechanical, electronic.

This can be depicted in the following table:

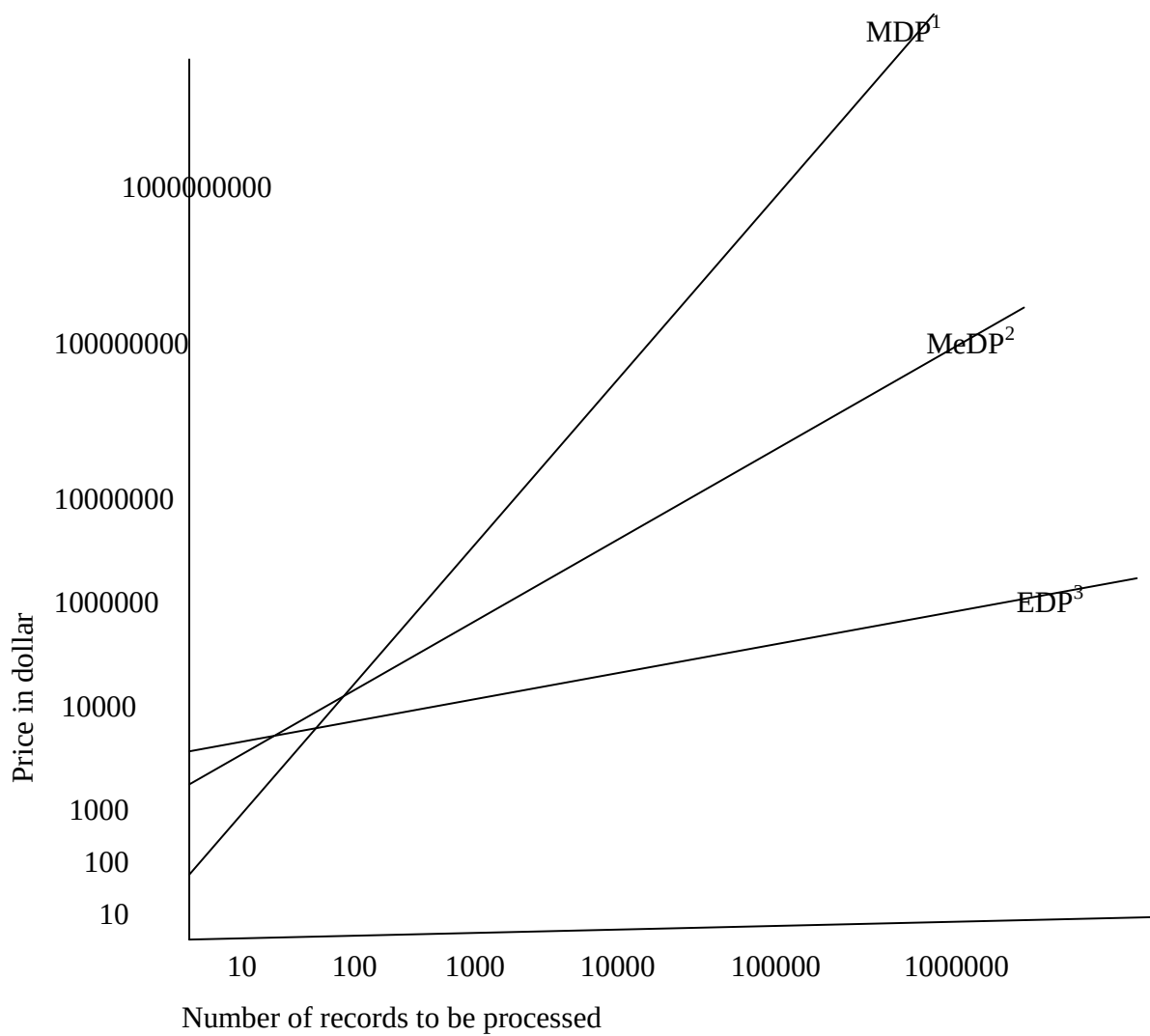


Figure 1.2 the comparison of the methods of data processing

-
- ¹ Manual data processing
 - ² mechanical data processing
 - ³ electronic data processing

As can be seen from the above figure, as the number of records increase the price decrease in electronic data processing but it increases in both manual and mechanical data processing.

The advantage of electronic data processing over that of manual and mechanical data processing can be:

- Ease of handling
- Accuracy
- Economies of scale
- Consistency and
- Speed

The initial cost of the hardware and software in electronic data processing can be justified by processing vast amount of data.

1.3 Characteristics of computers

Just like other machines, computer is also a machine. It possesses the following unique features:

- a) **PROGRAMMABILITY:** Computer can do very nearly anything provided that it is given the right set of instructions to do the job. Other machines may do a set of predefined tasks, nothing more nothing less.
- b) **STORAGE AND RETRIEVAL:** Computer can store data for indefinite period of times and makes the data available for later retrieval.
- c) Other distinguishing features of computer include: HIGH STORAGE CAPACITY, SPEED, HIGH ACCURACY OR PRECISION, AUTOMATION, VERSATILITY, AND DILIGENCE.

Additional Characteristics of computers

The characteristics of a computer show the capability and the potential of the computer for processing data. This saves time, space, money, labor etc. And, they answer the questions why computers are used? Why have they become so popular?

Speed: The ability of the computers to carry out their instructions in a very short period of time is one of the main reasons for their popularity. Computers can perform within a matter of seconds or minutes tasks that would be impossible for a person to complete by hand in lifetime.

Its speed is measured by the amount of time it took to perform or carry out a basic operation. And, its speed is measured in terms of micro second (10^{-6} one millionths), nano second (10^{-9} one billionths), and Pico second (10^{-12} one trillionths). Hence, a computer with speed 1 microsecond can perform 1 million instructions in just 1 second. (For example: in one second this computer can perform the following tasks:

- Compute the grade point average for 3000 students
- Calculate the total value of all books used by students in a university

Accuracy: Nowadays computers are being used in life-and-death situations (For example, jet pilots rely on computer computations for guidance, Hospitals rely on patient-monitoring systems in critical –care units) which need almost hundred percent accuracy. From this, we can understand that computer is accurate and consistent. Unless there is an error in the input data or unreliable program, the computer processes with a very high accuracy.

Capacity: the ability of computers to store and process vast amounts of data continues to grow. A computer operating at 200 MHz can move data from one location to another at a rate excess of 1.2 billions characters (symbols) per second.

Durability and reliability: computers are durable and extremely reliable devices. They can operate error-free over long periods of time.

Versatility: because of technological advancements in the computer industry, most computers today are considered to be general-purpose computers. That is both their computation and input/output processing capabilities are such that they can be used for almost any type of application. For example, the same computer that is used to handle engineering company's mathematics, and design computations can also be efficiently used by the company to track inventory, process payroll, project earnings, and fulfill all its reporting needs.

Today's computers are versatile in what they can do; computers and their component parts being used in application never before envisioned. For example; in home appliances (washing machines, ovens) home entertainment centers, traffic lights, automobiles, banking, assembly plants, space probes, art, music, education, hospitals, and agriculture, to name few. The versatility of the computers and its use in a wide array of application are limited only by the imagination of the human mind.

Note: even if the above main characteristics of computers are increasing with time, the cost and size of computers are decreasing.

1.4 Advantages and uses of computers

Comparing with the manual and mechanical data processing, we have seen a number of advantages that one can gain from using electronic data processing (computer) like speed, accuracy, easily handling of data and economies of scale.

Computers can also be used for different activities including working with words and numbers, communicating with other computer users, programming for solving problems, building expert systems, creating music, playing games, etc.

Application of Computers

The following are some of the capability of Computers, which are reasons to use computers.

- Store and process large amount of information with high speed and accuracy;

- Transmit information across continents via communication channels;
- Simulate events;
- Perform complex mathematical computations and make comparisons;
- Monitor ongoing industrial operations;
- Perform repetitive processes with great ease, speed, and reliability;

Therefore, computers are applicable for any functions or process that requires these abilities.

The main areas of computer applications can be listed as follows:

- **Legal system:**

The use of computers for auxiliary functions in law has become more specific and more sophisticated (e.g., legal information retrieval), touching more closely upon professional legal work. Moreover, renewed interest in AI has also fostered interest in AI in law, especially for legal expert systems. As Artificial Intelligence (AI) technology develops, the creation of computers that can autonomously reason with the law to determine legal solutions is slowly becoming a reality.

- **Learning Aids:**

Example: learning toys, programs that range from simple arithmetic to calculus, from English grammar to creative writing and foreign language, and from basic graphics to engineering design models,) etc.

- **Entertainment:**

- ❖ Games: Computer game algorithms, modeling of players, web technologies for networked games, human interface technologies for game applications;
- ❖ Home/Arcade Games and Interactive Movies: Video game computer technologies, motion capture technologies, real-time computer graphic technologies, interactive movie systems, story generation for games/movies, human factors of video games;
- ❖ Entertainment Robots and Physical Systems: entertainment robot systems, toy robots and pet robots, entertainment robots for man-

machine interfacing, physical games and mental games;

- ❖ Music Informatics: MDI and its extensions, acoustic computation, computer music for home entertainment, new musical instruments, sound and voice for entertainment;
- ❖ Sociology and Psychology of Entertainment: modeling and representation of emotion, mind model for entertainment, psychological aspect of immersion, future of entertainment; social significance of entertainment;
- ❖ Virtual Reality Technologies for Entertainment: generations of virtual entertainment environment, interactions in virtual environment, mixed reality technologies for entertainment.

- **Commercial or business applications**

Computers are needed to perform business operations that require handling large amounts of data. Several computer applications are available to assist business in working with large volumes of data.

Examples are:

- ❖ Text processing
- ❖ Accounting and Finance management
- ❖ Inventory control
- ❖ Database management
- ❖ Statistical analysis

- **Scientific – engineering and research applications**

- Using computers for scientific research, complex mathematical calculations, design work, and analysis and control of physical systems.

Examples are:

- ❖ Space technology
- ❖ Meteorological observatory systems
- ❖ Astronomical investigations

- ❖ Design of machines and
- ❖ Control of manufacturing process

- **Information Utilities**

Information utility companies use large computers that store huge amount of information about many different subjects. These computer systems and their vast amount of data are available for personal use. For example: information utilities can allow a computer user to read the daily news, research published works, send a letter to a friend, play games, make airline reservations, obtain the latest stock market quotations, and perform many other activities.

Example: Internet.

Ethiopian airline is a member of World-Wide reservation system called Gabriel system.

- ❖ The main database is located at Atlanta, Georgia
- ❖ More than 48 airlines including EAL share /extract/transmit information using Gabriel.

Facilities included:

- ❖ Booking of passengers on Domestic and International flight on EAL or Other carrier (eg. Lufthansa).
- ❖ Making hotel reservation for the travelers (i.e. the system is connected with major hotels & travel agents)
- ❖ Message correspondence with all stations which are members of Gabriel (i.e. reconfirmation space availability, etc)

Elements involved in the reservation system are:

- ❖ Computer Network;
- ❖ Computer terminal;
- ❖ Communication Channels (telephone lines, satellite, etc)
- ❖ Modems

Electronic Banking and Service:

Example: Teller Machine (customers are issued cards that permit them to use other banks teller machine's)

Online banking (A bank in which a customer can use his/ her computer to check

account balances, transfer funds, pay bills)

- Shopping from Home

Individual may now shop by computer in the comfort of their home.

- Household Control

A growing number of the newer houses hold devices are computers, controlled. For example: Security systems, refrigerators, microwave ovens, washers, stereos, and televisions. This computer controlled home security system monitors movements, broken glass, unlawful entry without a security code, and so on, and alerts the local police department.

- Weather and Environment

Computer equipment may show temperature ranges, precipitation levels and wind flow and can be used in weather forecasting. Computer can also help in overcoming environmental hazards.

- Transportation

Computers have affected almost every kind of transportation. Many aircraft can fly under the control of the computer; in this situation, the captain simply serves as a manager by telling the computer what to do. In Cars, computers have provided functional controls such as spark and fuel control.

- Medical and Health Care

Computers have long been used by hospitals for routine record keeping. Today, however, many people owe their lives to the computer. Computers are used in hospitals as sensors (device that detect changes in blood pressure, heart rate, temperature), testing (scan the body and provide 3-D figure), patient treatment.

- Routine and Dangerous Tasks

Computers are used in routine tasks. And they can perform tasks in environments that are too dangerous for human workers.

- Consultant (Expert system)

An Expert system is a computer program, which can solve problems from a specific knowledge base. These systems don't replace expert humans because the knowledge base of expert system is given from the skilled specialist.

Example: Mycin (a medical diagnostic program by using sophisticated decision making process).

1.5 Classification of computers

Types of computers

There are different types of Computers. Their difference is depends on different categories of characteristics.

Classification by the method of operation (processing)/depending on the type of data they receive and process

They are classified into three:

1. Analog

Analog computers operate by measuring. They deal with continuous variables; they don't compute directly with numbers, rather, they operate by measuring physical magnitude such as pressure, temperature, voltage, current etc.

Examples

- Thermometer
- Voltmeter
- Speedometer
- Gasoline pump – Contains an analog Computer that converts the flow of pumped fuel into two measurements, the price of the delivered gas and the quantity of pumped fuel.
- They are special purpose computers.
- Analog computers have limited accuracy

2. Digital Computers

Digital computers deal with discrete variables; they operate by counting rather than measuring. They operate directly up on numbers (or digits) that represent numbers, letters, or other special symbols.

Examples:

- Abacus
- Desk and pocket computers
- The general purpose computers

Digital computers have higher accuracy and speed than the analog ones.

3. Hybrid computers

The best features of analog and digital computers can be combined into a single device to form a hybrid computer. Hybrid computers process the information by collecting input data with analog method, convert it into digital quantities, processes the digital values and convert the output from digital to analog form.

Example:

In hospital, insensitive-care unit analog devices may measure a patient's heart function, temperature and other vital signs. These measurements may then be converted into numbers and supplied to a digital component in the system. This component is used to monitor the patient's vital signs and to send an immediate signal to the nurse's station if any abnormal readings are detected.

Classification by purpose of application

Computers can be applied or used for different purposes. Based upon their application, they are classified as special purpose or general-purpose computers

1. Special purpose computers

They are designed to solve a single type of problem, that is their components and function are uniquely adapted to a specific situation involving specific application.

Example:

- The public telephone box
- Traffic control system
- Ticket machines (used in grocery, super market etc.)
- Pocket calculators etc.
- Counters

Most analog computers are special purpose computers.

2. General-purpose computers

They are designed to solve variety of problems through the use of “store program concept”.

A program or set of instructions designed to solve a problem is read and stored into the memory and then it is executed by the computer one by one. The same computer can be applied to solve another set of problem using different program. General-purpose computers are more flexible and versatile.

Examples

- Micro computers
- Mini computers
- Super computers etc.

Classification by physical size, price, capacity and performance

At this stage, by a computer, we mean a general-purpose digital computer. There is a wide variety of general purpose digital computers on the market place today, in terms of physical size, price, capacity, and performance. They are then classified as follows by their capacity and size:

Super computers: - are the fastest, largest and most potential types of computer.

They have speed of hundreds of millions of operation per second, a primary memory capacity of about 80 million characters, a secondary memory capacity of about 20 times its primary memory.

They are multi-user systems in intercontinental range.

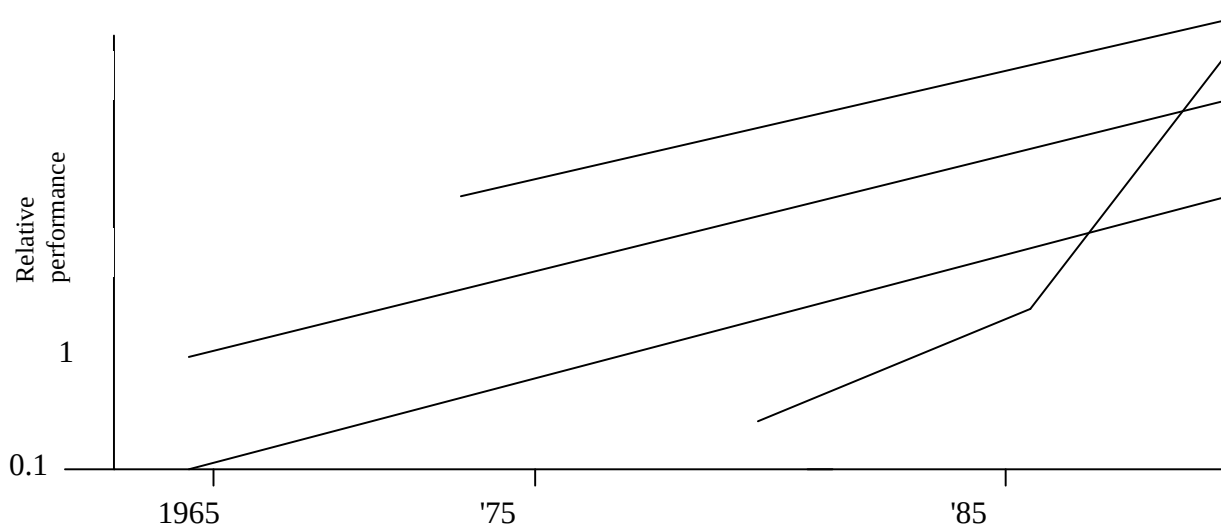
They can carry out enormously complex scientific calculations.

They are used to process huge amount of data and are commonly used in space technology centers, meteorology stations, astronomical observatories, intercontinental communications and airline organizations.

Mainframe computers: - Smaller in size and capacity, lower in speed & memory capacity than the super computers. However, they are multi-user systems and handle hundreds of users, usually used in large organizations.

Mini computers: - have relatively lower speed, can handle multi-users, are smaller in size than the mainframe computers. They use terminals for inputs and output. Mini computers are used in small organizations.

Micro computers:-micro computer (personal or desktop computer) is a computer whose CPU is microprocessor. Microprocessor is a processor, all of whose components are on a single integrated-circuit chip. Since its CPU is integrated in a single circuit, it can serve only a single user at a time.



Most home and personal office computers are microcomputers. The relative performance and usage of personal computer is relatively increased with a very high rate. They are the smallest and least expensive computers ever existed. They are also called personal computers (PCs) as many individuals purchase them for personal use. Based on their size, microcomputers may be classified in to two major classes:

- I. **Desktop computers:** represent computers that are not easy to be moved from place to place. They are computers that stay at a given desk in an office or home.
- II. **Portable computers:** represent computers that can be moved from place to place easily. Laptop and, Notebook computers are examples of portable computers.

Modern electronic computers were first developed during the 1940s. The first commercially available computer was the UNIVAC I in 1954. MARK I (1937-1944), ENIAC (1943-1946), EDVAC and EDSAC (in 1949) were developed at deferent Universities of the world.

Generations of computers

Although computer professionals do not agree on the exact dates or specifics, computer developments are often categorized by generations. Actually computers are categorized into **five generations** namely first, second, third, fourth, and fifth generations. Circuit elements used, secondary storage media used, computer languages used, type or characteristic of operating systems used, and memory access time are some of the characteristics that distinguish various generations of computers.

First generation (1950s)

- Used vacuum tubes as components for the electronic circuit.
- Punched cards were the main source of inputs, and magnetic grams were used for internal storage.
- Operate in a speed of milliseconds (thousands of a second) and could handle more

than 10,000 additions each second.

- Most applications were scientific calculations.

Second generations (early 1960s)

- Transistors were the main circuit components. (Transistors are a solid state device made from silicon which is smaller, cheaper, faster, dissipate less energy and more reliable than vacuum tube but work in the same way as the vacuum tube.)
- Invented by Bell Labs.
- Magnetic tapes (similar with home tape cassette), used for main storage,
- Operate in microseconds (millionths of a second) with more than 200,000 additions possible each second.
- Business applications become more commonplace, with large data files stored on magnetic tape and disk. (Magnetic disk: is a circular platter constructed of metal or plastic materials coated with magnetizable substance.)
- High-level languages COBOL and FORTRAN were introduced during this period. Batch operating systems that permitted rapid processing of magnetic tape files are used.

Third generation (late 1960s, early 1970s)

Characterized by solid-state logic and integrated circuit (IC) (A single, self-contained transistor is called discrete component. In early 1960, electronic equipment composed of discrete component transistors, capacitors, resistors, were manufactured and were separately packed in their own containers and soldered (wired together) on a circuit board. So, the entire manufacturing process was cumbersome and expensive. Due to these and other problems in 1958, the achievement that revolutionized electronics started the era of microelectronics: the invention of integrated circuit.

- Computer storage switched from magnetic cores to integrated circuit boards that provide modularity (expandable storage) and compatibility (interchangeable equipment)
- New input/output methods such as optical scanning and plotters.
- Software become more important with sophisticated operating systems, improved programming languages,

Fourth generation (late 1970s,early 1989.)

- Greatly expanded storage capabilities and improved circuit.
- Has a large-scale integrated circuits (LSIC) which has several hundred thousands transistors placed on one tiny silicon chip.
- Computer memory operates at speeds of nano seconds (billionths of a second) with large computers capable of adding 15 million numbers per second.

The fifth generation computer is in progress. An architecture, which makes use of the changes in technology and allows a simple and natural methodology for solving problems, is being sought. These computers will have intelligent processors i.e., processors which can draw inferences. Users will also be able to interact with them in natural languages such as English, German etc. Japanese's are working intensively on the project for developing the 5th generation.

The fifth generation (the future generation) – Components of this generation are said to be truly intelligent machines, that is machines that learn from experience, incorporate Artificial Intelligence (AI), understand speech and process accordingly and can process natural language. As a matter of fact, these machines are said to incorporate almost all the virtues that human beings have. It is also a threat that human beings may no longer be indispensable. The characteristics that appeared in each generation are summarized in table 1.2.1 as described below

Table 1.2.1: Generations of computers

	Circuit elements	Secondary storage media	Languages	Operating systems	Typical access time	Invention Period
First Generation	Vacuum tubes	Punched cards	Machine and assembly	Operator controlled	1 millisecond	1946-1958
Second Generation	Discrete transistors	Magnetic tape	COBOL, Fortran	Batch	100 millisecond	1959-1965
Third Generation	IC*	Magnetic disk	Structured languages	Interactive (time sharing)	100 microsecond	1966-1971
Fourth Generation	VLSIC**	Mass storage	Applications oriented	Virtual	1 nanosecond	1972-present

Note: * Integrated Circuit, **Very Large Scale Integrated Circuit

Summary of the development of computers

- Getting smaller in size and volume;
- They consume less power (some use dry cell battery);
- They have large memory capacity;
- They are getting more reliable;
- They are getting cheaper; and
- They are becoming more user-friendly.

1.6 Computer system component

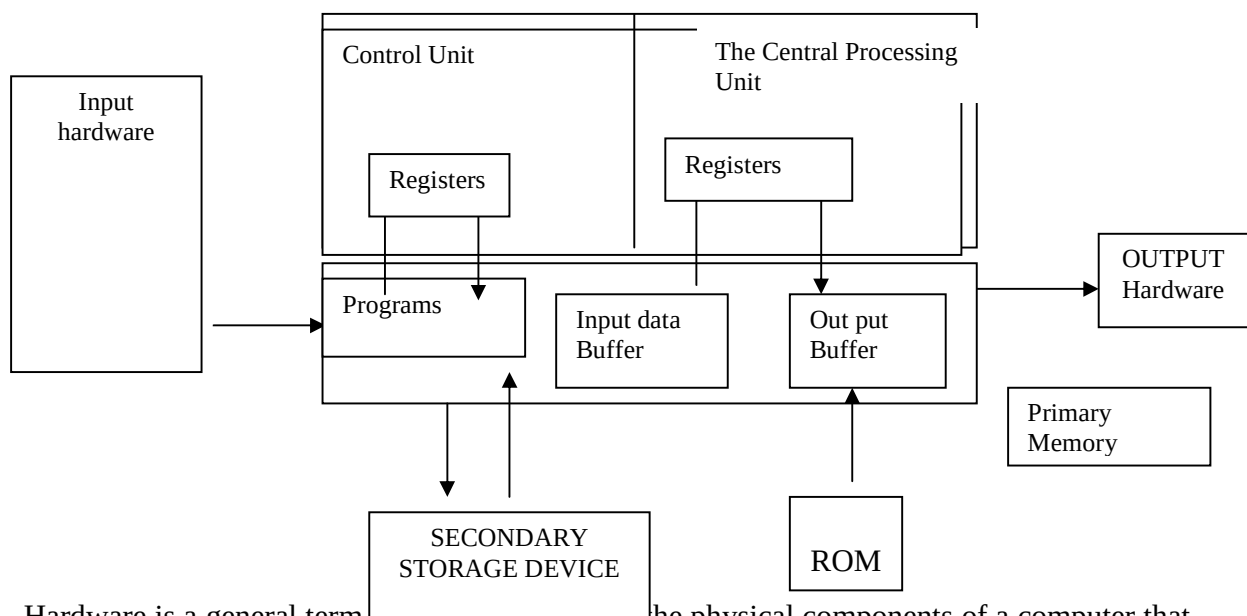
System is a group of components, consisting of subsystems or procedures that work in a coordination fashion to achieve some objective.

A computer system is composed of components that are classified either as **Computer hardware** or **Computer software**.

1.6.1 Hardware components

Computer hardware is the physical part of the computer that you see, you use to something is missing and the parts you can touch. The hardware part of a computer system is composed of a number of interacting physical parts based on the need of the information flow.

Information flow in the computer hardware



Hardware is a general term for the visible part of the physical components of a computer that you can see and touch. In simple term, hardware is the assemblage of metallic and plastic components that make up the computer. The computer hardware is composed of a number of electronic and electromechanical parts, which interact with each other in order to perform a

given task. The computer hardware falls into four sections namely: input devices, the Central Processing Unit (CPU), output devices, and storage devices.

Dear students, the following section gives you a brief illustration on the major hardware components of the computer system.

1.6.1.1 Input Devices

Input devices are the parts of the computer hardware that are used to convert data or information into electronic machine-readable form. They allow you to enter data, programs, commands, and user responses in to a computer. Input devices are used to gather data and send them into the microprocessor for processing.

Input devices:

- ☞ Are units used to enter data into the computer so that it can be processed.
- ☞ Convert information from a form suitable to human beings to one understandable by the computer.

The commonly used input devices are:

- ☞ Keyboard (which is the most widely used input devices)
- ☞ Disk drives (floppy and hard-disk drives)
- ☞ Mouse
- ☞ Image Scanner
- ☞ Light pen (a photo cell to choose a displayed response to request further information).
- ☞ Voice synthesizer;
- ☞ Microphones;
- ☞ CD-ROM Drive, etc.

What is keyboard?

It is one of the widely used input device. It is a device with buttons or keys that a user presses to enter data or information in to a computer. Keyboard contains the letters of the alphabet, numbers (0-9), symbols such as, *, ?, \$, #, @, %, &, (), [], { }, /, etc.

Most keyboards found on the market today include about 105 keys. Its 12 function keys which are labeled **F1, F2,...,F12** are arranged at the top row of the keyboard, On the last row it has a large space key. The keyboard also consists of numeric keypad, cursor movement keypad, typing keypad, computer control keys, and toggle lights.

Mouse and Cursor

A mouse is a small handheld rolled plastic box with a ball embedded in its underside and connected to the computer terminal with a cable. A mouse allows you to enter data to the computer without the use of a keyboard. It has usually two or more button which users press to select items from a menu or click on graphical objects on the computer screen to send commands to the computer. By rolling the mouse across a flat surface, you can control the position of the cursor on the screen. A **cursor** is a blinking line on the computer screen that indicates the point at which character will be displayed.

The buttons on the mouse are used to select items and make choices on the screen. It also reduces user input by moving away from typing commands at the keyboard to clicking on buttons or other items displayed on the screen. To indicate your choice of actions from lists or icons displayed on the screen, you press one of the mouse's button found on the top of the mouse. This is called a "mouse clicking".

Can you describe about single click, double click, and dragging?

Single click: Moving the mouse pointer over the desired item and quickly pressing the left mouse button once. **Double click:** refers to moving the mouse pointer over the desired item and quickly pressing the left mouse button twice in rapid succession. By holding the left mouse button down, moving the mouse pointer to the desired item and releasing it is called **dragging**.

What is Image scanner?

A **scanner** is a device that reads text or images (including drawings, charts, graphs) on a paper and converts the information in to a form that the computer can manipulate. Scanners use visible light or laser. The activity of converting visual information in to a format that can

be managed within a computer system is known as image processing. Scanners come in several sizes from small handheld to large scanners that can scan full page of a document at once. Scanners operate just like photocopy machines. But the image scanned using scanners will be transferred into digital format and stored in the computer memory or secondary storage for further processing. Scanners are very popular in publishing applications, where there is a need to input pictures or drawings to incorporate into textual documents. **Microphones** are used to gather and transfer sound information into the computer when the computer is a multimedia system. A multimedia system computer is a computer that processes multiple types of information.

Some other input devices include light pen, joystick, touch sensitive screen, magnetic tape, digital cameras, audio and video input devices, bar-wands, etc.

Special Input Units

1. Magnetic Ink Character Recognition Systems

- It is intensively used by U.S. banking industry to input information on checking account transactions. It has been in use since the 1950s, allows checks and deposit slips to be read both by people and by machines. The machines, called magnetic ink character readers, read and convert the characters into machine code by detecting the presence of magnetized particles in the ink on the checks or deposit slips. As many as 1500 checks per minute can be read and stored.

2. Optical Recognition Systems

Optical Recognition Systems fall into two categories. The first and most advanced are the Optical Character Recognition (OCR) systems, which are able to recognize hand-printed and typewritten characters. The second type of optical character recognition is referred to as Optical Mark Recognition (OMR). OMR doesn't utilize letters of the alphabet. Instead, it uses electronic scanners; marks and symbols are converted into appropriate electronic

signals. A typical example of an OMR application would be computerized test forms. OMR systems are also used to read bar codes such as the Universal Product Code (UPC).

1.6.1.2 The Central Processing Unit (CPU)

Central processing unit (CPU) of a computer is the “**brain of the computer**”. It serves as the main information processor in a computer. It receives signals from the many devices, reads and writes data from, and to memory, generates signals (information) after performing a processing activity. Information that needs to be stored in the CPU is stored in a CPU memory location called register. In microcomputer system the most important component of the CPU are the microprocessor and the memory.

Processing Power of Computers

The potential and capacity of a computer is measured by different parameters. Some of these parameters are:

a) Capacity of the computer

Processing speed of the processors:- Processing speed is measured in Hertz, a unit used in the definition of frequency.

20 Hz = 20 cycles per second

1 KHz = 1000 cycles per second

1 MHz = 1 million cycles per second

1 GHz = 1 billion cycles per second

b) Primary memory storage capacity and its speed or access time (the time it took to read a data or write a data

c) Secondary storage devices capacity and their access time

d) The efficiency and capability of the programs used.

The processors

➤ In large computers like mainframe and mini computers, the processor is often called a

Central Processing Unit (CPU).

- In minicomputer or personal computer, the processor is sometimes called Microprocessor or just processor
- A microprocessor is a semiconductor device consisting mostly one software controlled LSI chip which performs the functions of automatic data processing.
- Processors are not optimized to perform complex numerical calculations and other special tasks (graphics manipulations). For this purpose, specialized coprocessors which are also called math-coprocessors have been developed to increase the processing capability of a computer and speed up complex mathematical floating-point calculations

- The coprocessors operate in parallel with CPUs.

Examples are: 8087, 80287, 80387 and 80487

Family of processors

- The first processor, **Intel 4004**, a 4-bit microprocessor, was introduced in 1971 by Intel Company.
- An 8-bit microprocessors were introduced by a number of companies:
 - The Motorola's Mc 6809 Microprocessors
 - The Zilog's Z80 and Z800 Microprocessors
 - The Mos Technology's 6500 series Microprocessors
 - The National Semiconductor's NSC 800 Microprocessors etc.

Processors of the Intel 86 family

- The ancestors of the 86 family are: the 4000, 8008, 8080A and 8085 A microprocessors.
- Computers store and manipulate information as bits.
- We can characterize a processor by saying how many bits it can work at a time and how many bits it can send or receive at a time.

Intel Microprocessors

<u>Microprocessor</u>	<u>Word length</u>	<u>Clock frequency</u>
8086	16-bit	5-10 MHz

8088	8/16-bit	5-8 MHz
80186/186	16-bit	6-8 MHz
80188	8/16-bit	6-8 MHz
80286/286	16-bit	6-12.5 MHz
80386dx/386dx	32-bit	20-33 MHz
80386sx/386sx	16/32-bit	20 MHz
80486/486	32-bit	25-66 MHz
(80486Dx, 80486SX)		
Pentium	64-bit	180 MHz

Motorola Microprocessors

<u>Microprocessor</u>	<u>Word length</u>	<u>Clock frequency</u>
6800	8-bit	1 MHz
6809	8-bit	4-8 MHz
68000	16/32 bit	10-25 MHz
68020	32-bit	12.5-33 MHz
68030	32-bit	20-33 MHz

Generally, CPU:

- Is the most costly and main component of the computer system;
- Consists of the Control Unit and the Arithmetic Logic Unit and main memory;
- The three parts work together to electronically control the function of the computer;
- The different parts are interconnected by a cable like device call, which is used to facilitate communications between the parts. Buses are used to transfer data, address and control code (signal).

Its Purpose consists of:

- Fetch instruction: The CPU read instruction from the memory

- Interpret instruction: the instruction must be decoded to determine what action is required
- Fetch data: the execution of an instruction may require reading of data from memory or an I/O module.
- Process data: the execution of an instruction may require performing some arithmetic or logical operation on data.
- Write data: The result of an execution may require writing data to memory or an I/O module.

In order to do these, the CPU needs to:

- temporarily store some data
- remember the location of the last instruction
- store instruction and data temporarily while execution

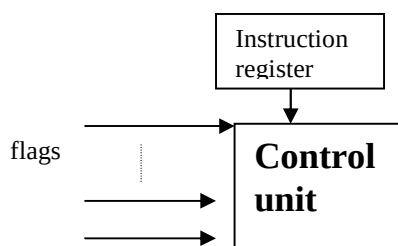
in other words, the CPU needs a small internal memory called registers.

The microprocessor consists of two parts namely: the **control unit (CU)** and the **arithmetic and logic unit (ALU)**.

ALU performs arithmetic and logical operations using the binary number system (binary number systems are explained later in this unit). Typical operations performed by the ALU are **add, subtract, negate, divide, shift/rotate, and multiply**. Logical operation such as **less than, greater than, or equal to, ascending and descending order**, etc are manipulated by ALU at a very high speed.

The CU is responsible for controlling the overall operation of the computer system. Its main function is to fetch, interpret, and control the execution of program instruction stored in memory. It directs and coordinates all units of the computer. It does not execute the instruction itself; rather, it directs other processing elements to execute the instruction.

The Control Unit



Registers

- As the name implies, it performs all the control functions of the computer.
- It retrieves the instruction from memory.
- Translates those instructions into computer functions and sends signals to other computer hardware units to carry out those functions.
- It is also responsible for determining the next instruction to be executed by the computer.
- In general, it serves as the computer traffic cop.

The Arithmetic Logical Unit (ALU)



- It is referred to as the computer's "number cruncher".
- It performs the arithmetic calculations of addition, subtraction, multiplication, and division and comparisons and is used to keep track of and execute instructions.
- All modern digital computers can do is addition; multiplication is merely a continuous addition; subtraction is the addition of the complements of the number to be subtracted; division is the addition of complements.
- Registers are paths or conduits that connect the Arithmetic Logical Unit to the main memory.
- When an instruction is loaded from main memory, it is placed first in the register to wait for instructions from the control unit.
- Data are also stored in registers prior to execution in the ALU.

CPU possesses its own characteristics. The main characteristics of CPU are machine cycle time, word length, and the capacity of the main memory.

Machine cycle time: is the time in which a machine cycle occurs. It is measured in fractions of a second. Machine cycle times range from Millisecond (one-thousandth of a second)

Microsecond (one-millionth of a second), and Pico second (one-trillionth of a second) for faster ones.

Word length: in a computer system, data do not move in continuous stream, but in groups of bits (a bit is a binary-digit: **0** or **1**). The system performance, specially the speed, can be affected by the number of bits the CPU can process at any one time. These numbers of bits are called the word length of the CPU.

Capacity of main memory: refers to the amount of data or information that the primary storage can store at a time (primary storage is explained later in this unit). The more amount of data or instruction that can be kept in main memory the faster the processing capacity of the machine will be.

Memory: memory refers to the device which is designed for information storage purposes.

Any data to be processed must be stored in a memory.

Memory is used:

- 1) to store data until they are transferred to the ALU for processing;
- 2) to store data and results during intermediate stage of processing;
- 3) to hold data after processing until they are transferred to an output device; and
- 4) to hold program statements or instructions received from input devices and from

secondary storage.

Main Memory or Primary Memory or RAM

- ☞ Is the memory which is directly accessible by the control unit and ALU;
- ☞ Usually, it is referred as Random Access Memory (RAM), because each memory location can be accessed without having to work sequentially through hundreds or even thousands of memory locations called addresses;
- ☞ Each memory location can be referred by its memory location (address);

- ☞ Holds instructions and data elements which are currently being used by the computer;
- ☞ The data in the main memory will be lost when the power is off;
- ☞ Parts of the CPU may also contain Read Only Memory (ROM).

- ◆ This type of memory is integrated into the circuitry of the computer and can not be altered without altering the computer circuitry;
- ◆ Is used to store programs and data that are used frequently and permanently;

Due to high price of a primary storage memory of a computer system, the need to have other type of storage to hold large amount of data in a less expensive and yet accessible manner is evident. Hence, secondary storage devices were created with this need in mind.

➤ **Random Access Memory (RAM):** is the main memory used by the CPU as it processes information. The largest area of the memory within the computer is composed of RAM chips. RAM is volatile, changeable, and power dependent. This means RAM stores data or information as long as the computer is turned on. In other words, if the computer is turned off or electric power has gone, all the information in the RAM will be lost.

➤ **Read Only Memory (ROM):** is static, non-volatile memory. In other words, information which the computer frequently needs for its operation is stored in the ROM. You can read its content, but can't change it. Once stored at the time of manufacturing, the contents of ROM cannot be altered. They are unchangeable and permanent. Data is permanently recorded on the small component memory chips, and turning the computer off does not affect it.

ROM is used to store the basic set of instructions, called the Basic Input–Output System (BIOS), which the computer needs to run when it is first turned on.

EPROM (Erasable and Programmable ROM) can be programmed by you or any other user. Its content can also be erased by exposing it to ultra–violet light.

EPROM is another special type of ROM, which can be programmed by you (user). Its content is erased by applying a specific voltage to one of its input pins whilst providing the appropriate timing signals.

1.6.1.3 Output Devices

Output devices, as the name implies, are devices that are used for getting result or processed data out after processing of the data. Output devices consist of external devices that are used to get data out of the computer's CPU to you so that it can be examined, analyzed, or distributed to others. It converts the results of processing to a form that is easy to understand by human beings.

There are a number of output devices of the computer system. In this material, **Monitor/Screen** and the **Printers** are discussed. Other output devices included plotters: microfilm recorders, speakers, overhead projectors, disk drives, etc.

- It is used to get data out of a computer so that it can be examined, analyzed or distributed to others.
- It convert the result of the only-machine understandable form to a form understandable by human beings.

Examples

- The Visual Display Unit (VDU) or monitor or screen
- Printers (dot matrix, desy wheel, laser printers)
- Plotters
- Voice (audio) response unit
- Disk drives

What is Monitor (Video Display Unit-VDU)?

Monitor is known by various names such as video display unit (VDU), Visual Display Terminal (VDT), cathode ray tube (CRT), display screen, monitor or screen. It is a computer

terminal that usually looks like a television screen in most personal computers. It is the passive part of the computer system, just showing the text and /or images (i.e. soft copy) prepared by the processing unit.

Monitor can be classified into monochrome and color screens.

Monochrome and color screen?

Monochrome screens usually are black and white, green and black, or amber and black.

Color screens can display several colors and many different shades of each color. Screens can also be different in size and resolution.

Printers

A printer is an output device that is used to produce a permanent hard copy output from a computer by converting digital information into marks on a paper or any other medium. In other words, a printer allows you to print out on paper a copy of the screen or the data that is being processed by the computer. Printers are available in both color and black and white. Color printers are slower and more expensive than black and white ones.

Types of printers

Printers can be categorized in several ways. Only some are discussed as follows

Impacts and Non-impact:- Impact printers physically strike the paper (the inked ribbon will make contact with paper). They can be used where carbon copies are needed. Example Line printers and Dot-matrix printers.

- **Non-impact printers:-** These printers use other techniques such as thermal and electrostatic for printing on the medium. Non-impact printers can not be used when carbon copies are needed. Examples include: Ink-jet, LaserJet printers, etc.

Considering the method of printing, printers are grouped into: **character printer, line printer** and **page printer**.

- Character printers print character by character. Examples include :dot-matrix, Ink-jet, Thermal, Daisy-wheel printers, etc.
- Line printers print a line at a time. Examples of such printers include Band, Chain, and Drum printers that are commonly associated with large computer installations or networks.
- Page printers print a page at a time. Good examples of this type include Laser Jet printers.

1.6.1.4 Storage Devices

Storage is the computer's ability of retaining information for future use. All information processed by a computer can be expressed as numbers in binary notation. These binary numbers are strings of bits (**0s** and **1s**), which are grouped together in sequences of eight to form byte. The two values of a bit can be physically stored in storage media in a variety of ways. Basically, the storage function of a computer system takes place in the computer's **primary storage** unit or memory and the **secondary storage** devices.

1.6.1.4.1 Primary storage unit

The CPU processes information and maintains it temporarily in RAM in the form of strings of bits called files. As you have seen earlier, main memory (primary memory) serves as a temporary memory and is used only when the computer is actually working on the instructions in a program. When you want to store data or information for future use, the primary memory has some practical limitations on the size of main storage that processors can easily be made to operate with. To overcome such limitations, secondary storages are the practical solution for their mass storage capacities.

1.6.1.4.2 Secondary storage

Secondary (auxiliary) storage device is any storage medium that is external to the computers; but that can be read by the computer. They serve to hold data and programs which will be transferred to the main storage when required. They are also used to transfer data or programs from one computer to another computer. We can also use them as back up devices to take back up data and programs. They can take many forms, which have traditionally included punched cards, papers tape, magnetic tape, magnetic disk and magnetic drum.

Sequential Access Medias

Punched Cards

Punched cards are one of the oldest and most familiar forms of data storage. There are two types of punched cards : 80 – columns and 96 – columns and the first one is a standard punched card. Using one card we can represent 80 characters.

If only a numeric punch is in any column, it represents whatever number is punched out.

12 punch and	11 punch and	0 punch and
1 A	1 J	1 S
2 B	2 K	2 T
.	.	.
.	.	.
.	.	.
9 I	9 R	9 Z

Punched Paper Tape

Punched paper tape is a continuous strip of paper used to store data in much the same manner as punched cards. The paper tape is approximately one inch wide and can have either six or eight channels. Eight channels paper tape is based on the ASCII code. This storage media is less expensive and more compact than punched cards.

Magnetic Tapes

Magnetic tapes are a particularly popular form of secondary storage because of their high data density (the number of bytes of instruction per inch of tape) and their convenience in handling. Magnetic tapes are approximately one - half inch wide and are made of Mylar – based plastic film which can be magnetized. Data are stored on a magnetic tape by running the tape over the electromagnetic called read/write head which magnetizes small spots on the tape. Seven-track tapes store information as bytes of information, where each byte consists of a six-bit code and a one-bit parity bit. Nine-track tape uses an eight-bit and a parity bit.

Disk drives and **tape drives** are both commonly used secondary storage devices with their respective media disks and tapes.

Disk storage

Disks are used to store data, applications software, and operating systems software. In early days, the principal form of storage was magnetic tape. Nowadays, it has been replaced by disk-based storage medium because of its reliability, decreasing cost per bit, reduced access time, higher transfer rates, reduced size and power requirements, increased capacity and the like.

A data reading and writing device called disk drive is used to read the data stored in secondary storage devices and transfer it to RAM as well as to write it into secondary storage devices whenever required. There are different types of disk storage devices. You will look into **Magnetic storage** and **Optical storage**

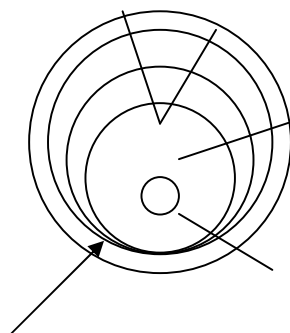
Magnetic Storage- Magnetic Storage devices are devices that record data by magnetically aligning metallic particles on the medium. Magnetic disk drives are of two types: floppy drives and hard drives. Floppy drives use flexible diskettes as a storage media, while hard disks are made from the same element as that of floppy drives, they hold more data and are faster than floppy diskettes.

Floppy diskette is a popular storage medium of microcomputer system. It is a removable medium which can be transferred from one system to another. The diskette is made up of plastic coated with a magnetic material and is enclosed in a protective envelope.

Floppy diskettes come in several sizes and capacity. The first floppy diskette was 8 inch in size. This was superseded by the 5.25 inch diskettes. The diskette which is widely being used is the 3.5 inch floppy diskette. It has the capacity of up to 1.44 MB which was only 300 kilobytes for the 8 inch floppy disks. Zip and jaz disks are also other variations of floppy diskettes. They have high storage capacity and are used for backing up hard disks.

Floppy disks

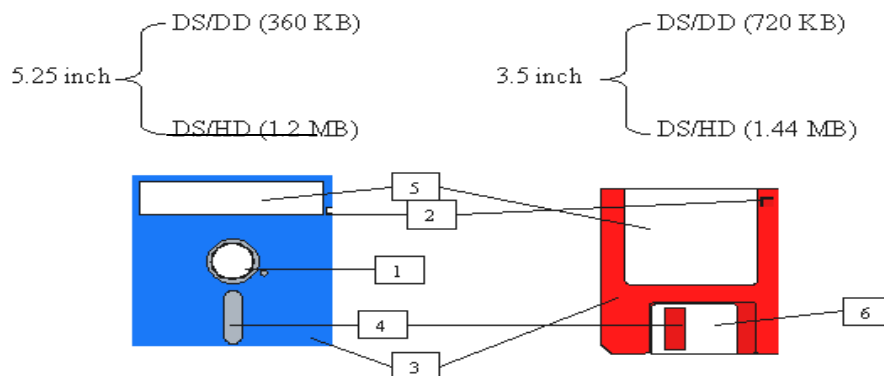
- Also called flexible or diskette.
- Used to store programs and data for a longer period outside the computer system.
- Often used with mini and micro computers.
- Data is stored in concentric circles called **tracks**.
- Each track is further divided into sectors
- A sector stores the amount of information that can be read or written in single operation.



Track

Storage Capacity of floppy Disks.

The most widely used type of floppy disks are the 5.25 inch and the 3.5 inch floppy disks. Each has two standard sizes.



1. **Disk Hub**:- is the portion of the disk that the disk drive used to rotate the disk
2. **Write protect Notch (opening)**:- for the 5.25 inch floppy disk when the notch is uncovered, the disk's data can be modified. When the notch is covered with a write protect tab (provided with the disk), the contents of the disk can't be modified, which prevents accidental file deletion (although it can still be read and copied). For the 3,5 inch floppy disk, when the opening is open (uncovered), the contents of the disk can not be modified, which prevents accidental file deletion (although the disk can still be read and copied). When the opening is closed the disk's data can be modified and data can be written on the disk
3. **Disk jacket**:- the jacket surrounding the disk protects the storage media from dust, finger prints and scratches from other sources.
4. **Read/ Write opening**:- allows the read/write head inside the disk drive to have access to the storage media. As the disk rotates in the disk drive, the read/write head within the drive accesses the information contained on the disk via this opening.
5. **Disk label**:- is used to label the disk so as to identify the data stored on it.
6. **Shutter**:- a moveable metal or plastic plate that protects the disk media from dust

Rules for handling Floppy Disks

Floppy disks are magnetic devices which store data on them. Improper handling of floppy disks may result in losing the data stored on the disk. It is therefore necessary to know the following rules to protect your disks and/or your data on it from damage.

- Never place the disk near magnetic devices, keep the disk away from your telephone since telephone boxes contain magnetic units.
- Always place disks back into their envelope when you are not using them.
- Never touch your floppy disk media.
- Never smoke near floppy disks.
- Store your floppies in a safe location.
- Keep at room temperature of the range of 10 °c to 50 °c.
- Always make a backup copy of your floppy disk.

Disk drive:- is the part of a computer system which reads from and writes data on a disk.

Hard Disk

Hard disk is a disk which is made up of rigid aluminum. It is fixed inside the system unit of almost every computer and is not removable. Most of your software programs and work files (things you do not want to lose) are stored on a hard disk.

- It is high capacity magnetic disk made up of metal which can be fixed in the system unit of the computer.
- Serves as a secondary storage.
- Enables very fast accessibility of data.
- Accessing data from hard disk is faster than from floppy disks.
- The disks, which are usually grouped together into a disk pack, are separated by small air spaces to allow access for read/write head.
- Each disk has approximately 200 tracks on which information is stored. Tracks of the same number on all adjacent disks are referred to as a cylinder of that disk.

- The disk pack is mounted on a magnetic disk drive which rotates the disk at speed up to 1,000 revolutions per second.
- The total collection of tracks available on one movement of the access mechanism is known as cylinder.
- The amount of time it takes to retrieve (or store) data from (or to) disk is called the disk access time.

Some advantages of hard disks

- It takes short time to access data from hard disk;
- It is Protected by the system unit from dust and physical damage; and
- It has High storage capacity as compared to floppy disks.

Optical storages are the second type of disk storage.

Dear students, unlike magnetic drives, optical drives use optical disks as their media. They provide extremely high storage capacity than magnetic disks. They use highly focused laser beam to read from or write into the surface of the disk .

There are three types of commonly available optical disks:

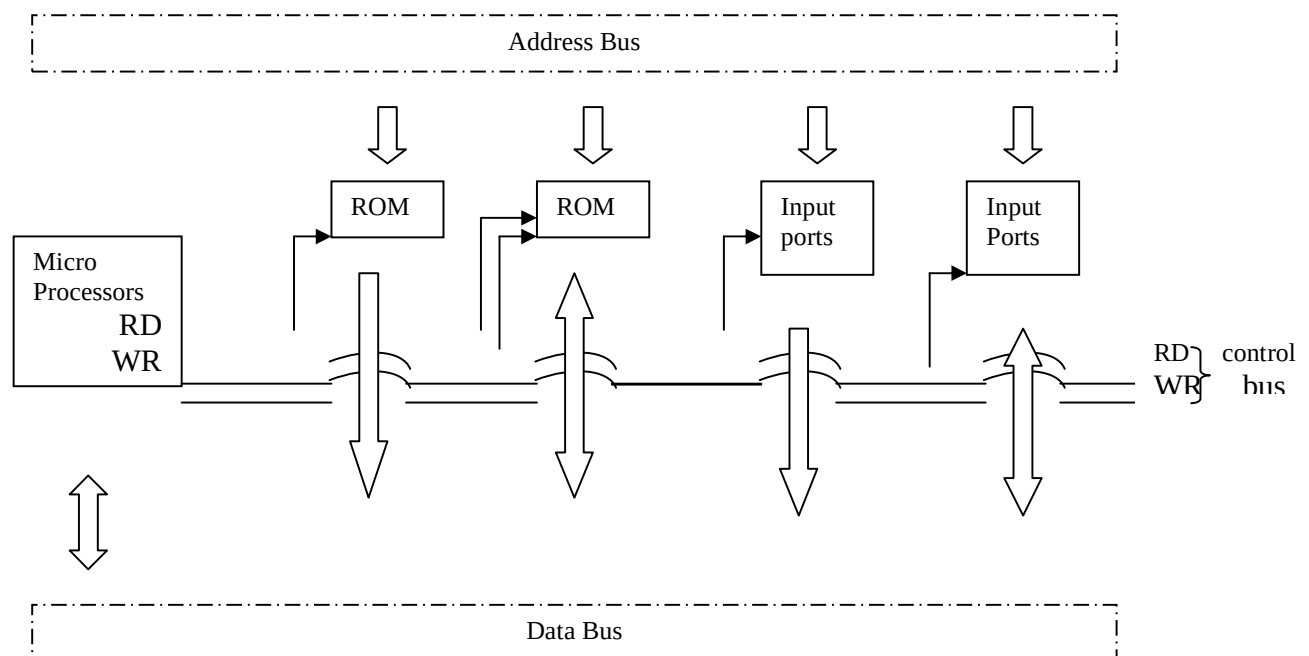
1. CD-ROM (Compact Disk Read Only Memory): is an optical storage system that you can only read from, but you cannot write to it. Nowadays, however, there are erasable optical disk systems. These disks permit data to be written on disk many times for example, CD-RW (CD-Rewritable) is used. To read from CD- ROM you need a CD-ROM drive on your computer.
2. WORM (Write Once Read many times) allows you to write data to a disk but only once. From then onwards, just like CD-ROM, data can be read many times. Dear student, until recently, most optical disks could be written only once, but recent advances in laser technologies allowed the reuse of optical disks.
3. Erasable Optical Disks (EOD) allow data to be erased and written to it just like magnetic disks as many times as you want.

Tape storage

Tape drives use magnetic storage media which are called magnetic tapes. It allows information to be stored and accessed sequentially. Magnetic tapes vary in sizes and densities.

Interconnecting Components in a Macro Computer and Information Movement in a Computer System.

We have seen that there are different components of a computer and each performs a specific function. But, to perform a given task in synchronized form, there should be some mechanism of communication. For this reason, there is an electronic circuit which produces communication path between the different components of a computer system along which data are transferred, that is Bus. The bus, which communicates the different parts of the CPU is called Internal Bus. And the bus, which communicates the CPU with memory and peripheral devices, is called External Bus. The size of the bus determines the speed or efficiency of the computer.



Address Bus: - is a unidirectional bus over which digital information is transferred to identify either a particular memory location or particular I/O address.

Data Bus: - a bus system which interconnects the CPU, memory and all the peripheral Input / Output devices of a computer system for the purpose of exchanging data.

Control Bus: - a bus used to select and enable an area of main storage and transmit signals required to regulate the computer operation

1.6.2 Software components

What is software?

Software is a collection of programs and routines that support the operations of performing a task using a computer. Software also includes documentations, rules and operational procedures. Software makes the interface between the user and the electronic components of the computer.

Software is a set of instruction or programs that order the hardware what to do or to do something. It is an essential component of the computer system. Without the software, the computer hardware cannot solve your problems. Therefore, software is a key for productive use of computers. A computer can become a valuable tool if and only if it possesses the correct software.

Software as a whole is divided into two major classes based on the types of work done by programs. These categories of software are system software and application software.

1.6.2.1 System software

The system software is general-purpose software that is used to facilitate the utilization of the hardware. It consists of instructions or programs that are used to manage the hardware resources of a computer and perform required information processing tasks. It provides the

interface between hardware and the user. Important categories of system software are: operating system and programming languages.

System software

- ✓ Constitutes those programs which facilitate the work of the computer hardware.
- ✓ It organizes and manages the machine's resources, handles the input/output devices.
- ✓ It controls the hardware by performing functions that users shouldn't have to or are unable to handle.
- ✓ System programs make complex hardware more users friendly.
- ✓ It acts as intermediate between the user and the hardware.
- ✓ It enables the computer understand programming languages i.e. it serves as means of communication between user and a computer.

The important categories of system software are:

- a). Operating system
- b). Language software

1.6.2.1 Operating system

Operating system coordinates the activity between the user and the computer. An operating system has three major functions. Operating system is a program that coordinates and manages the computer and the various resources and devices connected to it. It controls and supervises the overall performance of the computer. It also provides an interface between a user and an application program and the hardware. Directing all processing activities within the computer, calling in other systems software when needed, scheduling jobs, allocating storage facilities, activating input and output devices, etc. are some of the importance of operating systems software.

i. Controlling operations (control program)

- Coordinates, or supervises the activity of the computer system.
- Decides where programs and data should be stored in the computer memory.

- Handles communications among the computer components, applications software and the user.
- Controls the saving and retrieving of files to and from disks in the disk drive.
- It performs all its controlling tasks without the involvement or awareness of the user.

ii. Input/output Management

- The I/O manager coordinates the computers communication with outside world, flow of data to the display screen and other output devices (printers/ plotters) and from the keyboard or other input devices.
- Handles the flow of data to and from the disk drives (file management).
- Handles the process of preparing a disk for use, the copying, renaming, erasing task of a file.

iii. Command Processing (Command Interpreter)

- It interprets the commands or what you enter using the keyboard or other input devices.
- If you write an internal command, it carries out the function of that command if it is external command or other executable file it searches for the corresponding file in the default (current disk) or the user specified disk, loads the file into memory and transfers control to that program. Once this program is terminated, control returns to command and the program for that command or file is discarded from memory.

Types of Operating Systems

Operating systems can be classified by:

- The number of programs they can handle at a time and
 - The number of users they serve at once at one or different stations (i.e. terminals or micro-computers connected to a central computer).
- i. Single tasking operating systems
- With single tasking operating systems, only one program can be run on a computer at a time.
 - In order to run another program, one must remove the first program loaded in the

computers main memory and load the other one (i.e. it can't handle two or more programs at a time)

- These types of operating systems are single user or can serve only one user at a time.

ii. Multi user operating system

- It supports a number of workstations connected to a central system.
- A number of users can use the resources of one high capacity computer by the help of terminals.

iii. Real Time Operating System

- A real time is a system that is capable of processing data so quickly that the results are available to influence the activity currently taking place.

Example:

- Airplane seat reservations and computer controlled plant.
- Its primary characteristics are that it responds to an event within a well-defined time.

B). Language Software.

Language software is systems software that serves to write set of instructions or programs that are required to solve a problem. They provide a set of rules, symbols, and special words to construct a program.

- Is a software which is used by programmers to develop application software and translate programs to machine code.
- Language software is a generic name consisting of various programs that serve as editors and translators to develop programs in a number of programming languages.
- Includes:- translators, general purpose routines and utilities and high level languages
 - ◆ Translator:- is a program that converts one or more languages to another language. Three types of translators are assemblers, Compilers and interpreters.
 - ◆ Assembler:- is a program that translates assembly languages into machine

code.

- ◆ **Compiler:-** is a program that translates a high level language into machine code. (Pascal, Fortran COBOL)
- ◆ **Interpreter:-** is a program that translates each instruction of high level language and executes the instruction before translating the next instruction.
- ◆ The general-purpose routine and utilities include programs which are used to handle file processing, editing and debugging.
- ◆ High level language software is a software which has its own compilers to detect syntax errors of the user's program code.

Example: COBOL, Fortran, Pascal. etc.

Examples of operating systems

MS DOS, Windows, OS/2, UNIX, and Macintosh are some of the most commonly used operating systems on personal computers. You will learn about some of them in their respective sections.

Application software

The second category of software is application software. This section gives you a brief introduction on application software. Application software is a collection of programs designed to perform tasks for specified areas, i.e. it solves problems of specific nature. These are programs that do real tasks for you.

How can you differentiate system software and application software?

The difference between application software and system software is that, system software facilitates conditions for effective utilization of hardware system for different applications, while application software is used to solve a given user problems with the aid of computers.

The following are some of the tasks accomplished using application software:

- ❖ Preparation of document (e.g. letter, publications, books, etc);
- ❖ Accounting work for organizations;

- ❖ Management of databases in different institutions;
- ❖ Keeping customers accounts in banks;
- ❖ Drawing designs of buildings;
- ❖ Administrative data handling;
- ❖ Research and development;
- ❖ Test scoring;
- ❖ Online search services;
- ❖ Planning and forecasting, etc.

Popular examples of application software include: Word Processors, Spreadsheet Software, Database Management Systems, Computer Graphics, etc.

a) Word Processors

Word Processing is the set of all the operations you perform in **creating, modifying, storing printing any type of written document by machine (computers)**. It is the most common application of microcomputer. Using word processors, it is possible to prepare letters, reports, memos, and other documents. After creating a document, you can edit, reorganize, correct spelling, change margins, delete, and so on without retyping all of it.

Examples of word processors include: WordPerfect, WordPad, Microsoft word, etc.

b) Spreadsheet software

Spreadsheet software application programs automate the tasks used to be done manually on paper worksheet in accounting ledgers. Most spreadsheet software provides a blank forms or worksheets for you to organize data in to **rows and columns**. Once you enter the data, you can apply formulas that show the interrelations of the numbers on the worksheet. Popular examples of spreadsheet programs include Lotus 1-2-3 Quattro pro, Microsoft Excel etc.

c) Database Management Systems (DBMS)

A database is a collection of related data. It may be created and maintained manually or it may be computerized. A computer database is created and maintained by database

management systems (DBMS). A DBMS, therefore, is a collection of software which is used to **create, store, modify, and access** data in a database in a uniform way. Database software allows you to enter, retrieve, and update data in an organized and efficient manner.

The major purpose of a DBMS is to make data available to you and all authorized users when required. Popular examples of database management software include Dbase IV, Paradox, FoxPro, Microsoft Access (MS Access), Oracle, SQL Server etc.

d) Computer Graphics

Computer graphics is the technique of creating, editing, displaying and printing graphs, diagrams, charts and images in a computer system. Graphics can communicate information that would be difficult or even impossible to put into words. Two basic kinds of computer graphics application programs are Business Graphics Programs and Interactive Graphics Programs. Both business and interactive graphics can be used in an audiovisual presentation and to store a series of graphics images for future use. Popular examples of graphics software include: Lotus Freelance, Harvard Graphics, Print master, etc

1.7 Computers and the Legal system

In today's computer-based world, the use of computer for legal professionals is an ever-increasing issue in the world. When you work as an attorney to protect intellectual property rights, every minute of every day really counts. Researching case history, technological advances, responding to email, creating motions and working discovery tasks keep these legal professionals tied to a computer all day.

The importance of “reasoning” in law is pointed out. Law and jurisprudence belong to the “reasoning-conscious” disciplines. Accordingly, there is a long tradition of logic in law. The specific methods of professional work in law are to be seen in close connection with legal reasoning. The advent of computers at first did not touch upon legal reasoning (or the professional work in law). At first, computers could be used only for general auxiliary

functions (e.g. numerical calculations in tax law). Gradually, the use of computers for auxiliary functions in law has become more specific and more sophisticated (e.g., legal information retrieval), touching more closely upon professional legal work. Moreover, renewed interest in AI has also fostered interest in AI in law, especially for legal expert systems. AI techniques can be used in support of legal reasoning. Yet, until now, legal expert systems have remained in the research and development stage and have hardly succeeded in becoming a profitable tool for the profession. Therefore, it is hoped that the two lines of computer support, for auxiliary functions in law and for immediate support of legal reasoning, may unite in the future.

SUMMARY

Information is a collection of facts and figures which is organized in meaningful manner to be used in decision making. It is becoming a vital resource that has great value to generate other resources. The sources from where you obtain information are classified into two: documentary and non-documentary.

Valuable and useful information has got such characteristics as accuracy, timeliness, completeness, relevance, economic accessibility, flexibility, and reliability. Information technology is an interdisciplinary academic field that deals with the generation, collection, organization, storage, retrieval, and dissemination of recorded knowledge whether in the form of numerical data, text, sound or image. Basically, constituents of information technology are computers, communication network and know how.

Information technology is applied in all sectors and areas. It is used to solve problems, unlock creativity, and to make people more effective than they would be if they did not involve IT in their activities.

Information system is the system which outputs information. In other words, the system provides us with either data or information relating to an organization's operations.

Before you get information, the data should pass through several processing operations such as: recording, duplicating, verifying, sorting, merging, calculating, storing, searching, retrieving, summarizing and reporting.

EXERCISE 1.1

Part I. Write “True” if the statement is correct or “False” if the statement is wrong.

1. Computers and telecommunication technologies are the major constituents of information technology.
2. Information is said to be accurate if it is delivered at the right time when it is needed.
3. There is a clear demarcation line between data and information.
4. Data can be considered as factual information that is basic for reasoning.
5. Information is not substitutable.
6. Information can be derived from data.
7. Processing changes data into information.
8. A computer does not provide its own output unless people provides with the inputs required.
9. This course material can be considered as a primary source of information.
10. There is clear boundary between data and information.
11. Single click or simply click means moving the mouse pointer over the desired item and quickly pressing the left mouse button once.
12. Computers enable data to process into information faster, easier, and better.
13. A microcomputer uses a microprocessor as its CPU.
14. One-way of categorizing a computer is by the type of data they process.
15. A mouse is a communication device used to convert between digital and analog signals so that telephone lines can carry data.
16. The processor and memory are found in the central processing unit of a microcomputer.
17. A floppy disk is considered to be a form of input device.

18. Every user of a computer should have a high degree of technical understanding of computers.
19. Software is a term that describes the instructions that direct hardware.
20. The invention period of first generation computer was in 1970s.
21. A handheld input device that controls the insertion point location is a mouse.
22. The binary number system uses only two digits (0 and 1).
23. The activity of converting visual information into a format that can be managed with in a computer system is known as image processing.
24. Memory refers to the device which is designed for information storage purposes.
25. One of the major function of CPU is performing arithmetic and logical operations by using decimal number system.

Part II. Match the correct term or phrase from column “B” to column “A”.

<u>A</u>	<u>B</u>
1. Monsters (Supercomputers)	a) Keyboard
2. Mainframes	b) Prints a line at a time
3. Minicomputers	c) CRAY and CYBER
4. Microcomputers	d) Medium sized computers
5. First generation computers	e) Video Display unit (VDU)
6. Second generation computers	f) use vacuum tubes as circuit element
7. Third generation computers	g) their circuit elements are discrete transistors
8. Fourth generation computers	h) use integrated circuits
9. Fifth generation computers	i) print character by character
10. Output device	j) equivalent to 8 bits
11. Input device	k) use VLSI
12. Line printer	l) intelligent machines
13. Character printer	m) Slower than super computers
14. Page printer	n) print a page at a time
15. a byte	o) personal computers

Part III. Choose the best answer and write the letter of your choice.

1. The study of information handling and its use in society by means of modern technology is known as _____.
 - a. telecommunication
 - b. information technology
 - c. information
 - d. data
2. Which one of the following does not belong to the primary components of IT?
 - a. Battery
 - b. Computer
 - c. Communication network
 - d. All
3. A collection of characters which has the lowest level of meaning is said to be:
 - a. data
 - b. information
 - c. information technology
 - d. processing
4. Which one is not included in information processing activities?
 - a. Input
 - b. processing
 - c. output
 - d. collecting
 - e. none
5. The form of data that can be computed and processed by using computer and communication network include
 - a. numerical data
 - b. text data

- c. sound and image data
 - d. all of the above
6. Which one of the following refers to the understanding of the pattern of information
- a. Data
 - b. knowledge
 - c. wisdom
 - d. a and b
7. The advantage of hard disk is _____
- a. Shorter time to access data
 - b. protected from dust and physical damage
 - c. high storage capacity
 - d. all
8. Which one is used to distinguish various generations of computers
- a. circuit element used
 - b. secondary storage media used
 - c. computer language used
 - d. memory access time
 - e. all
 - f. none
9. Modern electronic computers were first developed during:
- a. 1940s
 - b. 1920s
 - c. 1970s
 - d. 1990s
10. Which one of the following is responsible for controlling the overall operation of the computer.
- a. ALU
 - b. CU
 - c. The Mouse

d. Screen

Part IV. Give short answers for the following questions

1. Discuss the components of information system?
2. Describe two basic sources of information?
3. What is the difference between data and information?
4. Explain the advantages of information technology?
5. What is data?
6. Explain the knowledge spectrum.
7. Discuss the different methods of data processing.
8. Describe the two major types of C.P.U.
9. Explain the bus systems.
10. Compare and contrast hard disk and floppy diskette

Chapter two: Operating system

Objectives:

At the end of this chapter, you will be able to:

- ❖ define MS Windows;
- ❖ identify major tasks that MS Windows perform;
- ❖ define elements of window;
- ❖ open and close a window;
- ❖ manipulate and use menus of the window;
- ❖ run windows application programs;
- ❖ open more than one application at a time;
- ❖ switch between different applications and documents;
- ❖ explain the steps to install and/ or remove application software;
- ❖ copy or move information form one location to another;
- ❖ explain how to share information between documents and applications;
- ❖ exit an application properly when you finish working on a certain application.
- ❖ explain what window explorer is;
- ❖ identify functions of window explorer;
- ❖ start programs from the explorer;
- ❖ manage files using explorer;
- ❖ expand and collapse folders and drives using window explorer;
- ❖ set a wall paper and screen saver to your computer ;
- ❖ customize the task bar;
- ❖ use MS Windows accessories such as calculator;
- ❖ run the paint accessory;
- ❖ create a new point picture and save it;
- ❖ run word pad and create a new document; and
- ❖ format and edit word pad documents.

Introduction

An operating system is a layer of software which takes care of technical aspects of a computer's operation. It shields the user of the machine from the low-level details of the machine's operation and provides frequently needed facilities. There is no universal definition of what an operating system consists of. You can think of it as being the software which is already installed on a machine, before you add anything on your own. Normally, the operating system has a number of key elements:

- A technical layer of software for driving the hardware of the computer, like disk drives, the keyboard and the screen;
- A file system which provides a way of organizing files logically, and
- A simple command language which enables users to run their own programs and to manipulate their files in a simple way. Some operating systems also provide text editors, compilers, debuggers and a variety of other tools. Since the operating system (OS) is in charge of a computer, all requests to use its resources and devices need to go through the OS.

An OS therefore provides legal entry points into its code for performing basic operations like writing to devices.

2.1 Introduction to Ms-windows

Windows operating system controls your computer hardware, runs your computer program and organizes files for you. This section will go through different functions and teaches you how you will be able to use it, how to run windows application, how to install and remove application software.

What is Microsoft Windows?

Microsoft Windows (MS Windows) is an operating system that controls the overall activity of your computer. Windows ensure that all parts of your computer work together smoothly

and efficiently. Here are some of the major tasks that MS Windows performs and common characteristics of MS Windows

- It is used to store files, to run application programs, to make your printer work, to read data from disks, and perform other operations.
- It uses graphical objects such as icons, menu bars, dialog boxes, scroll bars, task bars and more that is easy to you to understand and use.
- It runs your programs. Windows starts and operates programs that let you write letters, analyze numbers, manage finances, draw pictures, and even play games, etc.
- Windows provides ways to organize and manage files stored on your computer. You can use windows to sort, copy, move, delete and view your files.
- It enables a computer to perform several tasks simultaneously, because it is a multitasking operating system.
- You can easily switch between opened applications and share data between them.
- Most application programs designed for windows look similar; for instance, title bars, menus, status bars, icons, commands are often comparable. Hence, once you have learned one application, you have learned a part of them all.

Starting MS Windows and working with windows

How do you start MS Windows?

To start MS Windows

Remove all floppy disks and turn on your computer. After some moment, MS Windows desktop appears. It may looks like the one shown at figure 1.3.1. Depending on the version of window installed on your computer, there may be slight

difference from the one indicated here. Don't worry about the difference. The basic idea is the same.

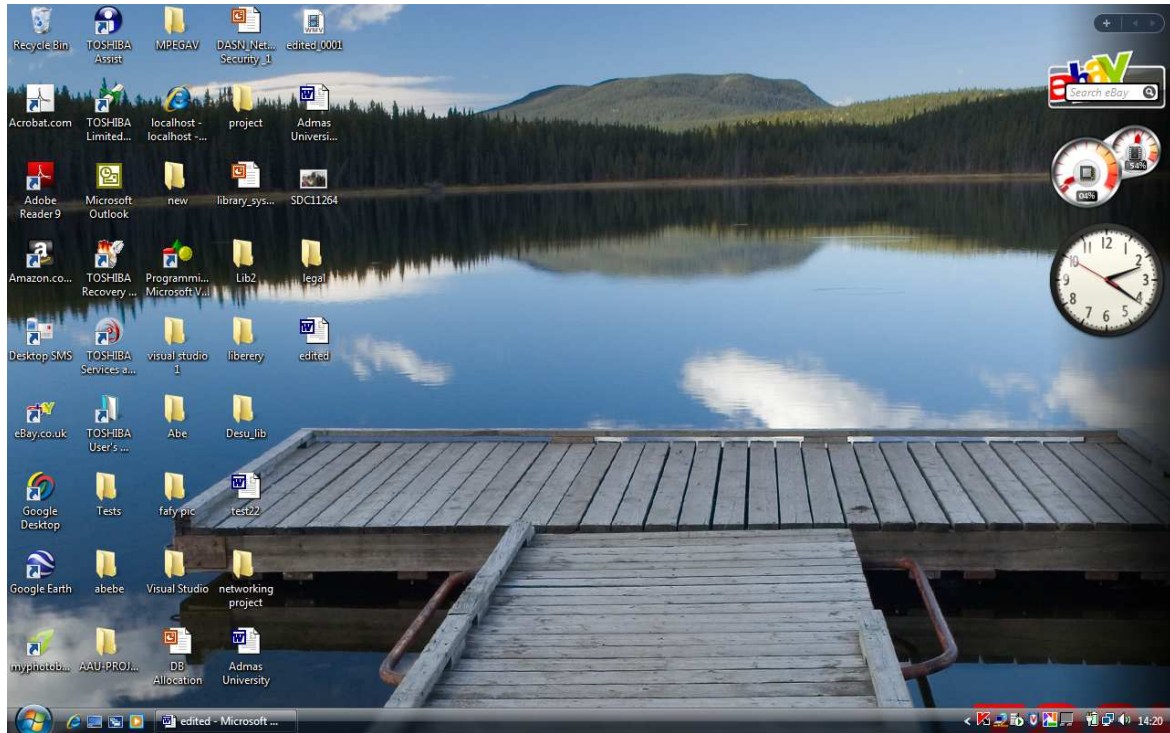


Figure 1.3.1: Windows Desktop

2.2 Icons and desktop

What is Desktop?

When you run windows, the first screen that you encounter is the desktop. Desktop is the entire background of the screen. It displays several icons and the task bar. Through the items that appear depending on how your computer is set up, the following are major elements of the desktop.

Icons: Icons are small pictures that represent programs (Word, Excel, Access, Internet, and more), folders, files, printer information, etc. A file is a collection of data stored on a disk. A folder is a container of files and other folders (sub folders).

Taskbar: The task bar is normally located at the bottom of the desktop (see fig 1.3.1). It contains the **Start** button, name of each opened application on your screen (this lets you easily switch between the open windows), current time and date, and more. The start button displays a menu from which you can choose to start applications, to open a document, to customize windows, to find a file or folder, to get help, or to shut down windows.

2.3 Mouse operations

A mouse is a hand-held input device that enables you to communicate with your computer by selecting, deselecting, moving, deleting, and so on. When you slide (move) the mouse across your desk or mouse pad, a symbol called the MOUSE POINTER moves across the screen in the same direction. You use this mouse pointer to point to an screen object that you want to manipulate. The mouse pointer assumes different shapes (↖, ↗, I, and so on) depending on its location on your screen and the task you are performing.

Selection by mouse involves two steps: **Pointing** and **clicking**.

- To point to an object, move the mouse across your mouse pad until the on screen mouse pointer touches the object.
- Click: Point to an object, then press and release the left mouse button. It is used to select an object, to check an option.
- Right-click: press and release the right mouse button. It is used to open a menu of actions (called shortcut menus) that you can perform on an object.
- Double-click: press and release the left mouse button twice in a rapid succession. It is used to open a program (such as Word, Excel) or an object.

- **Dragging:** When the mouse pointer indicates to an object on your screen, press and holds the button (right or left) while moving the mouse across the mouse pad.

Left -Drag is used to move an object (window, icon, or dialog box) to a new location and also to resize an opened window.

Right- Drag is used to activate a shortcut menu that enables you to move, copy, or create a shortcut to an icon.

Elements of a window

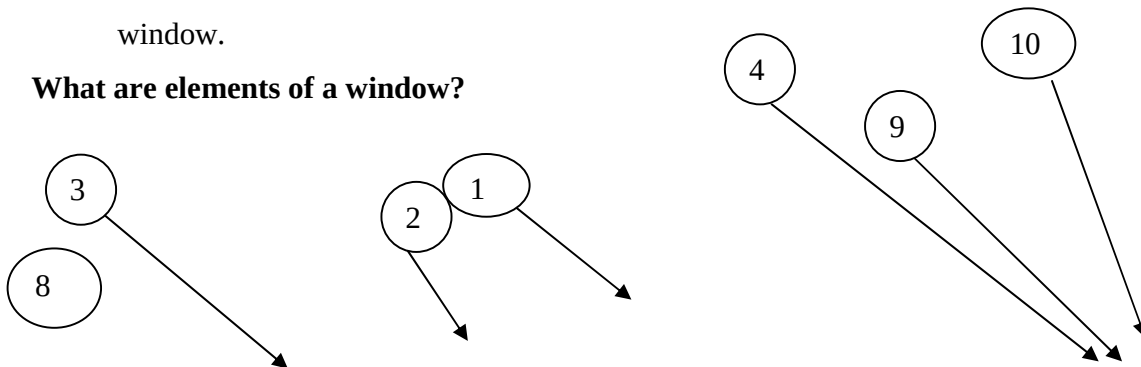
A window is a boxed area on your desktop in which you run programs, open files, type text, draw pictures, view contents of folders, etc.

Opening a window: To open a window, double-click on any icon found on your desktop so that it will turn in to a window.

Figure 1.2.3 shows basic elements that make up a window. Some of them are discussed as follows.

1. **Title bar-** contains the MS Window's name, and the application control menu button, the Maximize (restore) button, the Minimize and Close buttons.
2. **Menu bar-** contains menus with selected commands and options that enable you to control the window and its contents. Menu is a list of related commands that you use to perform tasks in MS Windows and MS Windows based applications.
3. **Tool bar-** contains graphical tool buttons that represent shortcuts to various frequently used menu commands such as: New, Open, Save, Cut Copy, Undo, etc.
4. **Minimize button-** reduces the window to a button on the task bar.
5. **Scroll bar-** A vertical or horizontal bar that enables you to view hidden areas of the window.

What are elements of a window?



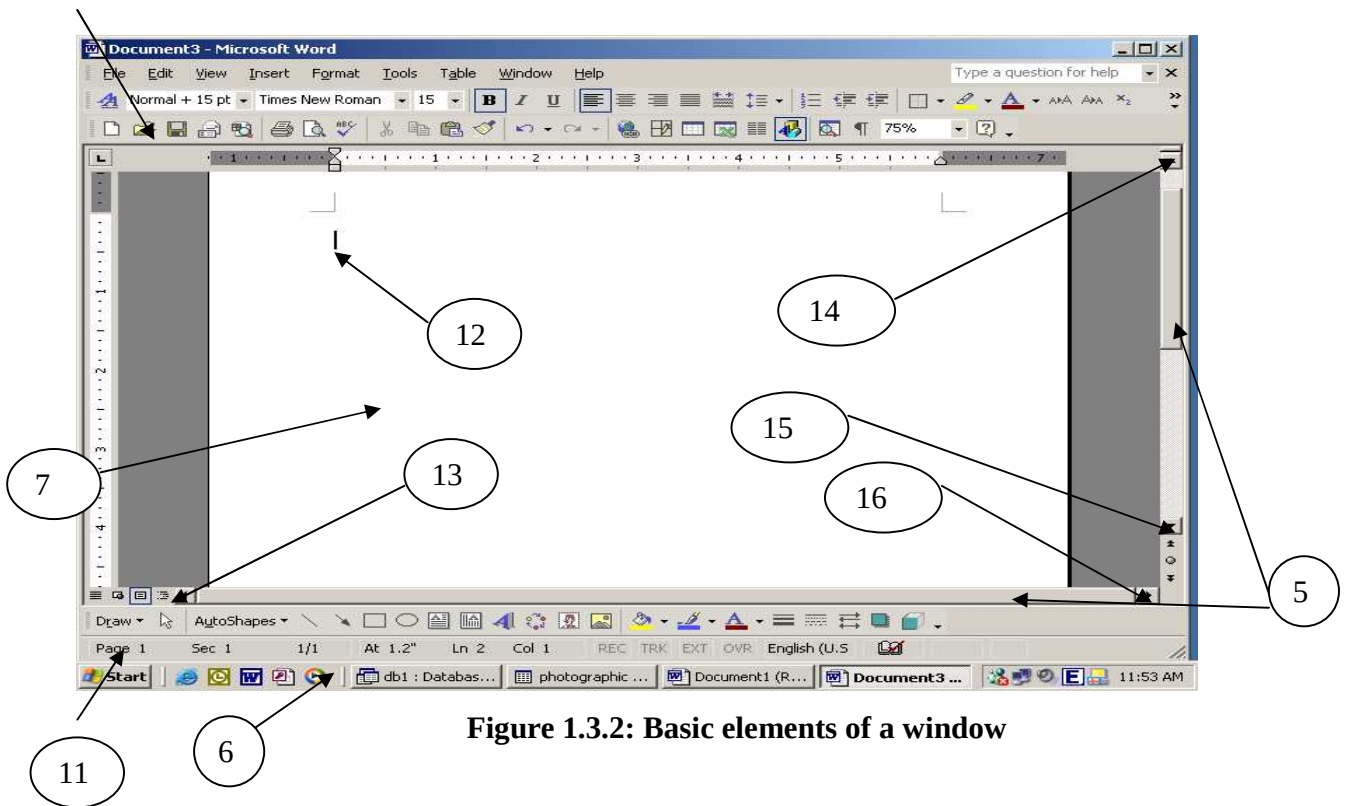


Figure 1.3.2: Basic elements of a window

6. **Task bar-** is a bar which is normally located across the bottom of the window that describes the contents and presents status of the window such as free space, number of objects or files in the window, etc.
7. **Document area-** is a working area where you write text and edit it.
8. **Control menu button-** contains commands that help you manage the window itself.
9. **Maximize button-** enlarges the window to fill the screen.
10. **Close button-** closes the Window.
11. **Status bar-** tells the current status of cursor position
12. **Cursor-** indicates where the next operation takes place
13. **Left scroll arrow-** scrolls one columns to the left at once
14. **Up scroll arrow-** scrolls one line up at a time
15. **Down scroll arrow-** scrolls one line down at a time

16. **Right scroll arrow** -scrolls one columns to the right at once

Maximizing, Minimizing and Restoring a Window

The window can occupy full screen when maximized, and any part of the screen when restored. You can also minimize the window to disappear it as a window at all, but as a button on the task bar.

- ❖ To maximize a window: Click on its **Maximize button**.
- ❖ To restore a window: Click on its Restore button.
- ❖ To minimize a window: Click on its **Minimize button**.
- ❖ To open a minimized window: Click on its **minimized icon** on the task bar.
- ❖ To move the window to a new location: Drag the window by its title bar to your desired location.

Note: The Maximize and Restore buttons do not appear together. That is, when a window is restored, the Maximize button is displayed. Likewise, when the window is maximized, the Restore button is displayed.

Scrolling a window

Sometimes the window is too small to display all the items it contains. To view these items, you can simply enlarge or maximize the window. If the window is still too small to display all its content at once, you can scroll the window to view its contents as follows:

- To scroll a window in small increments, click on its UP, DOWN, LEFT or RIGHT scroll arrows.
- To scroll a window quickly to any desired location, drag its Scroll box.

Tiling multiple windows

When you need to compare information contained in two or more windows at the same time, it is possible to display multiple windows. The technique is called tiling windows.

To arrange all opened MS Windows:

1. Right click on the blank area of the taskbar to open its shortcut menu.
2. Click on the a) **Cascade**: to lay all opened windows on the top of each other so that the title is visible,
b) **Tile vertically**: to resize and move each window so that they all appear side by side vertically.

c) **Tile horizontally**: to resize and move each window one on top of the other horizontally.

To activate a tiled window, click on its title bar.

Shutting down Windows

Be sure to shut down windows following its official command before turning off your computer. To shut down a window, first close all programs using close button on the Title bar; then follow the following steps:

1. Click on the **Start button**
Click on **Shut down** -the Shut down windows dialog box appears.
2. Select **Shut down**
3. Click on **Yes**.

After a few moments, a message appears informing you that you can safely turn off the computer or the computer itself will shut down automatically. Or Click Start, Click Turn off Computer, and then click Turn Off.

Menus, Toolbars and Dialog boxes of a Window

What is a menu and what is its function?

A menu is a list of related commands that you use to perform tasks in Windows and windows based applications. Menu commands are organized in logical and easy way to use groups. The major groups include File, Edit, View, Insert, Format, Help, etc. (see fig: 1.3.2)

To choose a menu command using the mouse:

1. Click on the menu title (menu name) in the menu bar

The menu opens to display the available commands.

2. Click the command you want to select

The result of selecting a menu command will be one of the following depending on the type of command you select.

- a) An action will take place
- b) A dialog box will appear. Any command followed by ellipse (...) displays a dialog box, which contains related options to be chosen. [Dialog boxes are discussed at the end of this chapter].
- c) A secondary menu will appear. Any command followed by an arrow ► displays a secondary (cascading) menu offering related commands.
- d) A feature will be turned ON or OFF. A check mark appears to the left of an option which is turned on.

Another way to access menu is to use the keyboard. This is done by pressing Alt key plus the letter (that is underlined) of the menu which you want to view such as: (File Edit, View, etc). Some of the basic functions of the WordPad menu commands are indicated in table 1.3.1 below.

Table 1.3.1: Some WordPad menu and their functions

Menu	Functions of the command
File	Create, save, print, close, and exit the program itself, open recently opened files, etc.
Edit	To do editing (copying, move, delete, add, etc).
View	Display the different toolbars, etc.
Format	Commands to change the appearance of a document.
Help	Get help on what you are doing or you want to know.

To close a menu without selecting anything from press ESC key from the keyboard or click somewhere else outside the menu.

Shortcut Menus: Windows supplies a variety of quick (shortcut) menus that contain commands related to an item on your screen (for example window, folder, file, etc.).

To display a shortcut menu, right-click on an object. This displays shortcut menu which contains commands related to the icon. Then Click the command you want to select.

To cancel a shortcut menu, click anywhere outside the shortcut menu.

Tool buttons (or tools) represent common commands you often use in windows, such as open, save, print, cut, copy, paste, undo, and so on in the form of small pictures. Toolbar simplifies your work by allowing you to issue commands with a single mouse click instead of having to search through various drop-down menus and submenus. In most applications, for instance WordPad, Paint, MS Access, MS Excel, MS Word, etc., toolbars containing various buttons (or tools) are available.

To use a tool button, click it. One of the following results may occur: an action will take place, a dialog-box may appear, or a secondary menu may appear. For example, if you click the Undo button, the last action you performed is reversed.

What are Dialog- boxes?

Dialog Boxes are used to exchange information with you in windows and windows based applications. A **Dialog box** asks for related information, a program or an application needs in order to complete an operation. A **dialog box** may warn you about a problem or confirm that an operation should take place. The following are some of the components of a dialog box with their explanation:

Text box- provides a place to type an entry, such as file name, etc.

List box- presents a state of possible options from which you can choose. **Scroll** bars often accompany a list box that you can view the items on the list. A text box is sometimes associated with a **List box**. You can either choose from the list or type the selection yourself.

Drop-down list box- is a single line box with a drop-down arrow button to the right. When you click the arrow, the drop-down list box appears to display a list of choices. You can often scroll through a drop-down list as you do a list box.

Option buttons- presents a group of related choices from which you can choose only one.

Check box- enables you to turn an option ON or OFF. You might find a single check box or a group of related check boxes. A check mark appears in the box next to any option that is active (turned on). In a group of check boxes, you can choose **none, one or more** from the options.

Command button- when selected, a command button carries out the command displayed on the button. (Open, Help, Quit, Cancel, or Ok are some examples of command buttons).

Page- represents multiple sections of a dialog box. Only one page (or tab) is displayed at a time, and each tab contains related options.

Windows Applications

Windows application programs are EXE files for DOS and Windows systems. An EXE file is an executable file, which is a file in a format that the computer can directly execute and are not easily read by humans. Executable files for Windows and DOS systems have an EXE extension.

Running windows applications

You can run Windows application programs in different ways depending on the programs installed on your computer. Some ways include:

- Clicking the program's shortcut,
- Selecting the program from **Start button** and open a document of your interest using the **Program's, File, Open** command,
- Double-clicking My Computer icon from the desktop, or
- Using Windows Explorer (windows explorer are explained later in this chapter).

Now we emphasize on how to open programs using **Start button**. It looks like the one indicated in figure 2.3.3

To run an application: click **Start button**, Point to Programs, and then click the application icon of the application you want to open.

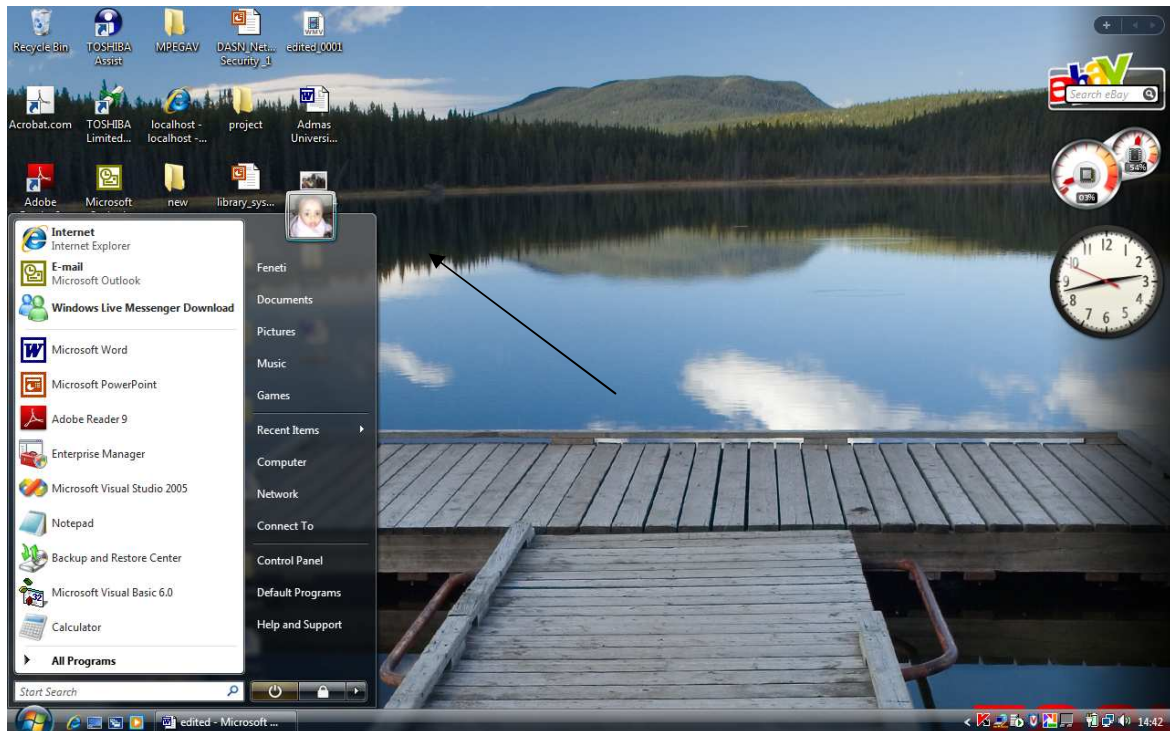


Figure 23.3 Start menu

The following are some basic elements displayed on the screen when you opened an application: **Title bar, Menu bar, Toolbars, Ruler, Scroll bars, a Document area, and a Task bar.**

Working with multiple windows and arranging windows applications.

In MS Windows, you can open more than one application at a time and in each application you can work with multiple document windows too. In addition to move between applications, you can also open multiple documents within an application. Document windows have their own Minimize, Maximize and Restore buttons.

To switch between maximized document windows:

1. Open the window menu of the application
2. Select the document you want to make active from the list of opened documents.

To Tile document windows: 1. choose Window, Arrange All. Then windows reduce each open document window and tile them (horizontally) in the document area.

Installing and removing application software

Window provides a quick way to set up programs on your computer.

To install programs:

1. Click Start button
2. Point to Settings
3. Click Control panel
4. Double- click Add/Remove Programs,

Follow the instruction on your screen to complete installation. When using Add or Remove programs, you can only install programs that were written for Windows operating systems.

To Change or remove a program:

1. Open **Add or Remove Programs** in Control Panel,

2. Click Change or Remove Programs, and then click the program you want to change or remove. Click the appropriate button:
 - To change a program, click Change/**Remove or Change**
 - To remove a program, click Change/Remove or Remove

Copying and moving information

How can you copy? Cut and/or Paste?

In windows and Windows based applications, you can copy or move information (text, graphics, and files) from one location to another. This helps you to share information between document windows, and between applications.

This chapter will familiarize you with how you can select a text, copy, cut, paste information from the clipboard to a document or application. Clipboard is especially reserved memory that is used to keep the data that you cut or copy until you cut or copy something else.

Selecting text for copying or moving

To copy or cut a text, you must identify the text by selecting it. The selected text appears in a reverse video (highlighted). There are different ways of selecting a text.

Using the mouse:

1. Position the pointer just in front of the first character (letter) you want to select.
2. Click and drag the pointer to the end of the character you want to include in the selection.
3. Release the mouse button; the text is highlighted/ selected.

Using the keys on the keyboard

1. Position the cursor just before the first character you want to select.

2. Press the SHIFT key and then press the arrow key until the last character you want to include in the selected item is highlighted.

What follows after selecting a text to be moved?

After you select the text you want to move, you can cut or copy it. The technique for copying and moving are the same in almost all Windows applications.

To Copy and Paste information:

1. Select the text or graphics you want to copy,
2. Click the Copy tool from the **Toolbar**, (or choose Edit, Click **Copy**, or Press **Ctrl+C** from the keyboard). By doing these, a copy of the selected item is placed in the clipboard.
3. Place the insertion pointer where you want to insert (move) the selected item.
4. Click the **Paste** tool from the **Toolbar**, (or choose **Edit**, click on **Paste**, or press **Ctrl+V**).

You can paste as many times as you want because the selected item remains on the clipboard until you perform another copy or cut command.

To cut and Paste information, the procedure is more or less similar with that of copy and paste information. But you could not find the original information in its original location after you apply a cut command on it.

1. Select the text or graphic you want to move (cut),
2. Click the Cut tool from the **Toolbar**, (or choose Edit, Click cut, or Press **Ctrl+X**),
3. Place the insertion pointer where you want to enter the selection,
4. Click **Paste** tool from the **Toolbar**, (or select **Edit**, Click **Paste**, or Press **Ctrl+V**).

Viewing the content of the clipboard

The clipboard, as you have seen earlier, is especially reserved memory that is used to keep data that you cut or copy until you cut or copy something else.

To view the content of the clipboard.

- Select Start,
- Programs,
- Accessories and Clipboard Viewer.

In the Viewer, you can save the contents to a file, add or remove text, make a correction, and open saved clipboard files.

Exiting an application

Whenever you finish working on a certain application, you should always exit. This is done by closing applications. If you open more applications before you close the previously opened one, the speed of your computer becomes slower. Closing an application makes free the occupied memory by that application, and makes your computer faster.

To exit an application, you may follow one of the following methods:

- a) Choose **Exit** from the **Application's File Menu**,
- b) Click the **Close** button of the application window, or
- c) Choose **Close** from the Control menu box of the application window.

2.4 Working with folders and files

Managing folders

Before taking any action (such as move, copy, rename, create, delete, etc), you have to select folders.

To select a folder using Window Explorer:

1. Expand the disk drive on which the folder you want to select is stored (if it is collapsed click on plus sign if any)

2. Expand the parent folders until the folder is displayed if the parent folder is collapsed.
3. Click on the folder. To select more than one folder, click each icon while holding the CTRL key.

Moving and copying a folder

To move or copy a folder from a tree pane to content pane:

1. In the tree pane, display the folder you want to move or copy and select the destination.
2. Redisplay the folder you want to move or copy, if necessary by displaying a tree pane.
3. Right-drag the source folder (tree pane) to the blank area of the destination (contents pane) and release the mouse button, a shortcut menu appears.
4. Click **Move Here** (to move the folder), or **Copy Here** (to copy it).

To move or copy folders from the contents pane to the tree pane:

1. Display the destination in the tree pane.
2. Display the source folder (**s**) in the contents pane. If you are moving/ copying multiple folders, select the folders while holding the **CTRL** Key.
3. Right- Drag the source folder(s) from the contents pane to the destination in the tree pane and release the mouse button. If you are moving/copying multiple folders, drag anyone of the selected folders.
4. In the shortcut menu, click on Move Here, or Copy Here.

To create a new folder:

- o In the **Tree pane**, select the location (drive, folder, My Computer, or Desktop) in which you want to create your new folder.
- o Choose File, New Folder, A new folder appears at the bottom of the Contents pane.
- o Type a name for the new folder
- o Press ENTER key.

To rename a folder:

1. Right- click on the Folder: A shortcut menus appears;
2. Click on **Rename**;
3. Type your new folder name;
4. Press ENTER key.

To delete a folder:

1. **Right- click** on the Folder
2. Click on **Delete**, the confirm folder delete dialog box appears.
3. Click on **Yes** to perform the deletion, or click on **No** to cancel it.

Finding folders

If you have forgotten your target folder's exact locations or name you can search through your folder tree. In such case, you can use the **Find Utility** to quickly find a folder or group of folders on your computer.

To find a folder:

1. In the Explorer, choose **Tools, Find, Files** or **Folders**
2. Open Name and location tab
3. In the Name text box, type the name of your target folder or file. You can type the full name or any continuous part of it. Make sure that it includes subfolders. Subfolder's check box is checked.
4. Click Find **now, or Search** to find another folder, repeat this procedure.
5. Click the close button to exit the find program.

Managing files

You can use windows Explorer to move, copy, rename, delete, and find files. However, before taking actions on files you have to select the file you want to manipulate.

To select single file in the explorer:

1. In the tree pane, select the location (Folder, Drive, or Desk top) in which the file is stored

2. In the contents pane, click on the file icon.

To select multiple files:

1. In the Tree pane, select the location in which the files are stored
2. CTRL+ Click on each file icon.
3. To deselect a file in a multiple selection, CTRL + Click on the icon.

Note. - In the Tree pane, you can open only one folder at a time.

To copy or move files:

1. In the Tree pane, display the destination (Folder, Drive, or Desktop).
2. In the Tree pane, select the source.
3. To move or copy a single file, right-drag it from the Contents pane to the destination in the tree pane.
4. Click on the **Move Here**, or **Copy Here**.

Note: 1. To move or copy multiple files, select these files in the contents pane and right drag any of the selected files to the destination in the Tree pane.

2. In addition to the drag and drop technique, you can use the cut/copy and paste buttons of the Toolbar to move/copy files and folders.

To view a file, folder or drive properties

- a. Right-click on the file, folder, or drive (in the Tree pane or contents pane of the Explorer)
3. In the shortcut menu that appears, click on Properties.

2.5 Windows explorer

What is MS Windows Explorer?

MS Windows Explorer is a folder/ file management program that you can use to:

- View and change the contents of your folders and files;
- Move, copy, rename, create and delete folders and files;

- Start programs and open documents;
- Find folders and files (that is, where they are located);
- View and change the properties of folders and files and more.

Starting Windows explorer and the Explorer panes

To start Explorer:

1. Click on **Start** button
2. Point to programs to open the programs menu
3. Click on the Explorer program icon.

Or

-Right click on start and click on explore

The Explorer window is divided in to two panes: The Tree pane (folder pane), and the Contents pane (see figure 2.3.4).

The Tree pane (folder pane)

The Tree pane (folder pane) is found at the left of the Explorer window. It displays your folder tree, the branching structures of your computer's drives and folders. You use the tree pane to view a disk's folder tree and to manage (select, rename, delete, etc.) your drives and folders. Folder pane is basically similar with an inverted tree. At the top is your desktop (the trunk), followed by My Computer and disk drives (huskiest branch). Below that are parent folders (thinner branches), and at the bottom there are subfolders (baby branches).

The Contents pane

The content pane, which is found at the right of the Explorer window, displays the folders and files that are contained in the drive or folder selected in the Tree pane. You use the contents pane to view and manage the contents of the selected drive or folder. You can scroll each Explorer pane separately by using the vertical scroll bar located to the pane's right.

The plus sign (+) in front of some folders indicates the folders which are hidden (i.e. collapsed). Hence, clicking the plus (+) sign displays (expands) its content and automatically a minus sign (-) will be displayed preceding the folder's or drive's icon. In other words, the plus sign indicates that the folder/drive have subfolders which are hidden. Similarly, clicking the minus sign will hide (collapse) it's content and will be replaced by the plus sign. The absence of a plus or minus sign in front of a folder or drive indicates that the folder/drive does not have any subfolders in it.

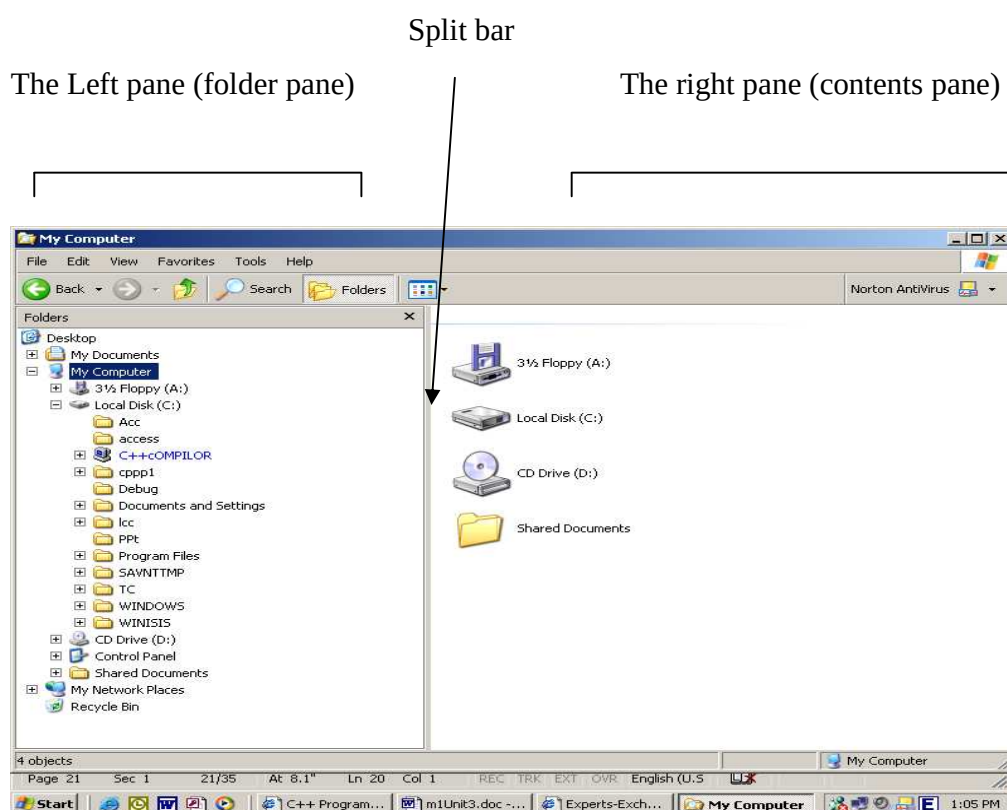


Figure 2.3.4 Explorer window

Customizing the desktop

The control panel is a special MS Windows folder that contains a set of utility programs that you can use to customize MS Windows. You use the display program to set a whole

slew of display options, appearance scheme, color palette, screen resolution, font size, and display type.

To set a pattern or wallpaper

1. In the control panel, double-click on **Display**.
The display properties dialog box appears
2. Display the Background page
3. Set pattern or wallpaper to anyone you want
4. Click on **Apply** button
5. Choose **Ok** to close the display dialog box.

Screen saver: A screen saver is an image or animation that appears on your screen after a period of inactivity during which you perform no keystroke or mouse movements. Screen saver prolongs your screen life by preventing a static image from “using up” its precious phosphors.

To set a screen saver

1. Display the screen saver page of the display dialog box,
2. In the Screen saver box, select a Screen saver you like ,
3. Set the Wait value to some minutes (for example 2 minutes),
4. Click on Preview to see how the Screen saver looks in its full glory,
5. Click any where to return to the Screen saver page,
6. Choose **Ok**.

Customizing the taskbar

You can change your taskbar's screen location, the items it displays, and whether it should be hidden or shown.

To customize the task bar:

1. **Click Start, Settings, Task bar-** the taskbar properties dialog box appears.
2. Open the task bar options tab. Select any of the following options:

3. Always on top- displays the taskbar on top of everything on the screen.
4. Auto hide- reduces the taskbar to a thin line at the bottom of the screen.
5. Show Small Icons in Start Menu- reduces the size of the icons displayed in the start menu
6. Show clock-displays the taskbar clock.
7. Select Apply to see the effect
8. Click **Ok**

To adjust the date/ time:

Double-click on the **Time icon**;

Adjust the date or/ and time

Click **Apply** button, and then click Ok.

Customizing the start menu

Customizing the start menu means either adding program items to the start menu or removing program items from the start menu.

Steps for adding program items to the start menu

- Right click on empty area of start menu
- Click on properties
- Click on start menu tab
- Click on customize under classic start menu
- Click on add
- Click on browse
- Select the program item to be added
- Click on ok
- Click on next
- Select start menu
- Click on next
- Click on finish

Steps to remove program items from the start menu

- Right click on empty area of start menu
- Click on properties
- Click on start menu tab
- Click on customize under classic start menu
- Click on remove
- Select program items to be removed
- Click on remove
- Click on yes
- Click on close

2.9 Accessories utility programs

Accessories are special utility programs that extend the capacity of the MS Windows operating system. For example; calculator, paint, WordPad, Notepad, etc.

Although the main role of Windows is to act as an operating environment in which you run your other programs, it also comes with its own programs that you can use for immediate purposes such as writing a letter, painting pictures, performing calculations, playing games, playing your audio CD on your CD ROM drive, etc.

In this subtopic, you will learn how to run the windows accessories and use each program's basic tools to perform common tasks, create standard documents, and even have some fun with games.

Calculator

The Calculator accessory is one of the more useful programs included in windows. It provides you with full-featured digital calculator. You can use the calculator or perform many of the tasks just like you would use a calculator that is not on your computer.

To run and use the calculator:

1. Choose Start, Programs, Accessories, Calculator

2. Enter data and perform calculations using the **mouse** or **the keyboard**

You can also do the following using the menus of the calculator window:

Select Standard from the **View** menu to reduce the available functions of the calculator to standard functions; or

Select **Scientific** from the view menu to display all available functions of the calculator.

Paint

Paint is a drawing program that comes with windows. It enables you to create and view pictures and graphics. You can use paint to transform your mental images into pictures. Your kids will also spend hours playing with paint and use it to create illustrations for their classroom reports.

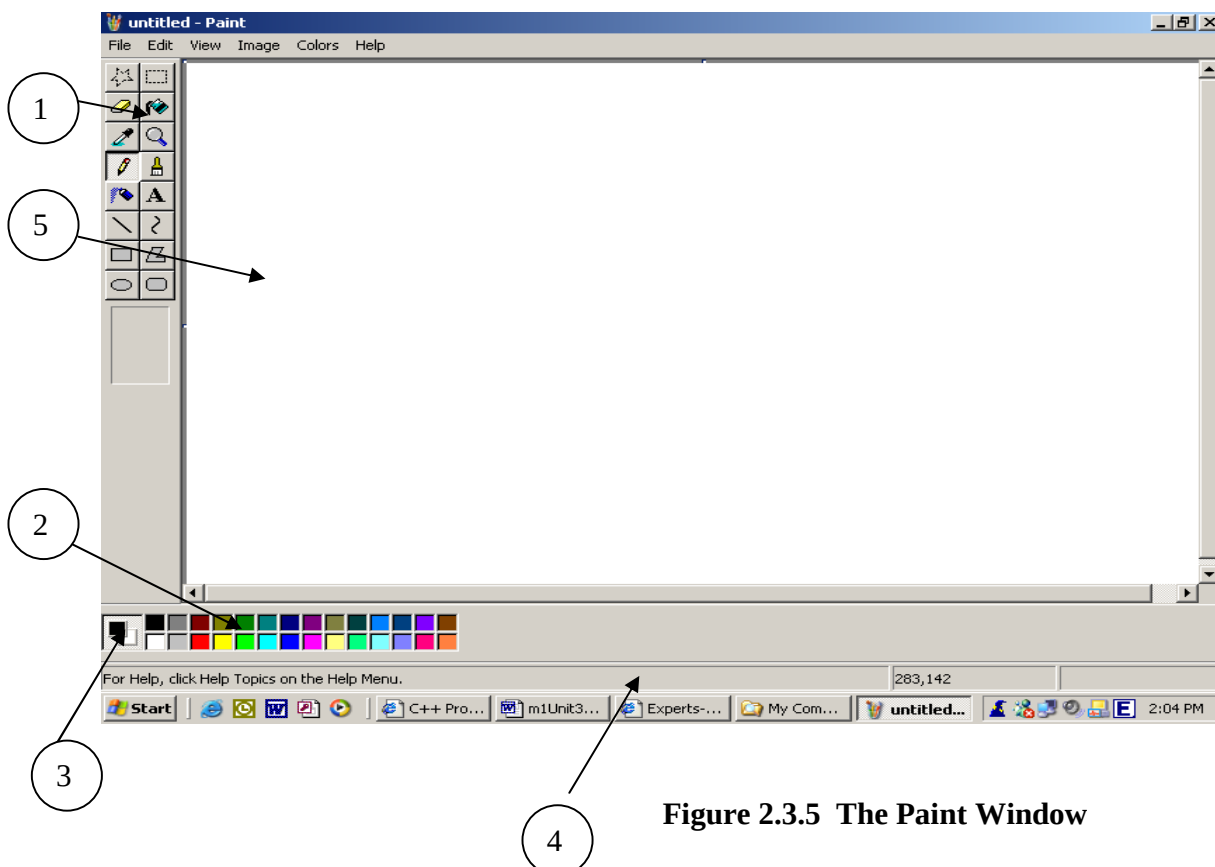


Figure 2.3.5 The Paint Window

To run paint accessory:

Choose **Start, Programs, Accessories, Paint;**

The paint window will be displayed with the following elements.

1. **Toolbox-** displays available tools for drawing. The toolbox contains the following tools with their description or function.
 - a) Free form select- Selects free form part of a picture. Once you have selected an area, you can cut, copy or move it.
 - b) Select- Selects rectangular part of a picture (to move, copy, or edit).
 - c) Eraser- erases portions of a current picture.
 - d) Fill with color- fills part of picture with the selected color.
 - e) Pick color- copies a color from one object to another.
 - f) Magnifier- changes a picture's magnification.
 - g) Pencil- draws free form lines just as if you were using real pencil.
 - h) Brush- paints with brush just as if you were using a real paintbrush.
 - i) Airbrush- apply color, using an airbrush effect.
 - j) Text- insert text into the picture.
 - k) Line- draws straight lines.
 - l) Curve- draws curved lines.
 - m) Rectangle- draws rectangles/ squares.
 - n) Polygon- draws polygons.
 - o) Ellipse- draws ellipse/ circles.
 - p) Rounded rectangle- draws rectangle /squares with rounded edges.
2. **Color palette-** displays palette of available drawing colors.
3. **Color preview box-** displays foreground and back ground colors.
4. **Status bar-** displays context sensitive message.
5. **Drawing area-** Displays picture being drawn/ edited.

6. **Pointer coordinate box**- displays coordinates of pointer with respect to drawing area (0.0 is the top left corner)
7. **Dragged printer coordinate box**- displays coordinates of dragged pointer with respect to drag origin

To create a new paint picture:

After opening a point window,

1. Choose File, New;
2. Select a drawing tool you want (by clicking on it);
3. Move your mouse into the drawing area, and drag to draw;
4. Repeat step 2 and 3 until you finish your picture.

To change foreground color: Click on the desired color.

To change background color: Right-click on the desired color.

To save picture for the first time, or to save picture under a new name and/ or location:

- 1) Choose **File, Save AS;**
- 2) Specify the file name and its location, in respective boxes;
- 3) Click on **Save**

To save a picture under the same name and location as it was last saved: Choose **File, Save.**

To change margins, indentation, paper size, and paper source:

- 1) Choose **File, Page set up**
- 2) Set your margins, indentation, paper size, and paper source as desired
- 3) Click **Ok.**

To print currently displayed paint picture:

- 1) Choose **File, Print**

- 2) If desired, change the print settings, print range, number of copies, and collate copies; and then click **Ok**.

Word Pad

Word pad is a program that you use to create, Edit, Save, Open, and Print textual documents. You can format your word pad documents with various font and paragraph styles.

To run WordPad and create a new document

Select **Start, Programs, Accessories, Word Pad**.

The WordPad window appears with an area inside it where you type your text. Like most applications windows have, the WordPad window contains the following elements: Title bar, Menu bar, Toolbars, Ruler, Document area, Status bar, and Scrollbars.

To create a new document after opening WordPad windows

Choose **File menu, Click New**.

Type your text in the document area.

After finishing typing give name for your new file. This is called saving.

To save a file:

- 1) Choose the **file menu**,
- 2) Click Save As command
- 3) Specify the target folder in Save box
- 4) Type the file name (you can assign long file names up to 256 characters including spaces except the following characters \ , ? : * " < > /)
- 5) Click on the Save button.

To save a modified document under the same name:

Click the save icon from the Toolbar.

Opening a document

- 1) Click on open button from the Toolbar;
- 2) Specify where it is used if it is not in the current folder;
- 3) Specify/ select the filename;
- 4) Click the Ok button.

To create a new WordPad document after working on another:

- 1) Select the New button from the Toolbar;
If there is any unsaved document in the workspace, word Pad asks whether you want to save it. Respond appropriately;
- 2) Type your new document.

Editing a document

After creating a document, it is possible to modify the content of a document. That is, it is possible to add and/or remove text, make corrections on existing text and/or move text from one location to another within a document. This process of changing or modifying the content of a document is called editing.

To add new text to a document:

- 1) Take the insertion point where you want to add the new text
- 2) Write the new text- the remaining text, if any, will be pushed to the right to make room for the new text.

To remove unwanted text character by character:

- 1) Take the insertion point where you want to delete
- 2) USE the DEL and BACKSPACE keys to delete to the right and the left of the insertion point respectively

Formatting a document

After creating a document in word Pad, you can change the appearance of the document in the following way:

1. Change the font type and font size of any text in the document,
2. Bold, Underline, and/or italic any text,

3. Change the way a text is aligned horizontally, left, right, or centered, and
4. Bullet list of text.

The Process of changing the appearance of a document is called formatting and the different appearance a text can have is called a format.

To apply a format for a text:

1. Select the text you want to format
2. Apply any of the available formats from the Format toolbar.

2.10 Getting online help and support

In windows 2000/Xp, there are four different types of getting online help and support about the program regarding the information you are looking for. Those are:

1. Content based-provides help on the different contents
2. What is this-provides the quickest help information about concepts in the dialog box
3. Index-provides different indexes and based on the indexes you can choose one of the topic and click on display then it will display help information for that topic
4. Find/search-will search/find the existence of the concept in a specific content

The steps to get online help and support in any program is by clicking on help menu and selecting the desired help from the above options

SUMMARY

An operating system is a program or set of programs that manages and controls the resources of a computer. The operating system provides certain services to programs and to the users of those programs. It creates an environment in which users can execute their programs in a convenient and efficient manner. The type of operating system discussed in this chapter is MS Windows.

Windows is a multitasking operating system that provides a graphical user interface (GUI), Windows operating systems controls your computer hardware, runs your computer programs,

and organizes files for you. The basic elements of windows consist: desktop, icons, mouse pointer, taskbar, and dialog box.

CHECK LIST

Respond to the following by putting a tick ☒ mark if you can perform the task, and ☐ if you cannot. Please, go back and read the chapter you passed through in order to perform the tasks you marked ☐.

I can:

- 1 Explain what windows Explorer is.....☐
- 2 Identify functions of windows Explorer☐
- 3 Start programs from the explorer☐
- 4 Expand and collapse folders and drives in explorer pane.....☐
- 5 Set wallpaper and screen saver to your computer☐
- 6 Customize the taskbar☐
- 7 Use calculator on your computer.....☐
- 8 Run the Paint accessory☐
- 9 Create and save a new paint picture☐
- 10 Create and save a new word Pad document.....☐
- 11 Format and edit word pad documents.....☐
- 12 Identify major tasks performed by MS Windows☐
- 13 Define elements of Windows☐
- 14 Open and close window☐
- 15 Manipulate and use menus of the windows☐
- 16 Open more than one application at a time.....☐
- 17 Copy or move information from one location to another☐
- 18 Exit an application properly☐
- 19 Install and/or remove application software☐

SELF TEST EXERCISE

Part I. Write “True” for correct statements and “False” for wrong statements.

1. MS Windows enables a computer to perform several tasks simultaneously because it is a multitasking operating system.
2. A folder may contain files and/or other folders (subfolders).
3. Recycle bin is one of an icon on the desktop that gives you access to browse the contents of your computer.
4. Title bar is one of the elements of a window that contains the MS Windows name, and the application control menu button.
5. Scroll bar is a vertical or horizontal bar that enables users to view hidden areas of the window.
6. Toolbar buttons represent common commands you often use in windows in the form of small pictures.
7. Text box provide a place to type an entry such as file name, etc.
8. Clipboard is especially reserved memory that is used to keep the data that you cut, or copy until you copy or cut something else.
9. MS Window is application software.
10. When you drag an icon or object on the desktop, Windows display a context sensitive menu.
11. Click means pressing and releasing quickly the right mouse button.
12. Accessories such as calculator are separate application packages that we install using Add or Remove programs after we install MS Windows operating software.
13. In Windows Explorer pane, the plus sign (+) in front of folders indicates that there are some hidden (collapsed) folders.
14. A folder that is contained within another folder is called subfolder.
15. The best way to set a screen saver is double-clicking on display in the control panel folder.
16. The Tree pane (folder pane) is located at the left of the explorer window
17. MS Word is a good example of operating system software.
18. While using paint application, clicking on the desired color will change foreground color.

Part II. Choose the appropriate answer among the alternatives given for each of the following questions and write the letter corresponding to the correct answer.

1. The entire background of the computer screen is called _____.
a) Desktop b) toolbar c) document d) program
2. The ____ button displays a menu from which you can choose to start applications, to open a document, to customize windows, to shut down windows, etc.
a) Taskbar b) start c) toolbar d) close
3. The window can occupy all part of your screen when
a) Minimized b) restored c) maximized
4. _____ is a list of related commands that you use to perform tasks in windows and windows based applications
a) Menu b) File c) Folder d) Title bar
5. One of the following is not found in file menu.
a) Save b) close c) print d) delete
6. When you shut down your computer, you get a dialog box of:
a) Open b) Save As... c) Shut Down d) Print
7. _____ Command is used to change the appearance of a document.
a) Help b) New c) On d) Format

Part III. What action do you take to perform the following activities using MS Windows?

1. Open a window using one of the icons on your desktop.
2. Restore it and then maximize it. Restore it again.
3. Move it to the top right corner of the screen.
4. Move it to bottom left corner of the screen.
5. Minimize it into an icon.
6. Open the minimized window.
7. Close the window.

Chapter three: Ms-Word

Objectives:

Upon the completion of this chapter, you will be able to:

- identify word processing package from other application software;
- list the word processing packages;
- choose appropriate word processing package for specific application;
- create, open, and save files using MS Word;
- format characters and paragraphs using MS Word;
- add pictures/ graphics from existing gallery;
- find and replace text;
- select text using mouse or keyboard;
- modify word documents by applying techniques of editing;
- rearrange the appearance of a text so that it becomes attractive and readable;
- add borders and shading to a paragraph or selected text;
- define, modify, and delete styles to title, text and/or paragraph;
- create and/or remove bullets and numbers to/from list of items;
- add pictures to your word document from an existing gallery;
- draw pictures using tools on the drawing toolbar;
- move graphic objects
- create documents made up of tables;
- create documents of varying nature for mailing/ distribution using MS Word;
- print documents, labels and envelops.

Introduction

Word processor is an application package that helps you create, modify, store and print any type of written documents by the use of computers. There are different types of word processing packages. This chapter focuses on MS Word. The chapter is all about the basics of word processing package and creating, saving, closing, opening e.t.c word documents, formatting word documents, creating drawings, importing graphics, tables, mail merge and printing.

3.1 Working on word document: creating, saving, closing, opening

How are you going to start and close MS Word?

The technique of starting MS Word is similar to starting other applications such as Word pad. The most common and frequently used method is getting through start button and pointing to programs. Then click on the Ms Word application from the list.

Other methods to start MS Word are:

- ❖ Click Microsoft office icon from Microsoft office shortcut bar;
- ❖ Shortcut of MS Word on Desktop (if any);
- ❖ Getting through the start button and then using Run command;
- ❖ Getting through the start button and then using Find command.

Finally, click on the Microsoft word icon in the cascading menus. If you do one of the above in order to open MS Word, the MS Word screen will be displayed as shown in figure 3.1.1

The method of closing MS Word is that:

- ❖ You first click the File command;
- ❖ Then, click on Exit. (If you have document(s) already opened where you have made some modification, first you are required to close the file(s) by clicking File command and then Close.)

Screen Layout of MS Word

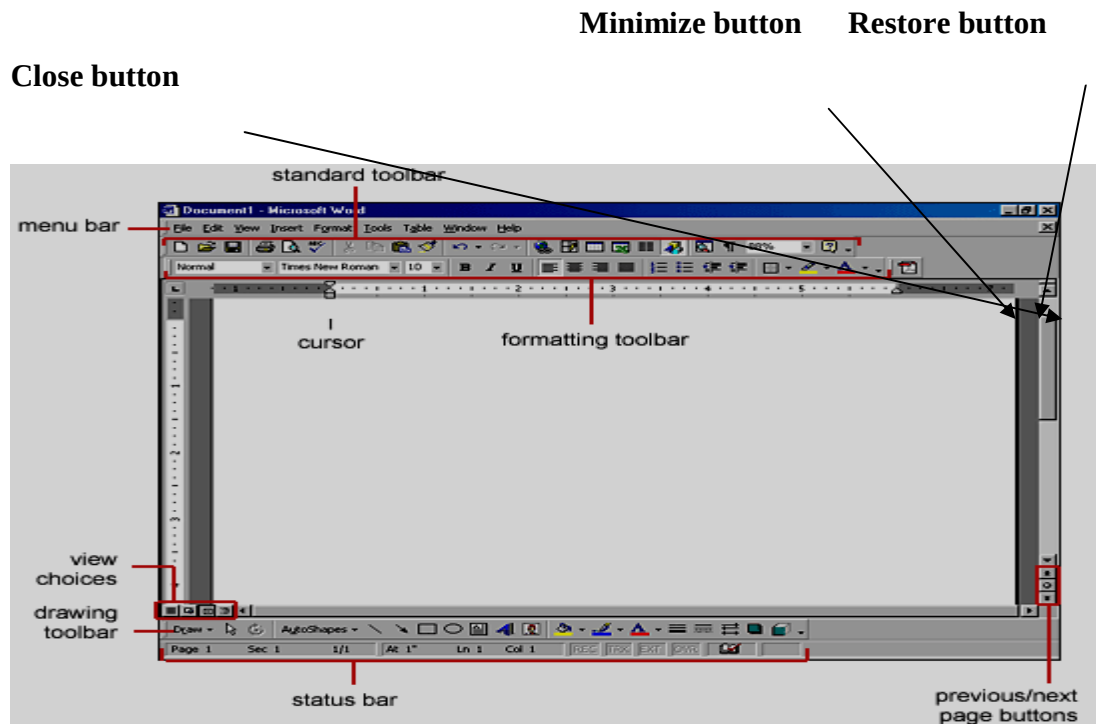


Figure 3.1.1: Screen layout of MS Word Menus

When you begin to explore MS Word (especially a recent version like Word 2000), you will notice a significant change in the menu structure (if you are familiar with previous versions of Word). The menus in recent versions of MS Word display only the commands you have recently used. To view all other options in each menu, you must click the double arrows at the bottom of the menu. Figure 3.1.2a below shows the Format menu collapsed and figure 3.1.2b expanded after the double arrows at the bottom of the menu were clicked.

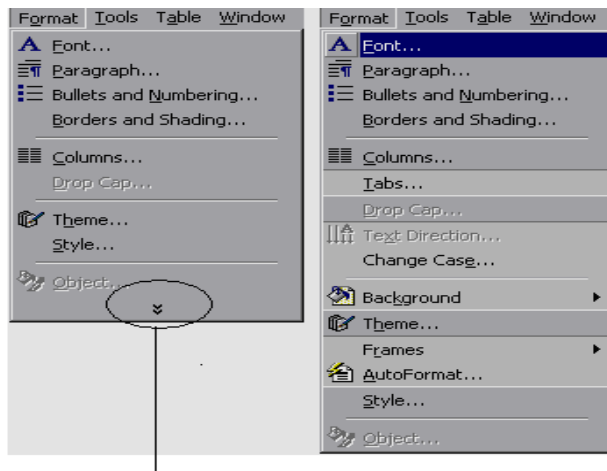


Figure 3.1.2a (Collapsed menu)

Figure 3.1.2b (Expanded menu)

Shortcut Menus

These features allow you to access various Word commands faster than using the options on the Menu bar. View shortcut menus by right-clicking with the mouse. The options on this menu will vary depending on the element that was right-clicked. For example, the shortcut menu below is produced by right-clicking on a bulleted list.

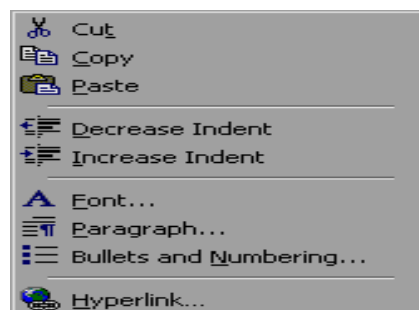


Figure 3.1.3 A Shortcut menu

Actions such as "Decrease Indent" and "Increase Indent" are only applicable to lists and therefore only appear on the list shortcut menu. The shortcut menus are helpful because they only display the options that can be applied to the item that was right-clicked and, therefore, prevent searching through the many menu options.

Toolbars

Many toolbars displaying shortcut buttons are also available to make editing and formatting quicker and easier. Select **View Toolbars** from the menu bar to select the toolbars. The toolbars that are already displayed on the screen are checked. Add a toolbar simply by clicking on the name.

Customizing Toolbars

There may be certain actions on a toolbar that you do not use and there may also be commands that you execute often but that are not located on any toolbar. Word toolbars can be customized so these commands can be added and deleted.

1. Select **View |Toolbars |Customize** and click the **Commands** tab.
2. By highlighting the command categories in the **Categories** box, the choices will change in the **Commands** box to the right.
3. Select the command you would like to add to the toolbar by selecting it in the **Commands** box.
4. Drag the command with the mouse to the desired location on the toolbar and release the mouse button.
5. Remove a button from the toolbar by clicking and dragging the button off the toolbar.

How do you create and work on MS Word documents?

There are several ways to create new documents, open existing documents, and save documents in Word:

Create a New Document

1. Click the New Document button on the menu bar.  **or**
2. Choose **File |New** from the menu bar. **or**
3. Press **CTRL+N** (depress the **CTRL** key while pressing "N") on the keyboard.

Open an Existing Document

1. Click the Open File button on the menu bar.  **or**

2. Choose **File |Open** from the menu bar. **Or** 3. Press **CTRL+O** on the keyboard.

Each method will show the Open dialog box. Choose the file and click the **Open** button.

Save a Document

1. Click the **Save** button on the menu bar.  **or**
2. Select **File |Save** from the menu bar. **Or,** 3. Press **CTRL+S** on the keyboard.

Renaming Documents

To rename a Word document while using the program, select **File |Open** and find the file you want to rename. Right-click on the document name with the mouse and select **Rename** from the shortcut menu. Type the new name for the file and press the **ENTER** key.

Deleting Documents

To delete a Word document while using the program, select **File |Open** and find the file you want to delete. Right-click on the document name with the mouse and select **delete** from the shortcut menu. You will be asked for confirmation to delete a file. Click on the **Yes** button from the shortcut menu.

Working on Multiple Documents

Several documents can be opened simultaneously if you are typing or editing multiple documents at once. All open documents are listed under the **Window** menu. The current document has a checkmark beside the file name. Select another name to view another open document or click the button on the **Windows** taskbar at the bottom of the screen.

Close a Document

Close the current document by selecting **File |Close** or click the **Close** icon if it's visible on the **Standard Toolbar**, or click the close button  at the right top corner of the menu bar.

Typing and Inserting Text

To enter text, just start typing The text will appear where the blinking cursor is located.

Move the cursor by using the arrow buttons on the keyboard or positioning the mouse and clicking the left button. The keyboard shortcuts listed below in table 3.1.1 are also helpful when moving through the text of a document:

Table 3.1.1 Keyboard shortcuts for moving inside a text

Move Action	Key stroke
Beginning of the line	HOME
End of the line	END
Top of the document	CTRL+HOME
End of the document	CTRL+END

3.2 Editing and formatting word document

Using word processing application, you can easily create, edit, reorganize and format text documents with out retyping all of it and then correct errors. Some of these activities are highly difficult to perform manually. One of a key advantage of word processing software is that you can easily make changes in documents such as correcting spelling, changing margins, and adding, deleting, or relocating entire paragraphs. These changes would be difficult and time consuming to make using manual methods such as type writers. The discussion of editing/formatting word documents, creating drawings, importing graphics and related issues will follow.

Selecting Text

To change any attributes of text it must be highlighted first. Select the text by dragging the mouse over the desired text while keeping the left mouse button depressed, or hold down the SHIFT key on the keyboard while using the arrow buttons to highlight the text. Table 3.1.2 contains shortcuts for selecting different portions of the text:

Table 3.1.2 Shortcuts for selecting portions of the text

<u>Selection</u>	<u>Technique</u>
a word	double-click within the word

Whole paragraph	triple-click within the paragraph
Several words or lines	drag the mouse over the words, or hold down SHIFT while using the arrow keys
Entire document	choose Edit Select All from the menu bar, or press CTRL+A

Deselect the text by clicking anywhere outside of the selection on the page or press an arrow key on the keyboard.

Find/replace and delete text

To find and replace text in your document, click **Edit | Replace**. Then type the text to be replaced in **Find What** box and the text to replace in **Replace With** box. Finally, click **Replace** button if you want to replace one by one or click **Replace All** to make all the replacements at once.

To delete text, use the **BACKSPACE** and **DELETE** keys on the keyboard to delete text. Backspace will delete text to the left of the cursor and Delete will erase text to the right. To delete a large selection of text, highlight it using any of the methods outlined above and press the **DELETE** key.

Formatting Text

The formatting toolbar is the easiest way to change many attributes of text. If the toolbar as shown in figure 3.1.4 isn't displayed on the screen, select View | Toolbars and choose Formatting.

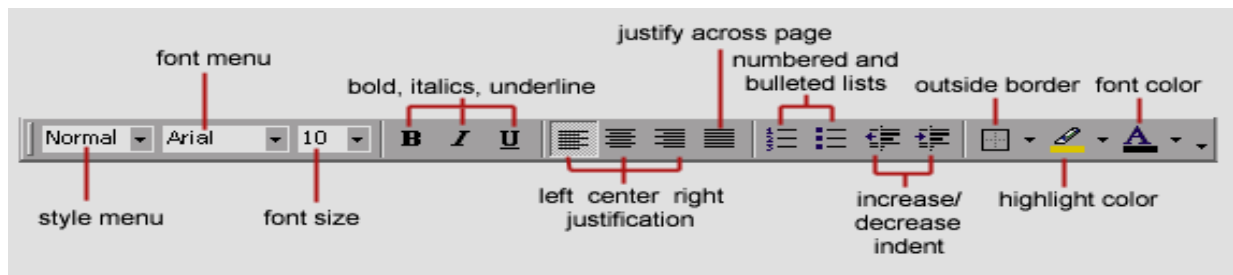


Figure 3.1.4 Formatting toolbar

Style Menu - Styles are explained in detail later in this chapter.

Font Face - Click the arrowhead to the right of the font name box to view the list of fonts available. Scroll down to the font you want and select it by clicking on the name once with the mouse.

Font Size - Click on the white part of the font size box to enter a value for the font size or click the arrowhead to the right of the box to view a list of font sizes available. Select a size by clicking on it once. A font size of 10 or 12 is best for paragraphs of text.

Numbered and Bulleted Lists - Lists are explained in detail later in this chapter

Font Style - Use these buttons to bold, italicize, and underline text.

Alignment - Text can be aligned to the left, center, or right side of the page or it can be justified across the page.

Increase/Decrease Indent - Change the indentation of a paragraph in relation to the side of the page.

Outside Border - Add a border around a text selection.

Highlight Color - Use this option to change the color behind a text selection. The color shown on the button is the last color used. To select a different color, click the arrowhead next to the image on the button.

Text Color - This option changes the color of the text. The color shown on the button is the last color chosen. Click the arrowhead next to the button image to select another color.

The **Font** dialog box allows you to choose from a larger selection of formatting options. Select **Format |Font** from the menu bar to access the box.

Format Painter

A handy feature for formatting text is the **Format Painter** located on the standard toolbar. For example, if you are formatting a paragraph heading with a certain font face, size, and style and you want to format another heading the same way, you do not need to manually add each attribute to the new headline. Instead, use the **Format Painter** by following these steps:

1. Place the cursor within the text that contains the formatting you want to copy.
2. Click the **Format Painter** button in the standard toolbar. Notice that your pointer now has a paintbrush beside it.
3. Highlight the text you want to add the same format to with the mouse and release the mouse button.

To add the formatting to multiple selections of text, double-click the **Format Painter** button instead of clicking once. The format painter then stays active until you press the **ESC** key to turn it off.

Undo

Feel free to experiment with various text styles. You can always undo your last action by clicking the **Undo** button on the standard toolbar or selecting **Edit | Undo** from the menu bar. Click the **Redo** button on the standard toolbar or select **Edit | Redo** to erase the undo action.

Paragraph Attributes

Format a paragraph by placing the cursor within the paragraph and selecting **Format |Paragraph/** from the menu bar.

Moving (Cutting) Text

Highlight the text that will be moved and select **Edit |Cut** from the menu bar, click the **Cut** button on the standard toolbar, or press **CTRL+X** at once. This will move the text to a

clipboard.

To move a small amount of text a short distance, the drag-and-drop method may be quicker. Highlight the text you want to move, click the selection with the mouse, drag the selection to the new location, and release the mouse button.

Copying Text

To copy text, choose **Edit | Copy**, click the **Copy** button on the standard toolbar, or press **CTRL+C** to copy the text to the clipboard.

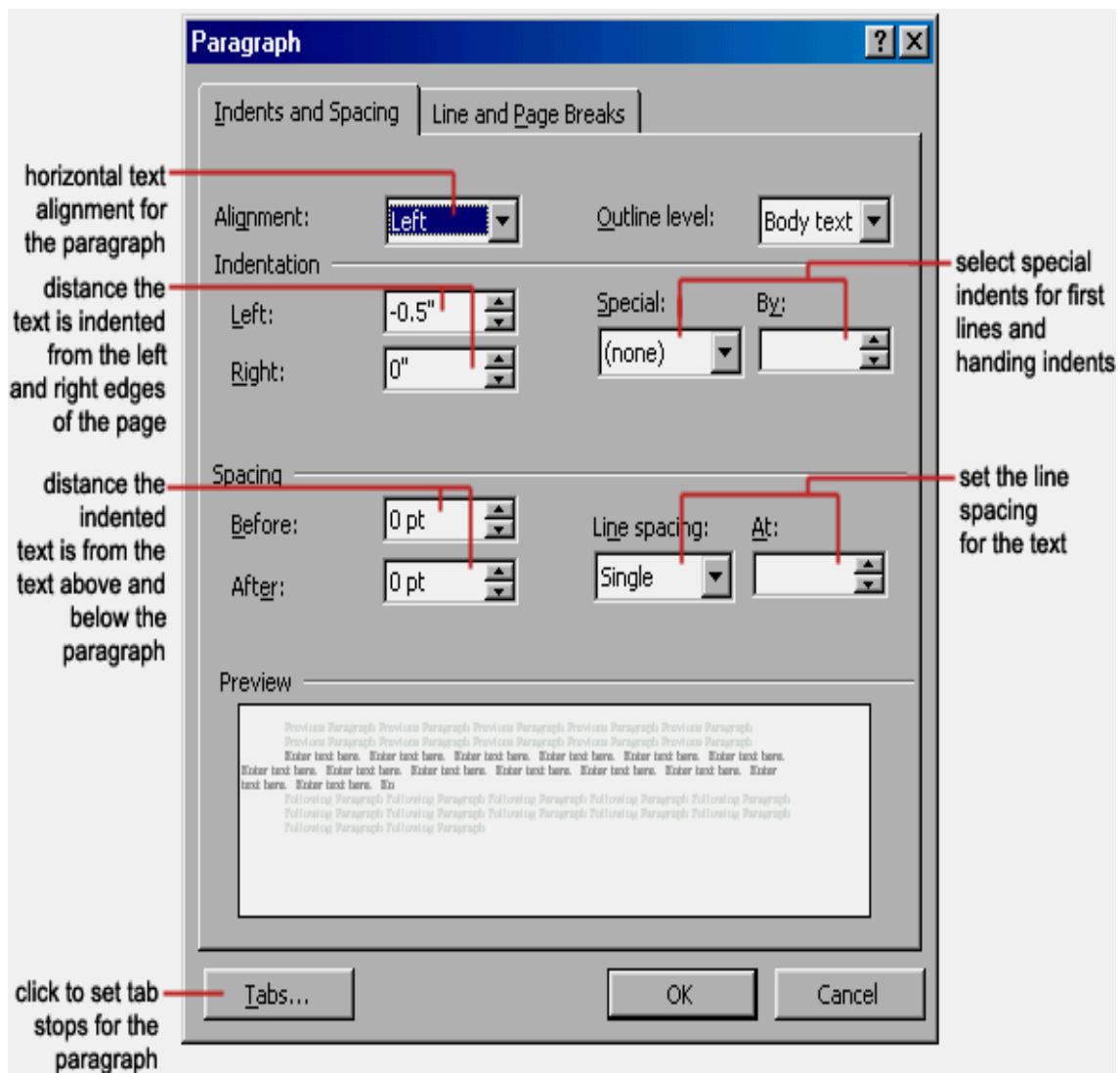


Figure 3.1.5 Paragraph formatting dialog box

Pasting Text

To paste cut or copied text, move the cursor to the location you want to move the text to and select **Edit | Paste** from the menu bar, click the **Paste** button on the standard toolbar, or press **CTRL+V**.

Drop Caps

A drop cap is a large letter that begins a paragraph and drops through several lines of text.

Add a drop cap to a paragraph by following these steps:

1. Place the cursor within the paragraph whose first letter will be dropped.
2. Select **Format | Drop Cap** from the menu bar.
3. The **Drop Cap** dialog box allows you to select the position of the drop cap, the font, the number of lines to drop, and the distance from the body text.
4. Click **OK** when all selections have been made.
5. To modify a drop cap, select **Format | Drop Cap** again to change the attributes, or click on the letter and use the handles to move and resize the letter.

Columns

To quickly place text in a column format, click the **Columns** button on the standard toolbar and select the number of columns by dragging the mouse over the diagram.



Figure 3.1.6 Column creation from the standard toolbar

For more column options, select **Format | Columns** from the menu bar. The **Columns** dialog box allows you to choose the properties of the columns. Select the number and width of the columns from the dialog box shown in figure 3.1.7

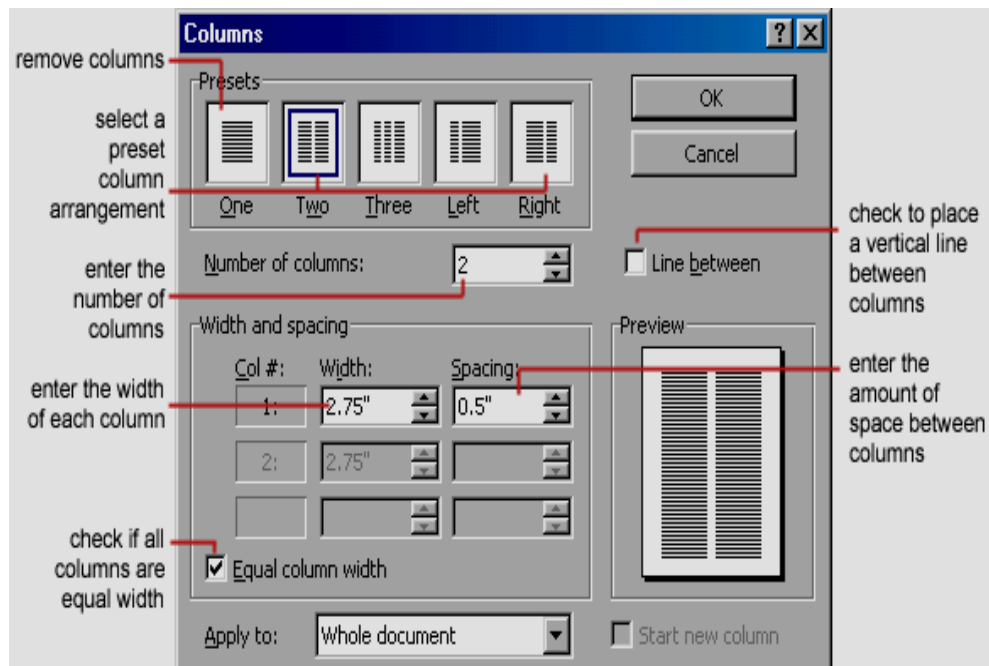


Figure 3.1.7 Column setting dialog box

What are styles and how can you use them in Word document?

Styles

A style is a set of formatting characteristics that you can apply to text, lists, etc. in your document to quickly change their appearance. When you apply a style, you apply a whole group of formats in one simple task. For example, instead of taking three separate steps to format your title as 16 pt, Arial, and center-aligned, you can achieve the same result in one step by applying the Title style. Thus, the use of styles in Word will allow you to quickly format a document with a consistent and professional look. Paragraph and character styles can be saved for use in many documents.

Applying a Style

Place the cursor in the paragraph where the style will be applied.

1. Click the **Style** drop-down menu on the Formatting toolbar and select a style by clicking on it.

2. To apply the same style to multiple paragraphs, double click the **Format Painter** button  on the standard toolbar and click in all the paragraphs that the style should be applied to. Press the **ESC** key to disable the Format Painter.

Apply a Style from the Style Dialog Box

Choose from a larger selection of styles from the **Style** dialog box.

1. Click in the paragraph you want to add a style to.
2. Select **Format |Style...** from the menu bar.
3. From the **List** drop-down menu, choose **All styles** to view all the styles available.
4. The styles are displayed in the **Styles** list. Preview each style by clicking once on the name. Paragraph styles are preceded by the paragraph symbol (¶) and character styles are preceded by an "a" icon (a). A pointer arrow is located next to the current style. Highlight the style you want to apply to the paragraph and click **Apply**.

Create a New Style from a Model

To create a style from text that is already formatted in a document, follow these steps:

1. Place the cursor in the paragraph you would like to set as a new style.
2. Click the **Style** box on the formatting toolbar so the style name is highlighted.
3. Delete the text in the field and type the name of the new style.
4. Press the **ENTER** key to save the new style.

Create a Simple Style from the Style Dialog Box

1. Select **Format |Style...** from the menu bar and click the **New** button on the **Style** dialog box to access the **New Style** dialog box.
2. Type the name for the new style in the **Name** field.
3. Select "Paragraph" or "Character" from the **Style type** drop-down menu.
4. Click the **Format** button at the bottom of the window and choose the paragraph element that will be formatted for the style. Continue to make changes from the

options from the Format button menu, making changes to the dialog boxes for each element you choose.

5. Click **OK** to set the style and close the **New Style** dialog box.
6. Click **Apply** on the **Style** dialog box to apply the new style to the current paragraph.

Modify or Rename a Style

An existing style can be changed from the Style dialog box.

1. Select **Format |Style...** from the menu bar.
2. Highlight the style from the **Styles** list that you want to modify and click the **Modify** button.
3. Use the same methods to modify the style from the **Modify Style** dialog box that were used for the New Style box.
4. To only rename the style, type a new name in the **Name** field.
5. Click **OK** when you finish making modifications.
6. Click **Apply** to update the style in the document.

Delete a Style

Preset styles created by Word cannot be deleted, but to delete the one you have created, follow these steps:

1. Select **Format |Style...** from the menu bar.
2. Highlight the style from the **Styles** list that you want to delete.
3. Click the **Delete** button.
4. You will be asked if you really want to delete the style. Click **Yes**.
5. Click **Close** on the dialog box.

Bulleted and Numbered Lists

1. Click the **Bulleted List** button  or **Numbered List** button  on the formatting toolbar.

2. Type the first entry and press **ENTER**. This will create a new bullet or number on the next line. If you want to start a new line without adding another bullet or number, hold down the **SHIFT** key while pressing **ENTER**.
3. Continue typing entries and press **ENTER** twice when you are finished typing to end the list.

Use the **Increase Indent**  and **Decrease Indent**  buttons on the formatting toolbar to create lists of multiple levels. You can also type the text first, highlight the section, and press the **Bulleted List** or **Numbered List** buttons to add the bullets or numbers.

Nested Lists

To create a nested list, such as a numbered list inside a bulleted list, follow these steps:

1. Type the list and increase the indentation of the items that will make up the nested list by clicking the **Increase Indent /decrease indent button** for each item to promote and demote respectively (tab/shift +tab method is also the possible options).
2. Highlight the items and click the **Numbered List** button on the formatting toolbar.

Formatting Lists

The bullet image and numbering format can be changed by using the **Bullets and Numbering** dialog box. To do so:

1. Highlight the entire list to change all the bullets or numbers, or
Place the cursor on one line within the list to change a single bullet.
2. Access the dialog box by selecting **Format |Bullets and Numbering** from the menu bar or by right-clicking within the list and selecting **Bullets and Numbering** from the shortcut menu.
3. Select the list style from one of the seven choices given, or click the **Picture...** button to choose a different icon. Click the **Numbered** tab to choose a numbered list style.
4. Click **OK** when finished.

Remove Bulleted and Numbered Lists

To remove bulleted and numbered lists, highlight the list, click on Format |Bullets and Numbering from the menu bar and then click on None. Finally click Ok. Another option is that first you can select the bulleted or numbered list and then click the numbering or bullets button on the standard toolbar to remove the effect.

3.3 Working on tables, symbols, drawings, pictures and word arts

Working with tables

Tables are used to display data and there are several ways to build them in Word. Begin by placing the cursor where you want the table to appear in the document and choose one of the following methods.

Insert a Table

There are two ways to add a table to the document using the Insert feature:

1. Click the **Insert Table** button on the standard toolbar. Drag the mouse along the grid, highlighting the number of rows and columns for the table.
2. Or, select **Table |Insert |Table** from the menu bar. Select the number of rows and columns for the table and click **OK**.

A table can also be drawn onto the document:

1. Draw the table by selecting **Table |Draw Table** from the menu bar. The cursor is now the image of a pencil and the **Tables and Borders** toolbar has appeared.
2. Draw the cells of the table with the mouse. If you make a mistake, click the **Eraser** button  and drag the mouse over the area to be deleted.
3. To draw more cells, click on the **Draw Table** button .

Inserting Rows and Columns

Once the table is drawn, insert additional rows by placing the cursor in the row adjacent to which you want to insert new row then Select **Table |Insert |Rows Above** or **Rows Below**. Or, select an entire row and right-click with the mouse. Choose **Insert Rows** from the

Much like inserting a row, add a new column by placing the cursor in a cell adjacent to where the new column will be added. Select **Table |Insert |Columns to the Left** or **Columns to the Right**. Or, select the column, right-click with the mouse, and select **Insert Columns**.

A four-sided moving arrow and open box resizing handle will appear on the corners of the table if the mouse is placed over the table. Click and drag the four-ended arrow to move the table and release the mouse button when the table is positioned where you want it. Click and drag the open box handle to resize the table. Change the column widths and row heights by clicking the cell dividers and dragging them with the mouse.



The Tables and Borders toolbar allows you to add border styles, shading, text effects, alignment, and more options to your table. Access the toolbar by clicking **Table |Draw Table** or **View |Toolbars |Tables and Borders**.

▼ Tables and Borders

Use the **Table Properties** dialog box to modify the alignment of the table with the body text and the text within the table. Access the box by selecting **Table |Table Properties**

Size - Check the **Preferred width** box and enter a value if the table should be an exact width.

Alignment - Highlight the illustration that represents the alignment of the table in relation to the text of the document.

Table 3.1.3 Methods of selection within a table

Selection	Menu Method	Mouse Method
One cell	Table Select Cell	Click the bottom, left corner of the cell when a black arrow appears
One row	Table Select Row	Click outside the table to the left of the row
One column	Table Select Column	Click outside the table above the column when a black arrow appears
Several rows	(none)	Click outside the table to the left of the row and drag the mouse down
Several columns	(none)	Click outside the table above the column
Entire table	Table Select Table	Triple-click to the left of the table

Text wrapping - **Highlight "None" if the table should appear on a separate line from the text or choose "Around" if the text should wrap around the table.**

Borders and Shading - Select from a number of border styles, colors, and widths. Click the Shading tab to change the background color and pattern. Options - Click the Options button on the Table Properties window. To change the spacing between the document text and the table borders under Default cell margins. Check the Allow spacing between cells box and enter a value to add space between the table cells.

Working with graphics and drawings

Clip Art

To add a clip art image from the Microsoft library to a document, follow these steps:

1. Select **Insert |Picture |Clip Art** from the menu bar.

2. To find an image, click in the white box following **Search for clips**. Delete the words "Type one or more words. . ." and enter keywords describing the image you want to use. Or,
Click one of the category icons.

Click once on the image you want to add to the document;

Insert Clip to add the image to the document.

Preview Clip to view the image full-size before adding it to the document. Drag the bottom, right corner of the preview window to resize the image and click the "x" close button to end the preview

Add Clip to Favorites will add the selected image to your favorite's directory that can be chosen from the **Insert ClipArt** dialog box.

Find Similar Clips will retrieve images similar to the one you have chosen.

3. Continue selecting images to add to the document and click the **Close** button in the top, right corner of the **Insert ClipArt** window to stop adding clip art to the document.

Add an Image from a File

Follow these steps to add a photo or graphic from an existing file:

1. Select **Insert |Picture |From File** on the menu bar.
2. Click the down arrow button on the right of the **Look in** window.
3. Highlight the file name from the list and click the **Insert** button.

Editing a Graphic

Activate the image you wish to edit by clicking on it once with the mouse. Nine handles will appear around the graphic. Click and drag these handles to resize the image. The handles on the corners will resize proportionally while the handles on the straight lines will stretch the image. More picture effects can be changed using the Picture toolbar. The **Picture toolbar** should appear when you click on the image. Otherwise, select **View |Toolbars |Picture** from the menu bar to activate it.

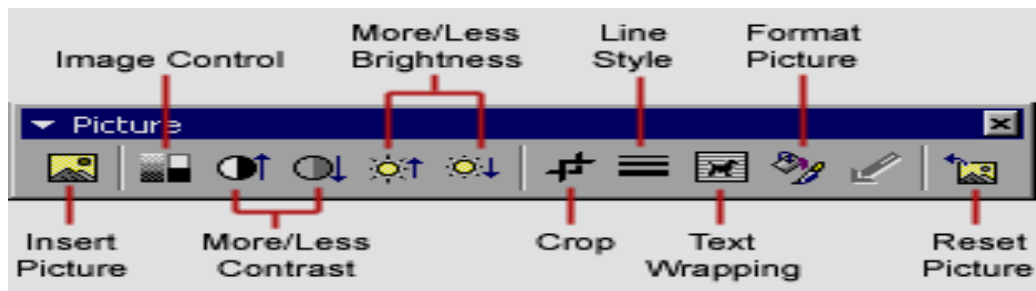


Figure 3.1.8 Picture toolbar

Insert Picture will display the image selection window and allows you to change the image

Image Control allows making the image grayscale, black and white, or a watermark

More/Less Contrast modifies the contrast between the colors of the image. **More/Less Brightness** will darken or brighten the image

Click **Crop** and drag the handles on the activated image to delete outer portions of the image.

Line Style will add a variety of borders to the graphic

Text Wrapping will modify the way the document text wraps around the graphic

Format Picture displays all the image properties in a separate window

Reset Picture will delete all the modifications made to the image

Auto Shapes

The AutoShapes toolbar will allow you to draw many different geometrical shapes, arrows, flow chart symbols, stars, and banners on the document. Activate the AutoShapes toolbar by selecting Insert |Picture |AutoShapes or View |Toolbars |AutoShapes from the menu bar, or clicking the AutoShapes button on the Drawing toolbar. Click each button on the toolbar to view the options for drawing the shape.

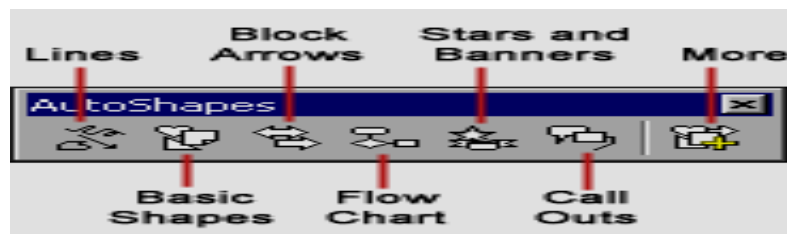


Figure 3.1.9 Auto shapes toolbar

Lines - After clicking the Lines button on the AutoShapes toolbar, draw a straight line, arrow, or double-ended arrow from the first row of options by clicking the respective button. Click in the document where you would like the line to begin and click again where it should end. To draw a curved line or freeform shape, select curved lines from the menu (first and second buttons of second row), click in the document where the line should appear, and click the mouse every time a curve should begin. End creating the graphic by clicking on the starting end or pressing the ESC key. To scribble, click the last button in the second row, click the mouse in the document and hold down the left button while you draw the design. Let the mouse button go of to stop drawing.

Basic Shapes - Click the Basic Shapes button on the AutoShapes toolbar to select from many two- and three-dimensional shapes, icons, braces, and brackets. Use the drag-and-drop method to draw the shape in the document. When the shape has been made, it can be resized using the open box handles and other adjustments specific to each shape can be modified using the yellow diamond handles.

Block Arrows - Select Block Arrows to choose from many types of two- and three-dimensional arrows. Drag-and-drop the arrow in the document and use the open box and yellow diamond handles to adjust the arrowheads. Each AutoShape can also be rotated by first clicking the Free Rotate button on the drawing toolbar . Click and drag the green handles around the image to rotate it.

Flow Chart - Choose from the flow chart menu to add flow chart elements to the document and use the line menu to draw connections between the elements.

Stars and Banners - Click the button to select stars, bursts, banners, and scrolls. **Call Outs** - Select from the speech and thought bubbles and line call outs. Enter the call out text in the text box that is made.

More AutoShapes - Click this button to choose from a list of clip art categories.

Each of the submenus on the AutoShapes toolbar can become a separate toolbar. Just click and drag the gray bar across the top of the submenus of the toolbar and it will become a separate floating toolbar.



Figure 3.1.10 Example of sub-tool bar in the auto shape bar

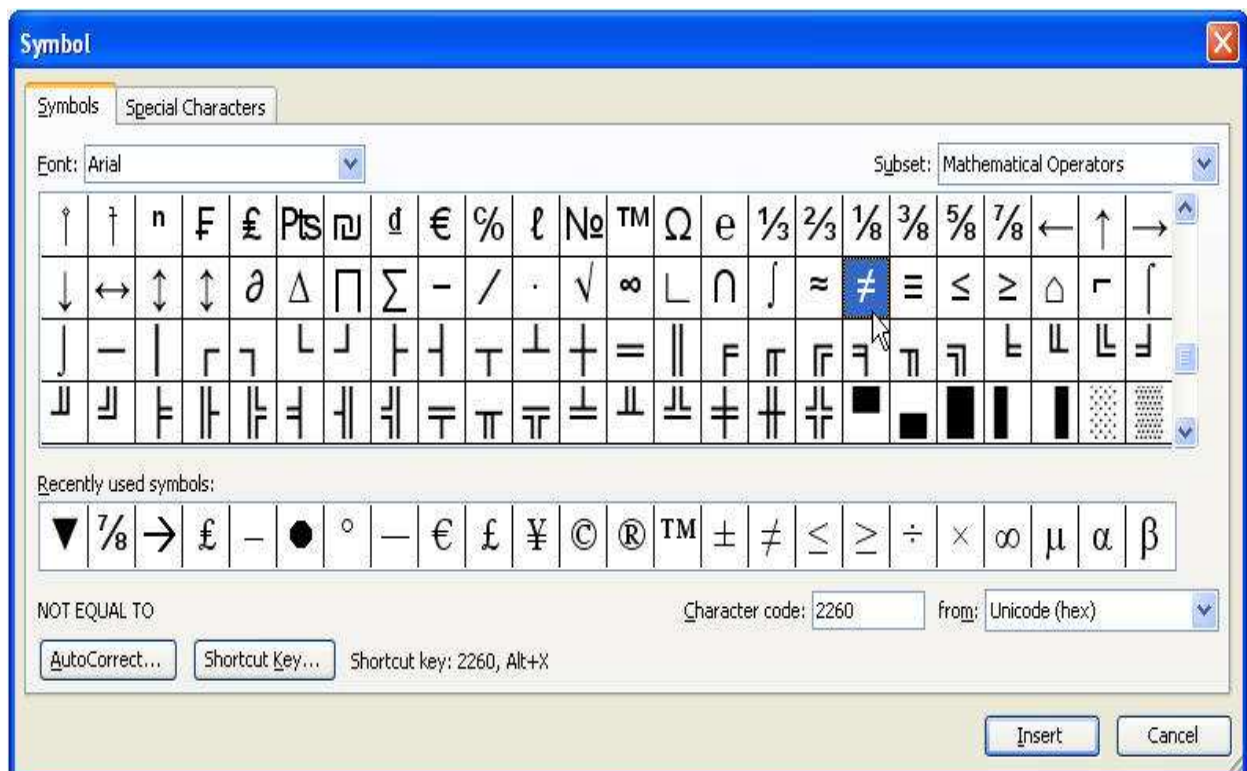
Working on Symbols

Symbols and Characters in Microsoft Office

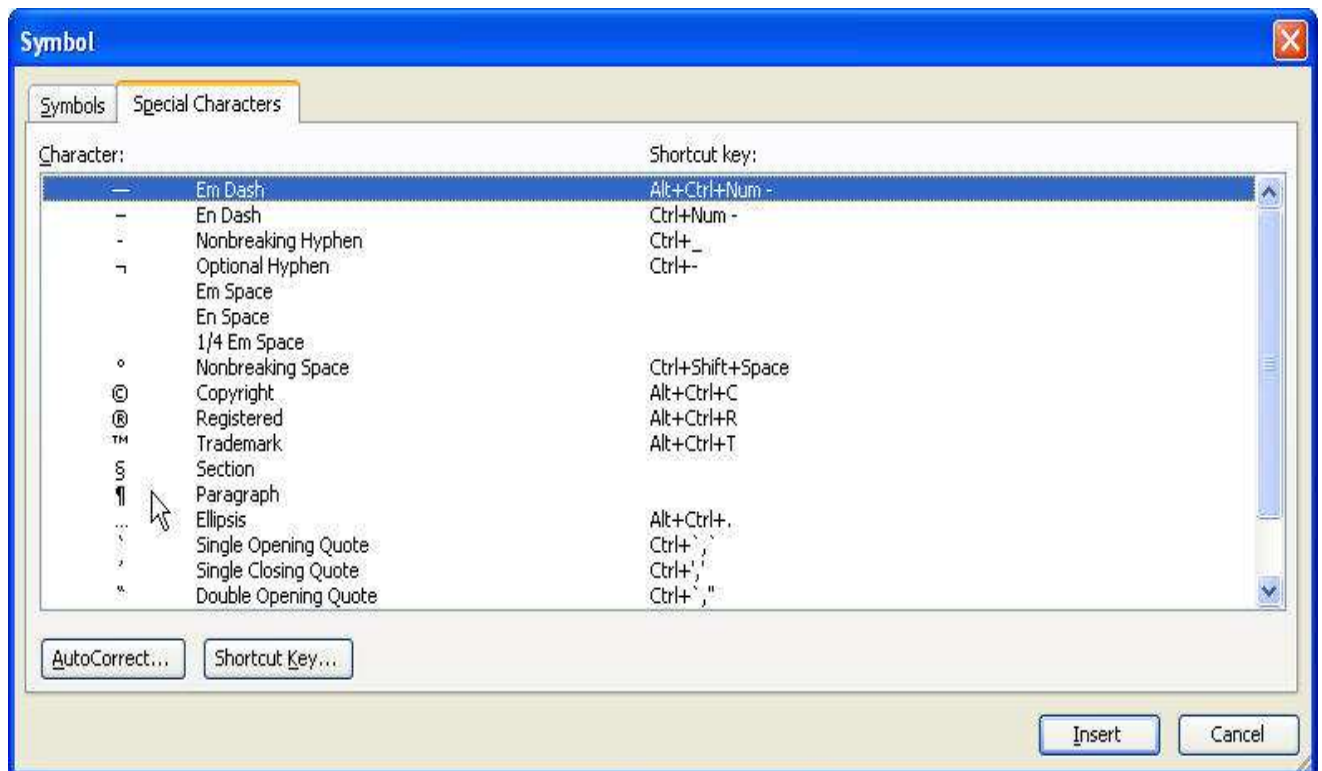
It seems that many people can't find how to get certain symbols or characters into their documents, so I attempt hope to offer every method here.

Insert Symbol

This is one of the easiest methods. If you use the symbol a lot, you may want to memorize the shortcut key for it, or create a shortcut key or AutoCorrect entry for it. This is Word's Symbol dialog.

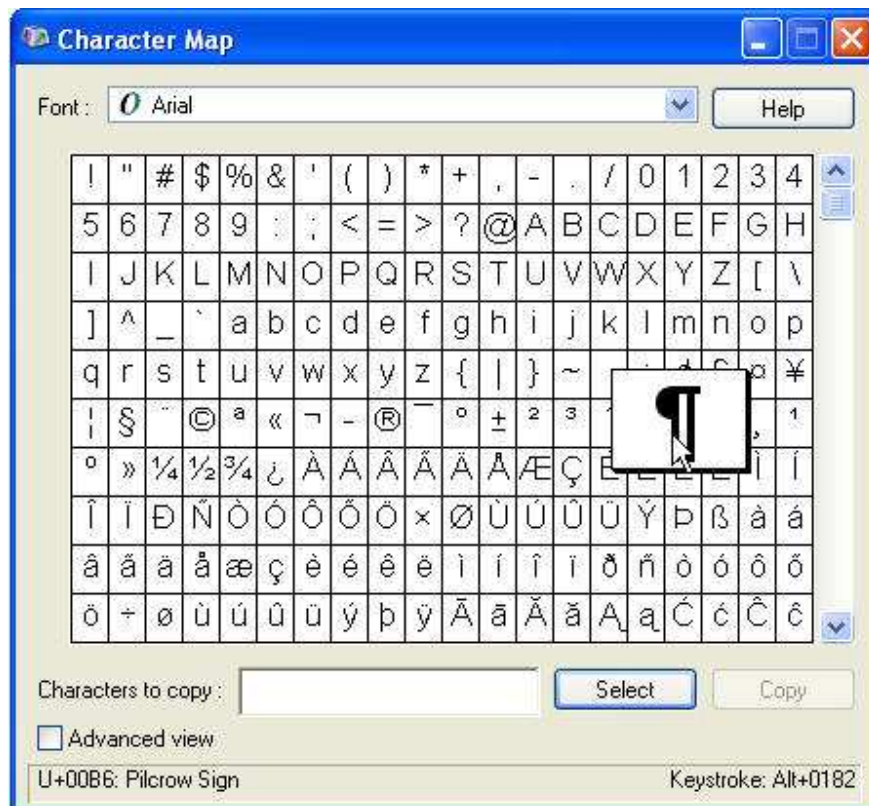


Word's Symbol dialog also has a Special Characters tab that you shouldn't miss if you use Word a lot. One of the most commonly looked for symbols here is the Paragraph return, also called a Pilcrow.



Character Map

If you can't find your symbol or character using the Symbol dialog, try the Character Map, which comes with Windows. To use it, hit Start, Run and type "charmap" (without the quotes) and hit Enter.



Equation Editor

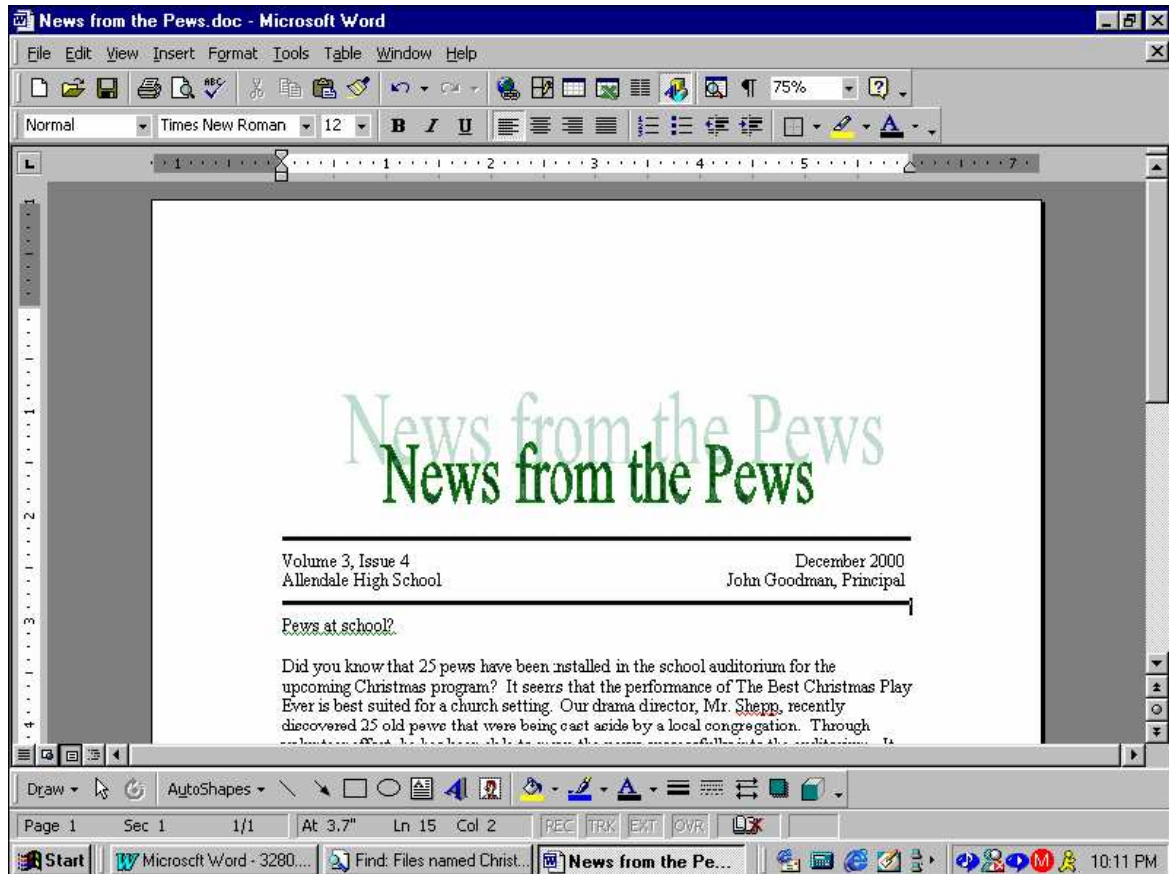
For even more symbols, usually of a scientific or mathematic nature, or for creating Arithmetic problems, use the Equation Editor. Don't expect to jump right in and become an expert. It takes a bit of time. My experience has been, too, that every time I try to edit the fonts, I mess it up even more. Try to live with them in the way they are.

To access the Equation Editor, hit Insert/Object, choose Microsoft Equation 3.0. This brings up the toolbar. You can create an equation, which looks a lot like a graphic in your document. To edit the equation later, just double-click it. To create another, you can copy the first one, and paste it, then double-click it to change it.



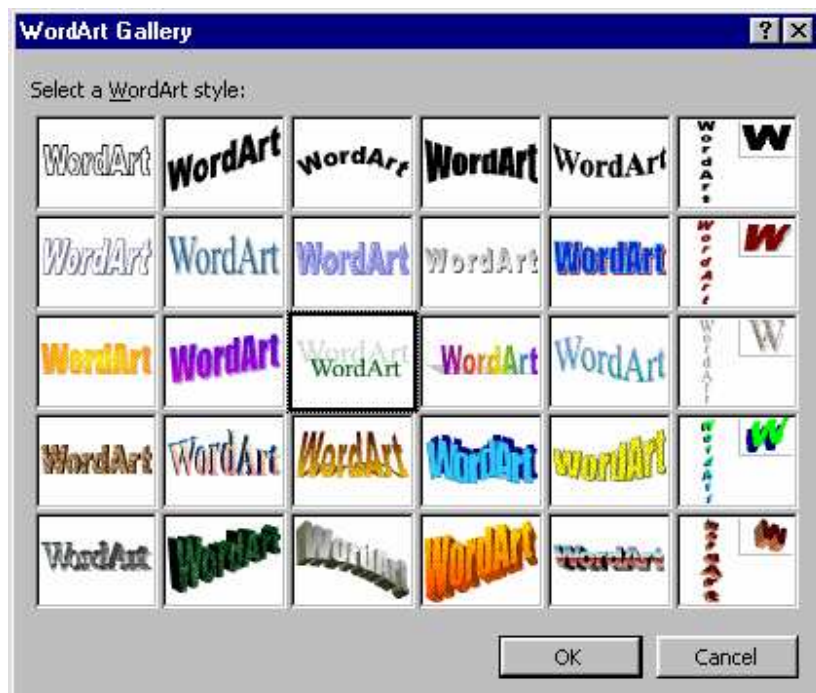
Working on word art

With Microsoft Word, the WordArt feature makes it easy for you to be creative with text. In this topic, you will create a newsletter combining WordArt, columns and graphics



To open **WordArt Gallery**

1. Open a new document.
2. Select **Insert** from the menu bar.
3. Choose **Picture**.
4. Select **Word Art...**

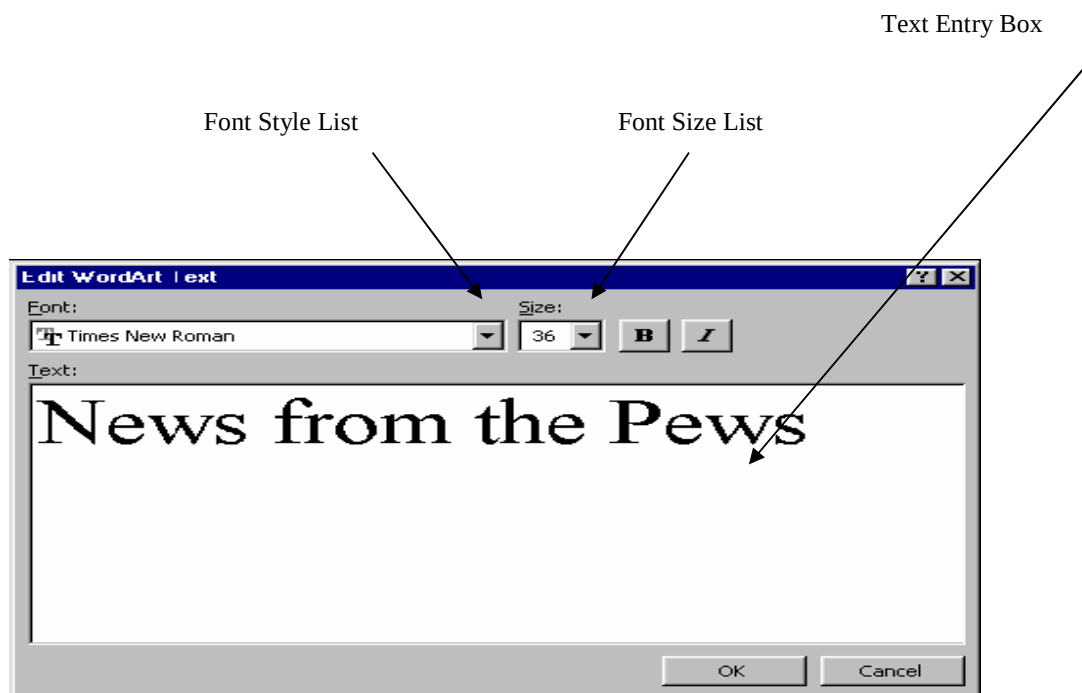


5. Click on a WordArt style, then click **[OK]**.

The WordArt text box opens; the words of **Your Text Here** are displayed.

6. Type **News from the Pews.**

The text replaces **Your Text Here** and the WordArt Text Entry Box remains open.



7. Click **[OK]**.

The WordArt is incorporated into the new document window.

8. Click once on the WordArt text.

9. Selection handles appear around the WordArt and a WordArt toolbar appears in the document window. Point to the selected WordArt until the move icon appears.



Place Text

1. Try to click below the WordArt text.

2. Position the I-beam beneath the WordArt object and double click.

133

3. On the left margin, type **Volume 3, Issue 4**.
4. Set a right tab at **6"**.
5. Press the <**Tab**> key and type **December 2000**.
6. Press <**Enter**>.
7. Type **Allendale High School**.
8. Press <**Tab**> and type **John Goodman, Principal**.
9. Save the file as **News from the Pews**.

Insert Lines

You learned to insert lines from the Drawing Toolbar. There are also decorative lines available in Word 2000 using the **Borders and Shading** command from the menu. This is one of the new features included in Word 2000. In this exercise, you will learn to use this new decorative line feature.

1. Click on the blank line above the text **Volume 3**.
2. From the menu, choose **Format** then **Borders and Shading...**
3. Click on the [**Horizontal Line...**] option button.

The **Clip Gallery** displays Pictures.

4. Scroll through the Pictures and click on a line of your choice.
5. Click the **Insert clip** button from the shortcut toolbar.
6. Click [**OK**] to close the **Clip Gallery** window.
7. Click on the line beneath the text **Allendale High School**.
8. Press the <**F4**> function key.

The **Clip Gallery** window opens.

9. Select the line once again.

Lines appear above and below the newsletter header.

News from the Pews

Volume 3, Issue 4
Allendale High School

December 2000
John Goodman, Principal

3.5 Creating header/footer, endnote, footnote

A header is a text that is added to the top margin of every page such as a document title or page number and footer is text added to the bottom margin.

There are four different types of header/footer

1. The same header/footer through out the document
2. Different first page-the first page has different header/footer from the rest of the pages
3. Different odd/even-odd pages will have the same header/footer and even pages will have the same header/footer but different from the odd pages
4. Different header/footer for different sections after inserting different header/footer in your document.

To select one of the options above, click page setup and select either different first page or different odd/even.

Follow these steps to add or edit headers and footers in the document:

1. Select **View |Header and Footer** from the menu bar. The Header and Footer toolbar will appear and the top of the page will be highlighted.
2. Type the heading in the **Header** box. You may use many of the standard text formatting options such as font face, size, bold, italics, etc.
3. Click the **Insert AutoText** button to view a list of quick options available.
4. Use the other options on the toolbar to add page numbers, the current date and time.
5. To edit the footer, click the **Switch between Header and Footer button** on the toolbar.
6. When you finish adding headers and footers, click the **Close button** on the toolbar.

How can you give page numbers for your document?

Page Numbers

Follow these instructions to add page numbers to a document.

1. Select **Insert |Page Numbers** from the menu bar and the following dialog box will appear.
2. Select the position of the page numbers by choosing "Top of page" or "Bottom of page" from the **Position** drop-down menu.
3. Select the alignment of the page numbers in the **Alignment** drop-down menu.
4. If you do not want the page number to show on the first page (if it is a title page, for example), uncheck the **Show number of first page** box.
5. Click **OK** when finished.

3.6 Mail merge operations

Mail merge is the process of merging or inserting or transferring personal information (usually addresses) from one document into another document and combines them into a single document. Commonly you can use mail merge for mass mailing.

To create for letters, you merge a mail document with a data source. The main document contains the text and other items that remain in each version of the form letter. The data source contains the information that varies in each version of the merged document, such as

the names and addresses of the recipients of a form letter. You can use a new or existing document as a main document. You can also open an existing data source. Mail Merge process consists of three parts (major Steps) as discussed below:

Part I: Creating a main document

1. On the **Tools** menu click **Mail Merge ...**
2. Click on **Create** button and click **Form Letters ...** option.
3. Click on either **Active Window** or **New Main Document** command.
4. Click on edit button at the right side of the **Create** button and click on the form letter name.

Part II: Creating a Data Source

1. On the **Tools** menu, click **Mail Merge ...**
2. Click **Get Data** button.
3. To create a new data source, click **Create Data Source** option.
4. Use the **Remove Field Name** button to remove unwanted field names in the **Field** names in header row list box.
5. Use the **Field Name** text box to enter new fields.
6. When you finish, click **Ok**.
7. The **Save As** dialog will appear, and save the data source file.
8. From the confirmation dialog box displayed, click on **Edit Data Source** to edit the data source or click on **Edit Main Document** to edit the main document.
9. Enter the data in the data form dialog box, click **Add New** button to add new records.
10. When you finish, click **Ok**.

Part III: Merging the Data Source with the main document

After you complete the first and second part of this process:

1. Click where you want to insert the merge fields;

2. Click **Insert Merge Field** button on the **Mail Merge** toolbar, click the field name you want. Repeat 1 and 2 until you complete inserting field names in their proper place in the main document.
3. To merge the data source with the main document, click on Merge to New document button on the Mail Merge toolbar. Finally, MS Word creates a merged document by the name "Form Letters1" and save this file by yourself.

After inserting the field names to the main document, you can use the Mail Merge toolbar to add, modify or delete the data source, to find records and to navigate through the data source. You can also edit the main document and merge the data source to printer.

3.7 Printing

Page Margins

The page margins of the document can be changed using the rulers on the page and the Page Setup window. The ruler method is discussed first:

1. Move the mouse over the area where the white ruler changes to gray.

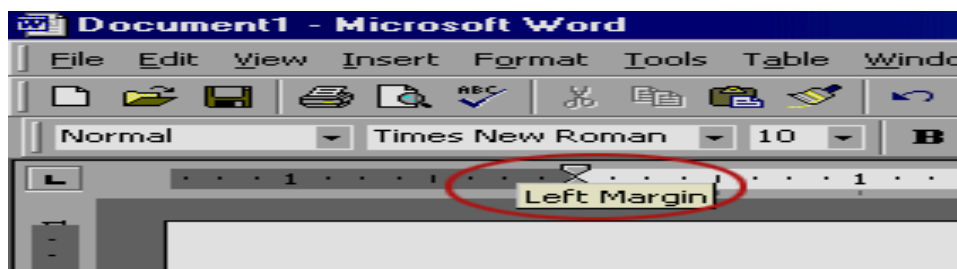


Figure 3.1.11 Page margins using the ruler

2. When the cursor becomes a double-ended arrow “↔”, click with the mouse and drag the margin indicator to the desired location.
3. Release the mouse when the margin is set.

The margins can also be changed using the **Page Setup** dialog box:

1. Select **File|Page Setup** and choose the **Margins tab** in the dialog box.

2. Enter margin values in the **Top**, **Bottom**, **Left**, and **Right** boxes. The **Preview** window will reflect the changes.
3. If the document has **Headers** and/or **Footers**, the distance this text appears from the edge of the page can be changed.
4. Click **OK** when finished.

Page Size and Orientation

Change the orientation page within the Page Setup dialog box.

1. Select **File |Page Setup** and choose the **Paper Size** tab.
2. Select the proper paper size from the drop-down menu.

Change the orientation from **Portrait** or **Landscape** by checking the corresponding radio button.

Print Preview and Printing

Preview your document by clicking the Print Preview button on the standard toolbar or by selecting **File |Print Preview**. When the document is ready to print, click the Print button from the Print Preview screen or select **File |Print**.

How do you select and cancel printer?

If there are more printers installed in your computer or if you are connected to more than one printer, you can choose which one to use for the current job at your hand by clicking on the down arrow in the Name drop-down list box and make selection among the list.

To cancel a printing job or a job waiting to be printed, double-click the printer icon on the status bar. In the printer window, click the job to be cancelled and then click cancel printing on the document menu.

AutoCorrect

Word automatically corrects many commonly misspelled words and punctuation marks with the AutoCorrect feature. To view the list of words that are automatically corrected, select

Tools |AutoCorrect. This may be a hidden feature so click the double arrows at the bottom of the Tools menu listing if the AutoCorrect choice is not listed.

Many options including the accidental capitalization of the first two letters of a word and capitalization of the first word of the sentence can be automatically corrected from this page. If there are words you often misspell, enter the wrong and correct spellings in the **Replace** and **with** fields.

How can you check spelling error and grammar in Word documents?

Spelling and Grammar Check

Word will automatically check for spelling and grammar errors as you type unless you turn this feature off. Spelling errors are noted in the document with a red underline. Grammar errors are indicated by a green underline. To disable this feature, select **Tools |Options** from the menu bar and click the **Spelling and Grammar tab** on the dialog box. Uncheck "**Check spelling as you type**" and "**Check grammar as you type**", and click **OK**.

To use the spelling and grammar checker, follow these steps:

1. Select **Tools |Spelling and Grammar** from the menu bar.
2. The **Spelling and Grammar** dialog box will notify you of the first mistake in the document and misspelled words will be highlighted in red.
3. If the word is spelled correctly, click the **Ignore** button or click the **Ignore All** button if the word appears more than once in the document.
4. If the word is spelled incorrectly, choose one of the suggested spellings in the **Suggestions** box and click the **Change** button or **Change All** button to correct all occurrences of the word in the document. If the correct spelling is not suggested, enter the correct spelling in the **Not in Dictionary** box and click the **Change** button.
5. If the word is spelled correctly and will appear in many documents you type (such as your name), click the **Add** button to add the word to the dictionary so it will no longer appear as a misspelled word.

As long as the **Check Grammar** box is checked in the **Spelling and Grammar** dialog box, Word will check the grammar of the document in addition to the spelling. If you do not want the grammar checked, remove the checkmark from this box. Otherwise, follow these steps for correcting grammar:

1. If Word finds a grammar mistake, it will be shown in the box as the spelling errors. The mistake is highlighted in green text.
2. Several suggestions may be given in the **Suggestions** box. Select the correction that best applies and click **Change**.
3. If no correction is needed (Word is often wrong more than it is right), click the **Ignore** button.

Can you find the synonym for words in the Word dictionary?

Synonyms

Recent versions of MS Word have a new feature for finding synonyms. Simply right-click on the word and select **Synonyms** from the shortcut menu. From the list of suggested words, highlight the word you would like to use or click **Thesaurus...** for more options.

Thesaurus

To use the thesaurus, select **Tools |Language |Thesaurus** from the menu bar or select it from the **Synonyms** shortcut menu as detailed above.

A list of meanings and synonyms are given on the windows. Double-click on the words in the **Meanings** box or click the **Look Up** button to view similar words. Double-click words in the **Replace with Synonym** box to view synonyms of those words. Highlight the word you would like to add and click the **Replace** button.

SELF-TEST EXERCISES

I. Write “True” for correct statement and “False” for a wrong statement on the space provided.

_____1.The use of styles in Word allows you to quickly format a document with a consistent and professional look.

- _____ 2. If you once create a style in MS Word, it is not possible to delete it.
- _____ 3. DELETE key deletes text to the left of the cursor.
- _____ 4. We use Increase Indent and Decrease Indent buttons on the formatting toolbar to create lists of multiple levels.
- _____ 5. You can deselect a selected text by clicking anywhere outside the selection.
- _____ 6. There is only one way of changing page margin in MS Word application.
- _____ 7. You do not need to highlight the cells of the table you want to format.
- _____ 8. We use the table properties dialog box to modify the alignment of the table with the body text and the text within the table.
- _____ 9. Merging the data source with the main document is the first major step in Mail Merge.
- _____ 10. MS Word automatically corrects many commonly misspelled words and punctuation marks with AutoCorrect feature.
- _____ 11. There is only one way of opening MS Word application.
- _____ 12. The options on shortcut menus vary depending on the element that was right-clicked.
- _____ 13. Text-editor word processors include more tools and facilities as compared to full-featured word processors.
- _____ 14. Word processing packages such as MS Word provide you with easy ways of correcting typing mistakes.
- _____ 15. MS Word is the only word processing package available nowadays.

II. Choose the best answers from the alternatives provided

- 1. Highlight color option in the formatting toolbar is used to change:
 - a) Color of a text
 - b) Color behind a text selection
 - c) Style of a text
 - d) all
- 2. Which one of the following buttons does not exist in the formatting toolbar?

- a) Font size
 - b) Style menu
 - c) Font size
 - d) None.
3. We use Font Style in the formatting toolbar:
- a) To bold a text
 - b) To italicize a text
 - c) To underline a text
 - d) all
4. Which one of the following actions help you move (cut) a text?
- a) Highlight the text that will be moved and select Edit |Cut from the menu bar
 - b) Click the Cut button on the standard tool bar
 - c) Press CTRL+X at once.
 - d) all
5. Which one of the following activities will help you select whole paragraph?
- a) Click any one word in the paragraph
 - b) Triple-click with in the paragraph
 - c) Double-click any one word in the paragraph
 - d) None
6. The Table and Borders toolbar allows you:
- a) To add border styles
 - b) To add shading
 - c) To add text effects
 - d) All
7. Which one of the following is not possible?
- a) Cancel a printing job
 - b) Select a different printer if more printers are installed
 - c) Viewing the appearance of the document before being printed
 - d) None.

8. The _____ contains the information that varies in each version of the merged document.
- a) Main document
 - b) Data source
 - c) Title
 - d) None.
9. To print your document, you require:
- a) Printer installed to your computer.
 - b) Printer connected to your computer.
 - c) Paper to print your document.
 - d) all
10. Which one of the following is possible after creating a table?
- a) Inserting rows
 - b) Deleting rows
 - c) Inserting column
 - d) all
11. To view shortcut menus you:
- a) left-click the mouse
 - b) right-click the mouse
 - c) Double-click the mouse
 - d) all
12. Which one of the following is not possible using MS Word?
- a) Renaming document
 - b) Creating document
 - c) Deleting document
 - d) None.
13. To open an existing MS Word document you can:
- a) Click the Open File button on the standard tool bar.

b) Choose **File |Open** from the menu bar.

c) Press **CTRL+O** on the keyboard.

d) all

14. Which one of the following is true?

a) Press HOME key to go to end of a line.

b) Press END key to go to beginning of a line.

c) Press CTRL+END keys to go to end of the document

d) all

15. Which one of the following is not a word processing package?

a) WordPerfect

b) Easy Writer

c) MS Word

d) None

III. Match the menu methods on the right to selections on the left.

_____ 1. One cell

A. Table |Select |Table

_____ 2. One row

B. Table |Select| Column

_____ 3. One column

C. Table |Select |Row

_____ 4. Entire table

D. Table |Select| Cell

_____ 5. Multiple column

E. Drag over the row selector

_____ 6. Multiple row

F. Drag over the column selector

IV. Complete the following statements by filling the blank space with an appropriate word/phrase

1. To quickly place text in a column format, click the _____ button on the standard toolbar.

2. Use _____ button on the formatting toolbar to align your text.

3. In a picture toolbar, _____ will add a variety of borders to a graphic.

4. _____ is a text that is added to the top margin of every page such as document title or page number.

5. _____ is a large letter that begins a paragraph and drops through several lines of text.

6. The _____ feature in Microsoft Word allows you to create fancy text in a document.
7. To activate the WordArt feature, click on the _____ menu options from the pull-down menu.
8. To close WordArt, point and click outside the WordArt _____.
9. To add color to the text in WordArt, click on the _____ option button on the WordArt Toolbar.
10. To insert a horizontal line in a Word document, click on the _____ button from the Toolbar.
11. An easy way to format columns in Microsoft Word is to click on the _____ button on the Standard Toolbar.
12. A column break can be inserted by clicking on the _____ command in the menu.
13. Pictures (can / cannot) be inserted in a document with columns.
14. To create watermarks, open the _____ Toolbar.
15. To place text in a drawing object behind text in a document, click on the _____ option from the Drawing menu on the Drawing Toolbar
16. _____ contains shortcut buttons in order to make editing and formatting quicker and easier.
17. Pressing _____ keys simultaneously helps you move to top of a document.
18. All open documents are listed under _____ menu.
19. _____ allow you to access various word commands faster than using the options on the Menu bar.
20. _____ are the most commonly used application packages which allow you perform word processing functions.

Chapter Four: Ms-Excel

Objectives:

Upon completion of this chapter, you will be able to:

- ❖ start MS Excel;
- ❖ identify components of a workbook and excel window elements;
- ❖ open and save workbooks;
- ❖ add and rename a worksheet
- ❖ explain and describe the functions of spreadsheet management and its applications;
- ❖ create, open and save spreadsheet files;
- ❖ handle MS Excel files for finding and copying files, moving and renaming files and converting files to and from other programs;
- ❖ move around in workbooks, change, arrange, manage workspace, organize display and print settings;
- ❖ edit cell contents, clear and delete cells, or columns and format the worksheet easily;
- ❖ format text and cells, apply borders, shadings, background patterns;
- ❖ create formulas and auditing workbooks used for quick calculation on a worksheet;
- ❖ create a chart, format, add and change text and data in a chart;
- ❖ create drawing and importing pictures;
- ❖ format, sort and search from spreadsheet list and create and run queries to retrieve data effectively;
- ❖ create and edit chart using MS Excel;
- ❖ create and edit drawing using MS Excel;
- ❖ manage lists in MS Excel;
- ❖ retrieve data when required;
- ❖ summarize data in lists and tables;
- ❖ add footer and/or header using MS Excel;
- ❖ print document created using MS Excel.
- ❖ summarize values in a list and tables effectively.

4.1 Introduction

Spreadsheet software is an application program that allows you to organize data, perform calculations, make decisions, graphs data, and generates report and so on. With spreadsheet software, based on the traditional accounting worksheet, you can develop personalized reports involving the use of extensive mathematical, financial, statistical and logical processing. Its automatic calculation abilities can save you almost a life time of tedious arithmetic.

Among the various types of spreadsheet software, this chapter will focus on Microsoft Excel (MS Excel). Excel allows you to create spreadsheets much like paper ledgers that can perform automatic calculations. Each Excel file is a workbook that can hold many worksheets. The worksheet is a grid of columns (designated by letters) and rows (designated by numbers). The letters and numbers of the columns and rows (called labels) are displayed in gray buttons across the top and left side of the worksheet. The intersection of a column and a row is called a cell. Each cell on the spreadsheet has a cell address that is the column letter and the row number. Cells can contain text, numbers, or mathematical formulas. Thus, I hope that in this chapter, you will acquire basic skills on how to use MS Excel for different purposes.

MS EXCEL BASICS, FILES AND WORKSHEETS

Microsoft Excel (MS Excel) is a spreadsheet program that lets you manipulate and present data in almost any way you choose. It is a replacement for accountants' columnar pad, pencil and calculator.

4.2 Creating, saving, closing, opening a work book

How are you going to start MS Excel?

Dear students! To open MS Excel, click **start |programs |MS Excel** or click **MS Excel icon** on the office shortcut toolbar. After opening Access, you will be presented with the standard Spreadsheet window shown below.

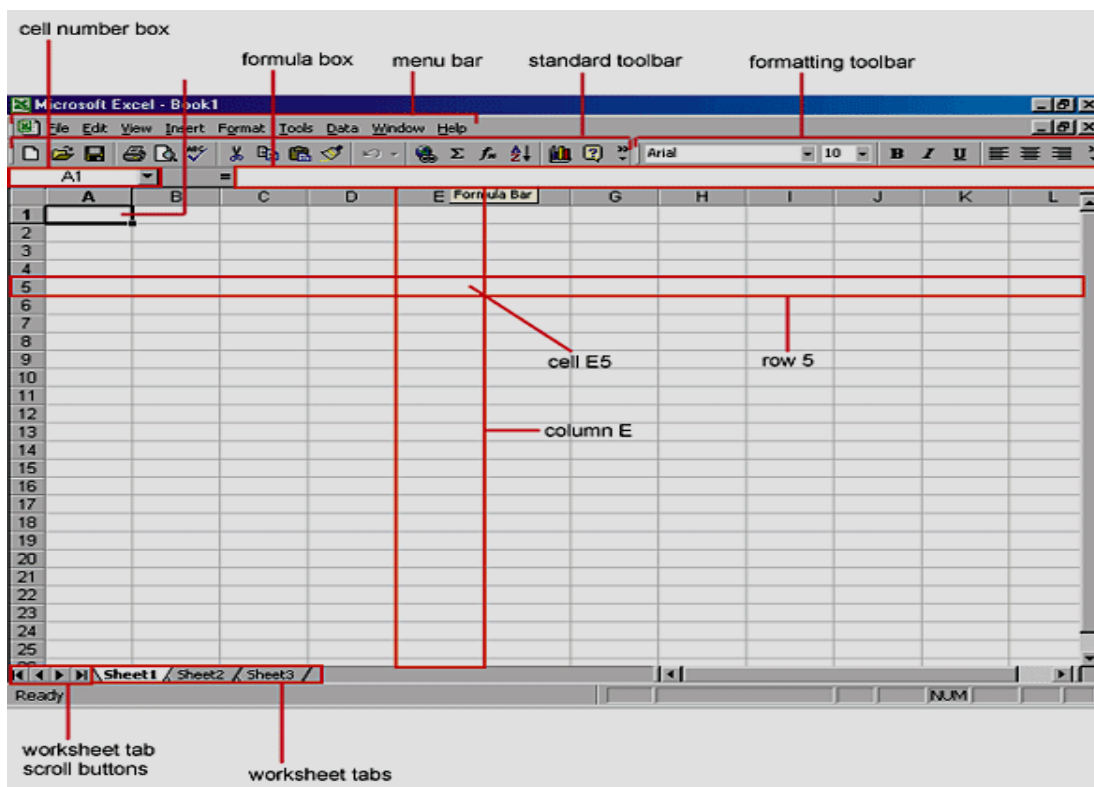


Figure 4.2.1 Elements of the MS Excel window

Adding and Renaming Worksheets

Dear students, basically, whenever you create, save, close or open a file in MS Excel; you are creating, saving, closing or opening a workbook. A workbook is a MS Excel file that organizes several sheets in which you can work and store your data. The worksheets in a workbook are accessible by clicking the worksheet tabs just above the status bar. By default, three worksheets are included in each workbook. To add a sheet, select Insert |Worksheet from the menu bar.

It is possible to add potentially up to 255 different worksheets in a workbook.

- ❖ To rename the worksheet tab, right-click on the tab with the mouse and select **Rename** from the shortcut menu. **Type the new name** and press the **ENTER** key.

The Standard Toolbar

This toolbar is located just below the menu bar at the top of the screen when you open MS Excel, and allows you to quickly access basic Excel commands.

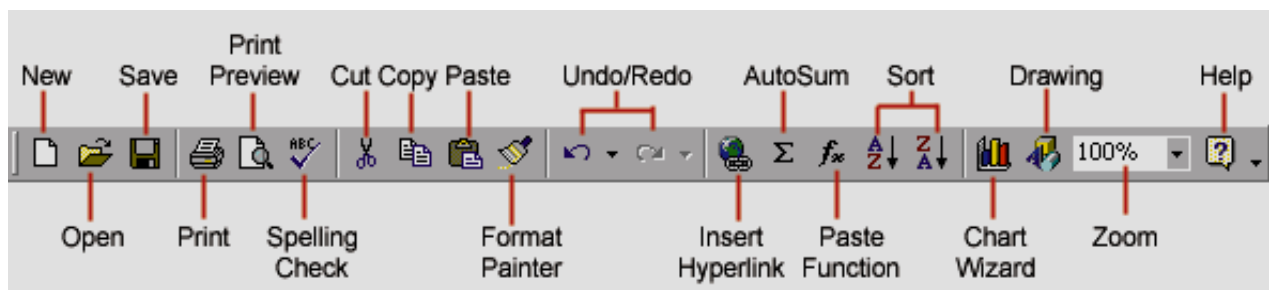


Figure 4.2.2 Standard toolbar of MS Excel

New - Select File |New from the menu bar, or press CTRL+N, or click the new button to create a new workbook.

Open - Click File |Open from the menu bar, or press CTRL+O, or click the Open folder button to open an existing workbook.

Save - The first time you save a workbook, select File |Save As and name the file. After the file is named click File |Save or CTRL+S, or the Save button on the standard toolbar.

Print - Click the Print button to print the worksheet.

Print Preview - This feature will allow you to preview the worksheet before it prints. It gives you options if you want to change or not.

Spell Check - Use the spell checker to correct spelling errors on the worksheet.

Undo and Redo - Click the backward Undo “↶” arrow to cancel the last action you performed, whether it be entering data into a cell, formatting a cell, entering a function, etc. Click the forward Redo “↷” arrow to cancel the undo action.

Insert Hyperlink - To insert a hyperlink to a web site on the Internet, type the text into a cell you want to be the link that can be clicked with the mouse. Then, click the Insert Hyperlink button and enter the web address you want the text to link to and click OK.

Zoom - To change the size that the worksheet appears on the screen, choose a different percentage from the Zoom menu.

Can you customize Excel menus and toolbars?

Dear Students! If your answer to the above question is “Yes”, you are absolutely right. It is possible to do so. Customizing Excel menus and toolbars is similar to customizing MS Word menus and toolbars. Thus, refer chapter three about how to “Customize MS Word Menus and Toolbars”.

Toolbars

Many toolbars displaying shortcut buttons are available. Select View |Toolbars from the menu bar to select more toolbars.

Close a Document

Close the current document by selecting File |Close or click the Close icon if it's visible on the Standard Toolbar, or click on the close button at the right corner of the menu bar.

4.3 Formatting cells and editing worksheets

Modifying a Worksheet

How can you add Rows/Columns and resize them in a worksheet?

Well! To add a row to a worksheet, select Insert |Rows from the menu bar, or highlight the row by clicking on the row label, right-click with the mouse, and choose Insert. Similarly, add a column by selecting Insert |Columns from the menu bar, or highlight the column by clicking on the column label, right-click with the mouse, and choose Insert.

As far as resizing Rows and Columns is concerned, there are two ways to resize rows and columns:

1. Resize a row by dragging the line below the label of the row you would like to resize.
Resize a column in a similar manner by dragging the line to the right of the label corresponding to the column you want to resize, or
2. Click the row or column label and select Format |Row |Height or Format |Column |Width from the menu bar to enter a numerical value for the height of the row or width of the column.

Selecting Cells and Moving Through Cells

Before a cell can be modified or formatted, it must first be selected (highlighted). See table 4.2.1.

Table 4.2.1 Selecting cell

Cells to select	Mouse Action
One cell	click once in the cell
Entire row	click the row label
Entire column	click the column label
Entire worksheet	click the whole sheet button
Cluster of cells	drag mouse over the cells or hold down the SHIFT key while using the arrow keys

To activate the contents of a cell, double-click on the cell or click once and press F2. Use the mouse to select a cell you want to begin adding data to and use the keyboard strokes listed in table 4.2.2 to move through the cells of a worksheet.

Table 4.2.2 moving through cells

<u>Movement</u>	<u>Key Stroke</u>
One cell up.....	up arrow key
One cell down.....	down arrow key or ENTER
One cell left.....	left arrow key

One cell right.....	right arrow key or TAB
Top of the worksheet (cell A1).....	CTRL+HOME
End of the worksheet (last cell containing data)....	CTRL+END
End of the row.....	CTRL +right arrow key
End of the column.....	CTRL +down arrow key
Any cell.....	File Go To menu bar command

Moving and Copying Cells

Moving Cells

Dear student! To cut cell contents that will be moved to another cell, select Edit |Cut from the menu bar or click the Cut button on the standard toolbar.

Copying Cells

Well! To copy the cell contents, select Edit |Copy from the menu bar or click the Copy button on the standard toolbar.

Pasting Cut and Copied Cells

Highlight the cell you want to paste the cut or copied content into and select Edit |Paste from the menu bar or click the Paste button on the standard toolbar.

Drag and Drop

If you are moving the cell contents only a short distance, the drag-and-drop method may be easier. Simply drag the highlighted border of the selected cell to the destination cell with the mouse.

Freeze Panes

If you have a large worksheet with column and row headings, those headings will disappear as the worksheet is scrolled. By using the Freeze Panes feature, the headings can be visible at all times.

1. Click the label of the row below the row that should remain frozen at the top of the worksheet.
2. Select Window |Freeze Panes from the menu bar.

To remove the frozen panes, select Window |Unfreeze Panes.

Formatting Cells

Formatting Toolbar

The contents of a highlighted cell can be formatted in many ways. Font and cell attributes can be added from shortcut buttons on the formatting bar. If this toolbar is not already visible on the screen, select View |Toolbars |Formatting from the menu bar.

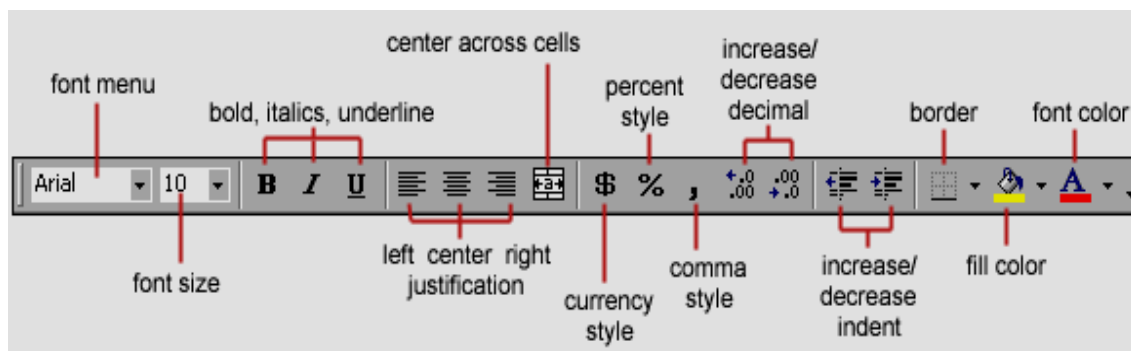


Figure 4.2.3 Formatting toolbar

Format Cells Dialog Box

For a complete list of formatting options, right-click on the highlighted cells and choose Format Cells from the shortcut menu or select Format |Cells from the menu bar.

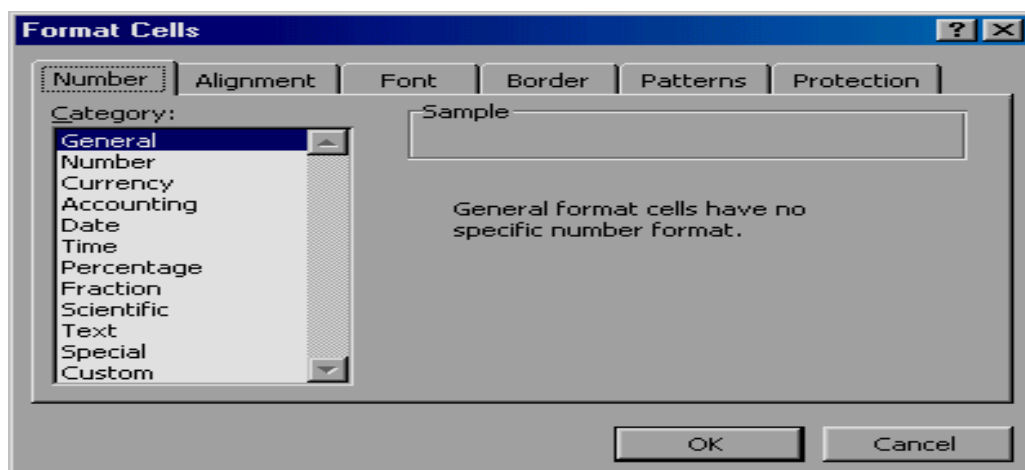


Figure 4.2.4 Cell Formatting dialog box

Number tab - The data type can be selected from the options on this tab. Select General if the cell contains text and number, or another numerical category if the cell is a number that will be included in functions or formulas.

Alignment tab - These options allow you to change the position and alignment of the data with the cell.

Font tab - the entire font attributes are displayed in this tab including font face, size, style, and effects.

Border and Pattern tabs - These tabs allow you to add borders, shading, and background colors to a cell.

Center across cells

To merge cells in a row or column and center the cell contents, click Merge and Center icon on the Formatting toolbar.

Dates and Times

If you enter the date "July 8, 2005" into a cell on the worksheet, Excel will automatically recognize the text as a date and change the format to "8-July-05". To change the date format, select the Number tab from the Format Cells window. Select "Date" from the Category box and choose the format for the date from the type box. If the field is a time, select "Time" from the Category box and select the type in the right box. Date and time combinations are also listed. Press OK when finished.

Styles

What do you think is the advantage of using styles in MS Excel?

Dear students! Similar to what you have learned in MS Word, the use of styles in Excel also allow you to quickly format your worksheet, provide consistency, and create a professional look. Select the Styles drop-down box from the formatting toolbar (it can be added by customizing the toolbar). Excel provides several preset styles such as:

Comma - Adds commas to the number and two digits beyond a decimal point.

Commas [0] - Comma style that round to a whole number.

Currency - Formats the number as currency with a dollar sign, commas, and two digits beyond the decimal point.

Currencies [0] - Currency style that round to a whole number.

Normal - Reverts any changes to general number format.

Percent - Changes the number to a percent and adds a percent sign

Style Dialog Box: Create your own styles from the Style Dialog Box.

1. Highlight the cell(s) you want to add a style to.
2. Select Format |Style... from the menu bar.
3. Modify the attributes by clicking the Modify button.
4. Check all the items under Style: includes that the style should format.
5. Click Add to preview the formatting changes on the worksheet.
6. Highlight the style you want to apply to the paragraph and click Apply.

Create a New Style

1. Select the cell on the worksheet containing the formatting you would like to set as a style.
2. Click the Style box on the Formatting toolbar so the style name is highlighted.
3. Delete the text in the Style box and type the name of the new style.
4. Press ENTER when finished.

What is a Format Painter?

A handy feature on the standard toolbar for formatting text is the Format Painter . If you have formatted a cell with a certain font style, date format, border, and other formatting options, and you want to format another cell or group of cells the same way, place the cursor within the cell containing the formatting you want to copy. Click the Format Painter button in the standard toolbar (notice that your pointer now has a paintbrush beside it). Highlight the cells you want to add the same formatting to. To copy the formatting to many groups of cells, double-click the Format Painter button. The format painter remains active until you press the ESC key to turn it off.

AutoFormat: Excel has many preset table formatting options. Add these styles by following steps:

1. Highlight the cells that will be formatted.
2. Select Format |AutoFormat from the menu bar.
3. On the AutoFormat dialog box, select the format you want to apply to the table by clicking on it with the mouse. Use the scroll bar to view all of the formats available.
4. Click the Options button to select the elements that the formatting will apply to.
5. Click **OK** when finished.

4.4 Working with formulas and functions

Formulas and Functions

Can you create mathematical formulas and execute functions in MS Excel?

Yes! The distinguishing feature of a spreadsheet program such as Excel is that it allows you to create mathematical formulas and execute functions. Otherwise, it is not much more than a large table for displaying text. This page will show you how to manage these calculations.

Formulas

Formulas are entered in the worksheet cell and must begin with an equal sign "=". The formula then includes the addresses of the cells whose values will be manipulated with appropriate operands placed in between. After the formula is typed into the cell, the calculation executes immediately and the formula itself is visible in the formula bar.

Linking Worksheets

You may want to use the value from a cell in another worksheet within the same workbook in a formula. For example, the value of cell A1 in the current worksheet and cell A2 in the second worksheet can be added using the format "sheet name! Cell address". The formula for

this example would be "`=A1+Sheet2! A2`" where the value of cell A1 in the current worksheet is added to the value of cell A2 in the worksheet named "Sheet2".

Relative, Absolute, and Mixed Referencing

Calling cells by just their column and row labels (such as "F3") is called relative referencing. When a formula contains relative referencing and it is copied from one cell to another, Excel does not create an exact copy of the formula. It will change cell addresses relative to the row and column they are moved to. For example, if a simple addition formula in cell C1 "`= (A1+B1)`" is copied to cell C2, the formula would change to "`= (A2+B2)`" to reflect the new row. To prevent this change, cells must be called by absolute referencing and this is accomplished by placing dollar signs "\$" within the cell addresses in the formula. Continuing the previous example, the formula in cell C1 would read "`= ($A$1+$B$1)`" if the value of cell C2 should be the sum of cells A1 and B1. Both the column and row of both cells are absolute and will not change when copied. Mixed referencing can also be used where only the row OR column is fixed. For example, in the formula "`= (A$1+$B2)`", the row of cell A1 is fixed and the column of cell B2 is fixed.

Basic Functions

Functions can be a more efficient way of performing mathematical operations than formulas. For example, if you want to add the values of cells D1 through D10, you would type the formula "`=D1+D2+D3+D4+D5+D6+D7+D8+D9+D10`". A shorter way would be to use the SUM function and simply type "`=SUM(D1:D10)`". Use '*' to multiply numbers. For example, if you want to multiply the values in cell A1 and B1, you would type the formula "`=A1*B1`". If you want, for instance, to calculate 72% of a given number in cell A1, you would type the formula "`=0.72*A1`". Similarly, if you want to subtract the value in B3 from the value in A3, you would type the formula "`=A3 - B3`". Several other functions and examples are given in the table 4.2.3.

Table 4.2.3 Examples of basic functions and their description

Function	Example	Description
SUM	=SUM(A1:100)	Finds the sum of cells A1 through A100
SUM	=SUM(A1,A100)	Finds the sum of cells A1 and A100
AVERAGE	=AVERAGE(B1:B10)	Finds the average of cells B1 through B10
MAX	=MAX(C1:C100)	Returns the highest number from cells C1 through C100
MIN	=MIN(D1:D100)	Returns the lowest number from cells D1 through D100
SQRT	=SQRT(D10)	Finds the square root of the value in cell D10
TODAY	=TODAY()	Returns the current date (leave the parentheses empty)

Function Wizard

You can view all functions available in Excel by using the Function Wizard. To do so:

1. Activate the cell where the function will be placed and click the Function Wizard button on the standard toolbar.
2. From the Paste Function dialog box, browse through the functions by clicking in the Function category menu on the left and select the function from the Function name choices on the right. As each function name is highlighted, a description and example of use is provided below the two boxes.
3. Click OK to select a function.
4. The next window allows you to choose the cells that will be included in the function.
5. Click OK when all the cells for the function have been selected.

Activity 1

time allocated 10 minutes

1. Open the workbook **payroll** and create the following table on sheet **Salary**.

ABC Company Payroll form 001

No	Name	Salary	Deduction (3%)	Pension (4%)	Net Salary
1	Kebede Girma	450			
2	Bekele Churbo	1200			
3	Demelash Argaw	1370			
4	Yihenew Sewuyew	980			
5	Kula Milkessa	2250			

2. Insert a column between Deduction and Net salary and name it **Gross salary**.

3. Calculate deduction and pension by writing a formula in deduction and pension columns to calculate the deduction and pension.

4. Calculate gross salary by writing a formula in gross salary column to calculate the gross salary.

5. Calculate net salary.

6. Save the workbook.

7. Close the workbook and exit MS Excel.

Auto sum

Use the Auto sum function to add the contents of a cluster of adjacent cells.

1. Select the cell that the sum will appear in, that is outside the cluster of cells whose values will be added. Cell C2 was used in this example.
2. Click the Auto sum button (Greek letter sigma) on the standard toolbar.
3. Highlight the group of cells that will be summed (cells A2 through B2 in this example).
4. Press the ENTER key on the keyboard or click the green check mark button on the formula bar .

4.5 Sorting and filtering

Basic Sorts

To execute a basic descending or ascending sort based on one column, highlight the cells that will be sorted and click the Sort Ascending (A-Z) button or Sort Descending (Z-A) button on the standard toolbar.

Complex Sorts

To sort by multiple columns, follow these steps:

1. Highlight the cells, rows, or columns that will be sorted.
2. Select Data | Sort from the menu bar.
3. From the Sort dialog box, select the first column for sorting from the Sort By drop-down menu and choose either ascending or descending.
4. Select the second column and, if necessary, the third sort column from the Then By drop-down menus.
5. If the cells you highlighted included the text headings in the first row, mark my list has...Header row and the first row will remain at the top of the worksheet.
6. Click the Options button for special non-alphabetic or numeric sorts such as months of the year and days of the week.
7. Click OK to execute the sort.

Auto fill

The Auto fill feature allows you to quickly fill cells with repetitive or sequential data such as chronological dates or numbers, and repeated text.

1. Type the beginning number or date of an incrementing series or the text that will be repeated into a cell.
2. Select the handle at the bottom, right corner of the cell with the left mouse button and drag it down as many cells as you want to fill.
3. Release the mouse button.

If you want to auto fill a column with cells displaying the same number or date you must enter identical data to two adjacent cells in a column. Highlight the two cells and drag the handle of the selection with the mouse.

Alternating Text and Numbers with Auto fill

The Auto fill feature can also be used for alternating text or numbers. For example, to make a repeating list of the days of the week, type the seven days into seven adjacent cells in a column. Highlight the seven cells and drag down with the mouse.

Auto filling Functions

Auto fill can also be used to copy functions. In the example below, column C and column D each contain lists of numbers and column F contains the sums of columns C and D for each row. The function in cell F2 would be "`=SUM (C2:D2)`". This function can then be copied to the remaining cells of column F by activating cell F2 and dragging the handle down to fill in the remaining cells. The auto fill feature will automatically update the row numbers as shown below if the cells are referenced relatively.

Filtering

Filtering is a quick and easy way to find and work with a subset of data in a list. A filtered list displays only the rows that meet the criteria you specify for a column. Microsoft Excel provides two commands for filtering lists: AutoFilter, which includes filter by selection, for simple criteria; and Advanced Filter, for more complex criteria. Unlike sorting, filtering does not rearrange a list. Filtering temporarily hides rows you do not want to be displayed. When Excel filters rows, you can edit, format, chart, and print your list subset without rearranging or moving it.

When you use the AutoFilter command, AutoFilter arrows appear to the right of the column labels in the filtered list. Microsoft Excel indicates the filtered items with blue. You use custom AutoFilter to display rows that contain either one value or another. You can also use

custom AutoFilter to display rows that meet more than one condition for a column; for example, you might display rows that contain values within a specific range.

To work with filter, click a cell in the list you want to filter. On the Data menu, point to Filter, and then click AutoFilter or Advanced Filter as per your need.

4.6 Working with charts and graphics

Microsoft Excel (MS Excel) is a spreadsheet program that also lets you manipulate and present data in graphics and charts.

Charts

Charts allow you to present data entered into the worksheet in a visual format using a variety of graph types. Before you make a chart you must first enter data into a worksheet.

Chart Wizard

The Chart Wizard brings you through the process of creating a chart by displaying a series of dialog boxes.

1. Enter the data into the worksheet and highlight all the cells that will be included in the chart including headers.
2. Click the Chart Wizard button on the standard toolbar to view the first Chart Wizard dialog box.
3. Chart Type - Choose the Chart type and the Chart subtype if necessary. Click Next.
4. Chart Source Data - Select the data range (if different from the area highlighted in step 1) and click Next.
5. Chart Options - Enter the name of the chart and titles for the X- and Y-axes. Other options for the axes, grid lines, legend, data labels, and data table can be changed by clicking on the tabs. Press Next to move to the next set of options.
6. Chart Location - Click As new sheet if the chart should be placed on a new, blank worksheet or select As object if the chart should be embedded in an existing sheet and select the worksheet from the drop-down menu.

7. Click Finish to create the chart.

Resizing and Moving the Chart

To resize the chart, click on its border and drag any of the nine black handles to change the size. Handles on the corners will resize the chart proportionally while handles along the lines will stretch the chart. To move a chart, select the border of the chart, hold down the left mouse button, and drag the chart to a new location. Elements within the chart such as the title and labels may also be moved within the chart. Click on the element to activate it, and use the mouse to drag the element to move it. Chart formatting tool bar look like the one indicated in figure 4.5.6.

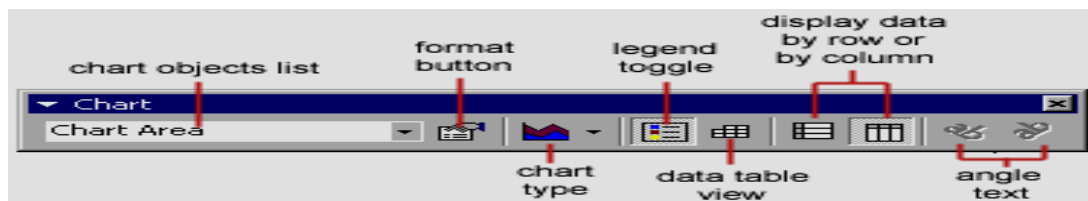


Figure 4.2.5 Chart Formatting toolbar

Chart Objects List - To select an object on the chart to format, click the object on the chart or select the object from the Chart Objects List and click the **Format button**. A window containing the properties of that object will then appear to make formatting changes.

Chart Type - Click the arrowhead on the chart type button to select a different type of chart.

Legend Toggle - Show or hide the chart legend by clicking this toggle button.

Data Table view - Display the data table instead of the chart by clicking the Data Table toggle button.

Display Data by Column or Row - Charts the data by columns or rows according to the data sheet.

Angle Text - Select the category or value axis and click the Angle Downward or Angle Upward button to angle the selected by +/- 45 degrees.

Copying the Chart to Microsoft Word

A finished chart can be copied into a Microsoft Word document. Select the chart and click Copy. Open the destination document in Word and click Paste.

4.7 Page properties and printing

Page Properties

Page Breaks

To set page breaks, within the worksheet, select the row you want to appear just below the page break by clicking the row's label. Then choose **Insert |Page Break** from the menu bar. You may need to click the double down arrow at the bottom of the menu list to view this option.

Page Setup

Select File |Page Setup from the menu bar to format the page, set margins, and add headers and footers.

Page - Select the Orientation under the Page tab in the Page Setup window to make the page Landscape or Portrait. The size of the worksheet on the page can also be formatted under Scaling. To force a worksheet to print only one page wide so all the columns appear on the same page, select Fit to 1 page(s) wide.

Margins - Change the top, bottom, left, and right margins under the Margins tab. Enter values in the header and footer fields to indicate how far from the edge of the page this text should appear. Check the boxes for centering horizontally or vertically on the page.

Header/Footer - Add preset headers and footers to the page by clicking the drop-down menus under the Header/Footer tab. To modify a preset header or footer, or to make your own, click the Custom Header and Custom Footer buttons. A new window will open allowing you to enter text in the left, center, or right on the page.

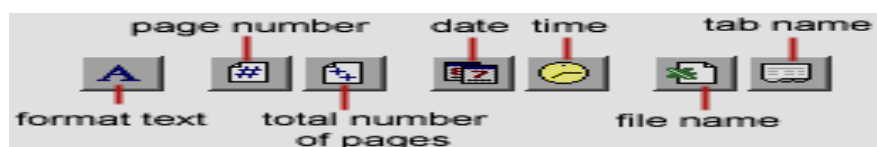


Figure 4.2.6 Header/footer dialog box

Format Text - Click this button after highlighting the text to change the font, size, and style.

Page Number - Insert the page number of each page.

Total Number of Pages - Use this feature along with the page number to create strings such as "page 6 of 36". This indicates the 6th page of a document containing 36 pages.

Date - Add the current date.

Time - Add the current time.

File Name - Add the name of the workbook file.

Tab Name - Add the name of the worksheet's tab.

Sheet - Check Gridlines if you want the gridlines dividing the cells to be printed on the page. If the worksheet is several pages long and only the first page includes titles for the columns, select Rows to repeat at top to choose a title row that will be printed at the top of each page.

Printing

Print Preview

Select File |Print Preview from the menu bar to view how the worksheet will print. Click the Next and Previous buttons at the top of the window to display the pages and click the Zoom button to view the pages closer. Make page layout modifications needed by clicking the Page Setup button. Click Close to return to the worksheet or **Print** to continue printing.

Print: To print the worksheet, select File |Print from the menu bar.

Print Range - Select either all pages or a range of pages to print.

Print What - Select selection of cells highlighted on the worksheet, the active worksheet, or all the worksheets in the entire workbook.

Copies - Choose the number of copies that should be printed. Check the Collate box if the pages should remain in order.

Click OK to print.

Activity 2

1. Open the workbook payroll and create the following table on sheet Salary.

2. Sort the data first by Name ascending order and then by Salary descending order.
3. Use AutoFilter to filter out those: a) whose salary is 980, b) whose salary is less than 500 or greater than 1000 c) Whose name begins with **H**.
4. Apply Borders, alignments, text color, and shading, as you want in your table.
4. Create a 3-D pie chart for Name and Salary as new sheet and format it as you like.
5. Save the workbook Payroll.
6. Close the workbook and exit MS Excel.

SUMMARY

Spreadsheet software is used mainly to manipulate numerical data. The result of such manipulation of data is used in making useful decisions on a particular application. Functions of various categories are provided to handle various types of computations. Ms Excel is one of the most popular spreadsheet software packages.

Different types of charts and tools to enhance computation are also available in MS Excel, so that tables of numbers in a spreadsheet can be represented pictorially in more descriptive ways. Moreover, MS Excel has tools to do some database operations like: sorting, searching and filtering.

SELF TEST EXERCISE

I. Write “True” for correct statement and “False” for wrong statement on the space provided.

- _____ 1. Different MS Excel toolbars are used to quickly access basic Excel commands.
- _____ 2. Columns in MS Excel are designated by numbers.
- _____ 3. To rename the worksheet tab, we can right-click on the tab with the mouse and select Rename from the shortcut menu.
- _____ 4. Customizing MS Excel menu is similar to that of MS Word.

- _____ 5. Each MS Excel file is a worksheet that can hold many workbooks.
- _____ 6. Before a cell is modified or formatted, it must first be selected (highlighted).
- _____ 7. If you are moving the cell contents only a short distance, the drag-and-drop method may be easier.
- _____ 8. Functions can be a more efficient way of performing mathematical operations than formulas.
- _____ 9 We can press (use) CTRL+HOME keys to go to top of the worksheet.
- _____ 10 After the formula is typed into a cell, the formula is visible in the formula bar.
- _____ 11. If we want to edit an image, we should click on the image once with a mouse.
- _____ 12. To print the worksheet, select **File|Print** from the menu bar.
- _____ 13. It is not possible to copy MS Excel chart into a Microsoft Word document.
- _____ 14. Auto fill can be used to copy functions.
- _____ 15. Before you can make a chart, you must first enter data into a worksheet.

II. Choose the appropriate answer among the alternatives given for each of the following questions and write the letter corresponding to the correct answer on the space provided.

- _____ 1. The letters and numbers that are used to identify columns and rows are known as _____.
- a) Pages
 - b) Orders
 - c) Labels
 - d) all
- _____ 2. Which one of the following is not a function of spreadsheet software?
- a) Organize data
 - b) Perform calculation
 - c) Generate report
 - d) None
- _____ 3. Cells in MS Excel can contain:
- a) Text

- b) Number
- c) Mathematical formula
- d) all

_____4. Which one of the following icon is not available in MS Excel standard toolbar?

- a) AutoSum
- b) Font
- c) Paste Function
- d) all

_____5. How many worksheets are included in a workbook by default?

- a) One
- b) Two
- c) Three
- d) None

_____6. To activate the contents of a cell:

- a) Double-click on the cell
- b) Click once on the cell and press F2
- c) Double-click the column heading
- d) a and b

_____7. If we press CTRL +down arrow key, we move:

- a) End of the column
- b) One cell down
- c) Top of the worksheet
- d) None.

_____8. Clicking the paste button on the standard toolbar is the same as:

- a) Selecting Edit |Paste from the menu bar
- b) Highlight the cell
- c) Press CTRL+O on the keyboard
- d) all

- _____10. Which one of the following formula finds the sum of cells A10 through A45?
- a) SUM (A1:A45)
 - b) SUM (A10:A45)
 - c) SUM (A10-A45)
 - d) all
- _____11. If you want to select entire column:
- a) Click the whole sheet button
 - b) Click the row label
 - c) Click once in the cell
 - d) None
- _____12. Which one of the following is not true when we work with pictures in MS Excel?
- a) Click and drag the handles to resize the image
 - b) The handles on the corner resize the image proportionally
 - c) The handles on the straight lines stretch the image
 - d) None.
- _____13. When we use filter, Microsoft Excel indicates the filtered items with _____ color.
- a) Blue
 - b) Green
 - c) Red
 - d) None
- _____14. A filtered list displays only the rows that meet the _____ you specify for a column.
- a) Address

- b) Label
- c) Criteria
- d) all

_____15. Which one of the following buttons belongs to Chart Formatting toolbar?

- a) Legend toggle
- b) Format button
- c) Chart type
- d) all

_____16. The Auto fill feature allows you to quickly fill cells with:

- a) Repetitive data
- b) Sequential data
- c) Repeated text
- d) all

III. Complete the following statements by filling the blank space. With an appropriate word.

1. Each cell on the spreadsheet has a _____ that is the column letter and the row number.
2. _____ in MS Excel is designated by letters.
3. MS Excel is a _____ program (package).
4. Worksheets in a workbook are accessible by clicking _____.
5. The intersection of a column and a row is called a _____.
6. _____ is entered in the worksheet cell and must begin with an equal sign “=”.
7. To add a _____ to a worksheet, highlight the row by clicking on the row label, right-click with the mouse, and choose **Insert**.
8. To copy a formatting to many groups of cells, double-click the _____ button.
9. By using _____ feature, we can make parts of a worksheet visible at all times.
10. Calling cells by just their column and row labels is called _____.

11. _____ toolbar allows you to draw a number of geometrical shapes, arrows, flow chart elements, stars, and more on the worksheet.
12. _____ is a quick and easy way to find and work with a subset of data in a list.
13. _____ brings you through the process of creating a chart by displaying a series of dialog boxes.
14. Select the _____ under page tab in the page setup window to make the page Landscape or Portrait.
15. _____ allows you to present data entered into the worksheet in a visual format using a variety of graph types.

Chapter Five: Ms-Access

Objectives:

At the end of the unit, you will be able to perform the following basic activities:

- ❖ understand and make use of computerized database systems developed for different activities.,
- ❖ create your own small and simple databases.,
- ❖ create easily manageable data handling (keeping) mechanisms.,
- ❖ create easy data accessing mechanism.,
- ❖ generate required report from a database.,
- ❖ define a database;
- ❖ explain role of MS Access software in office automation;
- ❖ discuss basic steps in designing a database;
- ❖ use MS-Access to create database;
- ❖ create files (tables).,
- ❖ add records to your database;
- ❖ move around in the records in your table;
- ❖ design and create queries.;
- ❖ retrieve information from your database;
- ❖ edit and delete records;
- ❖ perform different activities on the contents of the files;
- ❖ search for a particular record;
- ❖ sort your records in alphabetical or numerical order, and
- ❖ identify and work on Legal databases

5.1 Introduction

Database Management Systems (DBMS) is a software that is used to create, store, modify and access data in a database in a uniform way. The main purpose of DBMS is to make data available to you when required.

The detail of DBMS in general and MS Access in particular will be given emphasis in this chapter. The need for computerized database and how to design and manage MS Access will be broad discussed. In general, this chapter consists of three sections. The first section deals with basics of database management, MS Access and tables, the second section focuses on locating and editing data, and the last section teaches how you can work on forms and generate reports.

Database and Database Management Systems

The purpose of this section is introducing you with the different preliminary concepts regarding database that are important throughout the chapter. The section deals with what database is, commonly used database terms, steps to create a database, and features of MS Access. It also covers techniques of creating database and tables using MS Access

Would you define the term database and Database Management Systems?

Well! A database is a collection of related information. It is an organized collection of data (information) that provides a way of finding the stored information quickly and easily. A Database Management System (DBMS) is a software program that lets you create databases and then manipulate data in them. Most of today's database management systems, including Access are called Relational Database Management Systems. In a Relational Database Management System, data is organized as a collection of tables. A relationship between two tables in a relational DBMS is formed through a common field.

Dear students! There are also other terminologies that are used often in Access so you need to become familiar with them before using the MS Access. Among these, the major ones are object, table, field, record, design view and datasheet view.

Good! An object is a competition in the database such as a table, query, form, or macro. A table is a grouping of related data organized in fields (columns) and records (rows) on a datasheet. By using a common field in two tables, the data can be combined. Many tables can be stored in a single database. A field is a column on a datasheet and defines a data type for a set of values in a table. For a mailing list table it might include fields for first name, last name, address, city, state, zip code, and telephone number. A record in a row on a datasheet is a set of values defined by fields. In a mailing list table, each record would contain the data for one person as specified by the intersecting fields. Design View provides the tools for creating fields in a table. Datasheet View allows you to update, edit, and delete information from a table.

Working on basics of MS Access

Would you guess basic steps in designing a database?

Well! The following are the basic steps followed in designing a database: (each of the steps is practically discussed in one way or the other inside the chapter)

A good database design is the keystone to create a database that does what you want it to do effectively, accurately, and efficiently. To come up with a good database, there are basic steps to follow. The first step in designing a database is to determine its purpose and how it is to be used. You need to know what information you want from the database. From that, you can determine what subjects you need to store facts about (the tables) and what facts you need to store about each subject (the fields in the table).

Second, determine the tables you need. Determining the tables can be the trickiest step in the database design process. That is because the results you want from your database donot necessarily provide clues about the structure of the tables that produce them. It may be better to sketch out your design on paper first. Thirdly, determine the fields that make up the tables followed by identifying the field with unique value in each record. Fourthly, determine the

relationship between tables followed by refining your design for any modification in the design. Then, enter data and create other database objects. Finally, use Microsoft Access analysis tools in order to refine the design of your Microsoft Access database.

How are you going to start MS Access?

To open MS Access, click **Start | Programs | MS Access**.

After opening Access, you will be presented with the window shown in figure 5.3.1. Select one of the first two options if you are creating a new database or the third if you want to edit an existing database. All three choices are explained in detail below.

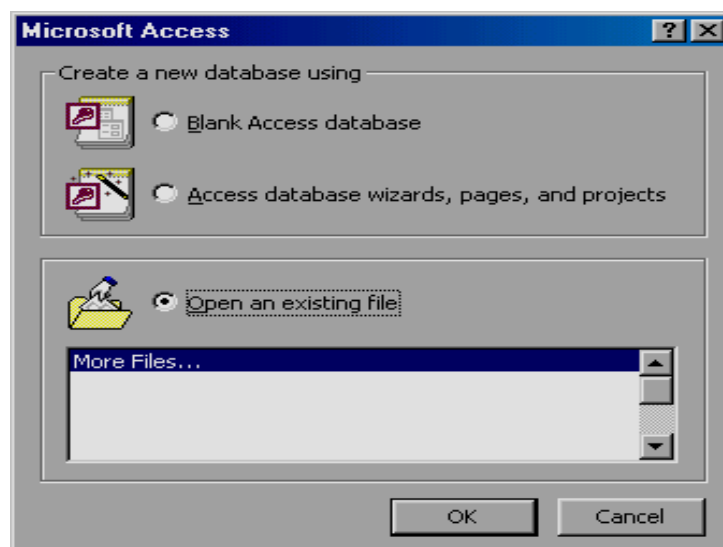


Figure 5.3.1 Initial MS Access dialog box

Blank Access database

1. You must save an Access database before you start working on it. After selecting "Blank Access database", you will first be prompted to specify a location and name for the database.
Find the folder where the database should reside in the Save in drop-down menu.
2. Type the name of the database in the File name line and click the Create button.

Open an existing database

If the database was opened recently on the computer, it will be listed on the main window. Highlight the database name and click OK. Otherwise, highlight "More Files..." in the list and click OK. From the subsequent window, click the "Look In:" drop-down menu to find the folder where the database is located, highlight the database name in the listing and click **OK**.

Database Window

The Database Window organizes all of the objects in the database. The default tables listing provide links for creating tables and will list all of the tables in the database when they have been added.

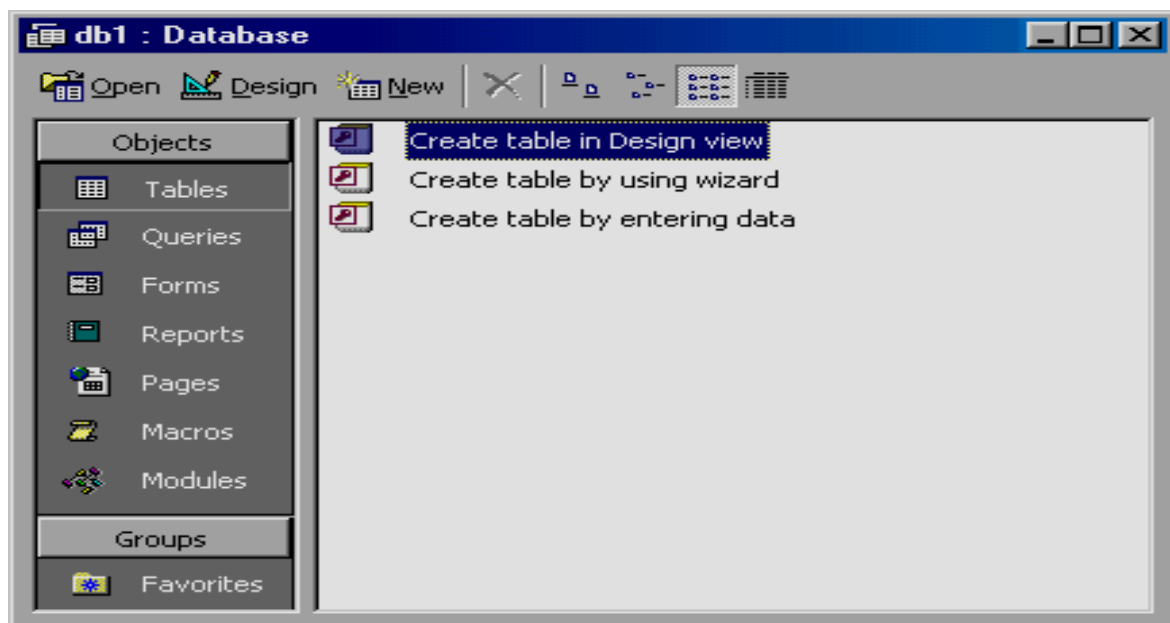


Figure 5.3.2 The Database Window

Design View

Design View customizes the fields in the database so that data can be entered. Click once on the Design | datasheet view toggle located below the file command to switch between design view and datasheet view. The design view looks like the one shown in figure 5.3.3.

Datasheet View

The datasheet allows you to enter data into the database. The datasheet view looks like the one shown in figure 5.3.4.

5.2 Creating Tables

Working on tables

Tables are grids that store information in a database similar to the way an Excel worksheet stores information in a workbook. Access provides three ways to create a table for which there are icons in the Database Window. Double-click on the icons to create a table.

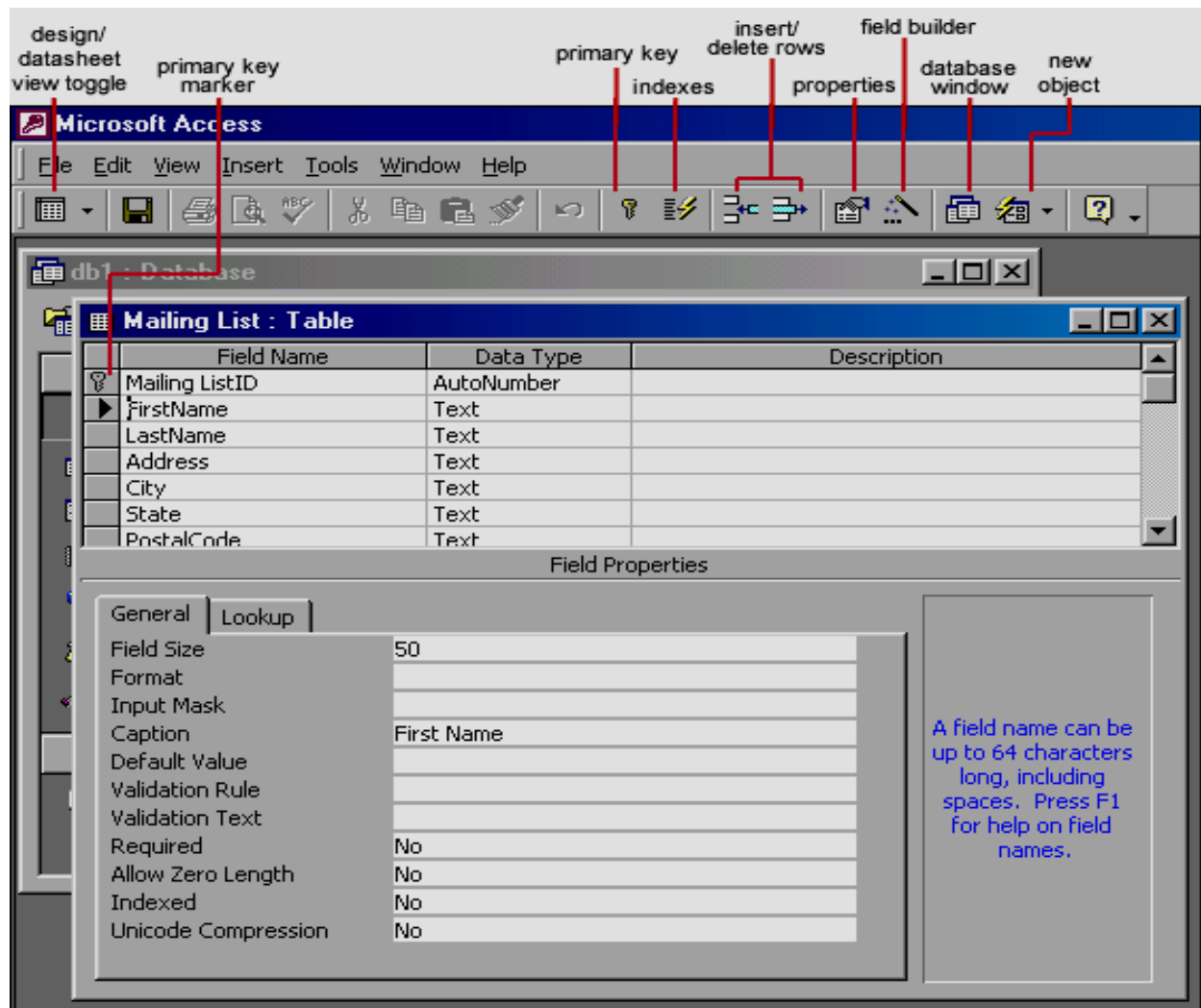


Figure 5.3.3 Table design view

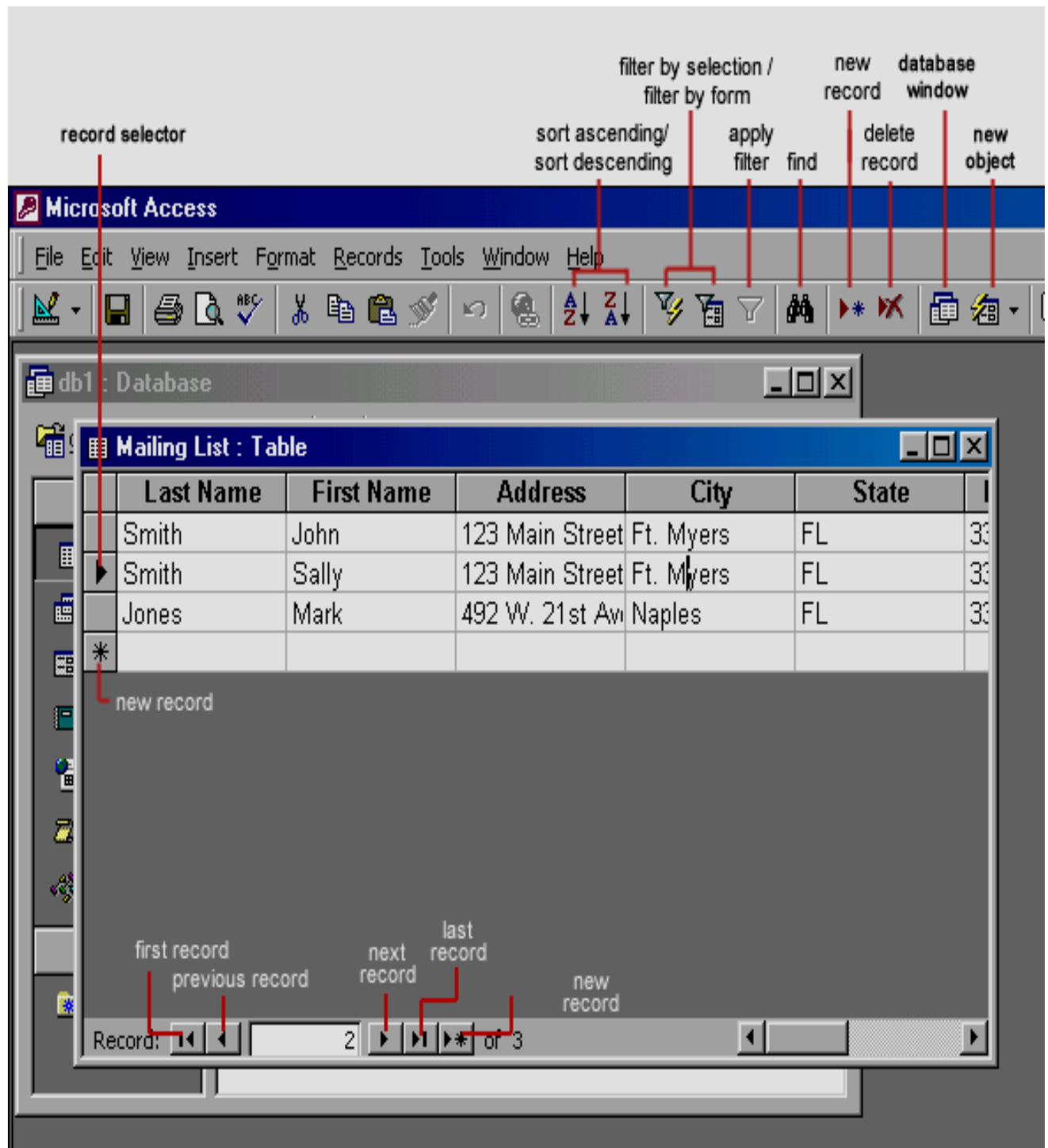


Figure 5.3.4 Table datasheet view

Create table in Design view will allow you to create the fields of the table. This is the most common way of creating a table and is explained in detail below. Create table using wizard will step you through the creation of a table. Create table by entering data will give you a blank datasheet with unlabelled columns that looks much like an Excel worksheet. Enter data into the cells and click the Save button. You will be prompted to add a primary key field. After the table is saved, the empty cells of the datasheet are trimmed. The fields are given generic names such as "Field1", "Field2", etc. To rename them with more descriptive titles that reflect the content of the fields, select Format |Rename Column from the menu bar or highlight the column, right-click on it with the mouse, and select Rename Column from the shortcut menu.

How can you create a Table in Design View?

Design View will allow you to define the fields in the table before adding any data to the datasheet. The window is divided into two parts: a top pane for entering the field name, data type, and an option description of the field, and a bottom pane for specifying field properties.

Primary Key

Every record in a table must have a primary key that differentiates it from every other record in the table. In some cases, it is only necessary to designate an existing field as the primary key if you are certain that every record in the table will have a different value for that particular field. An ID number is an example of a record whose values will only appear once in a database table.

Designate the primary key field by right-clicking on the record and selection Primary Key from the shortcut menu or select Edit |Primary Key from the menu bar. The primary key field will be noted with a key image to the left. To remove a primary key, repeat one of these steps.

If none of the existing fields in the table will produce unique values for every record, a separate field must be added. Access will prompt you to create this type of field at the beginning of the table the first time you save the table and a primary key field has not been assigned. The field is named "ID" and the data type is "auto number". Since this extra field serves no purpose to you as the user, the auto number type automatically updates whenever a record is added so there is no extra work on your part.

Activity 1: Keeping track of your books - Time allocated: 10 minutes

Build a database and table for your personal library that enables you to keep track of the author, title, type of book (reference, mystery, biography, and so on), and the publication date of each of your books.

LOCATING AND EDITING DATA

After you create a database and table, you want to be able to use them. In order for your database to be useful, you have to enter data into the table. One reason databases are so useful is that you can work with the records after you enter them. Unlike paper filing system, you can easily change a record in the table of database software to correct a mistake or to update the information.

Adding, Editing and Deleting records

How can you add, edit and delete record to your table?

Well! Add new records to the table in datasheet view by typing in the record beside the asterisk (*) that marks the new record. You can also click the new record button at the bottom of the datasheet to skip to the last empty record. To edit records, simply place the cursor in the record that is to be edited and make the necessary changes. Use the arrow keys to move through the record grid. The previous, next, first, and last record buttons at the bottom of the datasheet are helpful in maneuvering through the datasheet. Delete a record on a datasheet by placing the cursor in any field of the record row and select Edit |Delete Record from the menu bar or click the Delete Record button on the datasheet toolbar.

Adding and Deleting Columns

Although it is best to add new fields (displayed as columns in the datasheet) in design view because more options are available, they can also be quickly added in datasheet view.

Highlight the column that the new column should appear to the left by clicking its label at the top of the datasheet and select Insert |Column from the menu bar. Entire columns can be deleted by placing the cursor in the column and selecting Edit |Delete Column from the menu bar.

Resizing Rows and Columns

The height of rows on a datasheet can be changed by dragging the gray sizing line between row labels up and down with the mouse. By changing the height on one row, the height of all rows in the datasheet will be changed to the new value. Column width can be changed in a similar way by dragging the sizing line between columns. Double click on the line to have the column automatically fit to the longest value of the column. Unlike rows, columns on a datasheet can be of different widths. More exact values can be assigned by selecting Format |Row Height or Format |Column Width from the menu bar.

Freezing and Hiding Columns

Why do you need the freeze and hide columns?

Well! Similar to freezing panes in Excel, columns on an Access table can be frozen. This is helpful if the datasheet has many columns and relevant data would otherwise not appear on the screen at the same time. Freeze a column by placing the cursor in any record in the column and select Format |Freeze Columns from the menu bar. Select the same option to unfreeze a single column or select Format |Unfreeze All Columns. Columns can also be hidden from view on the datasheet although they will not be deleted from the database. To hide a column, place the cursor in any record in the column or highlight multiple adjacent columns by clicking and dragging the mouse along the column headers, and select Format |Hide Columns from the menu bar. To show columns that have been hidden, select Format

|Unhide Columns from the menu bar. A window displaying all of the fields in the table will be listed with check boxes beside each field name. Check the boxes beside all fields that should be visible on the data table and click the Close button.

Finding and Replacing Data in a Table

Data in a datasheet can be quickly located by using the Find command.

1. Open the table in datasheet view.
2. Place the cursor in any record in the field that you want to search and select Edit |Find... from the menu bar.
3. Enter the value criteria in the Find What box.
4. From the Look In drop-down menu, define the area of the search by selecting the entire table or just the field in the table you placed your cursor in during step 2.
5. Select the matching criteria from Match to and click the More >> button for additional search parameters.
6. When all of the search criteria are set, click the Find Next button. If more than one record meets the criteria, keep clicking Find Next until you reach the correct record.

The replace function allows you to quickly replace a single occurrence of data with a new value or to replace all occurrences in the entire table.

1. Select Edit |Replace... from the menu bar (or click the Replace tab if the Find window is already open).
2. Follow the steps described in the Find procedure for searching the data that should be replaced and type the new value of the data in the Replace With box.

Click the Find Next button to step through occurrences of the data in the table and click the Replace button to make single replacements. Click Replace All to change all occurrences of the data in one step.

Check Spelling and AutoCorrect

The spell checker can be used to flag spelling errors in text and menu fields in a datasheet. Select Tools |Spelling from the menu bar to activate the spell checker and make corrections

just as you would use Word or Excel. The AutoCorrect feature can automatically correct common spelling errors such as two Initial Capitals, capitalizing the first letter of the first word of a sentence, and anything you define. Select Tools |AutoCorrect to set these features.

Table Relationships

To prevent the duplication of information in a database by repeating fields in more than one table, table relationships can be established to link fields of tables together. Follow the steps below to set up a relational database:

1. Click the Relationships button on the toolbar. 
2. From the Show Table window (click the Show Table button on the toolbar to make it appear), double click on the names of the tables you would like to include in the relationships. When you have finished adding tables, click Close.
3. To link fields in two different tables, click and drag a field from one table to the corresponding field on the other table and release the mouse button. The Edit Relationships window will appear. From this window, select different fields if necessary and select an option from Enforce Referential Integrity if necessary. These options give Access permission to automatically make changes to referential tables if key records in one of the tables are deleted or updated. Check the Enforce Referential Integrity box to ensure that the relationships are valid and that the data is not accidentally deleted when data is added, edited, or deleted. Click Create to create the link.
4. A line now connects the two fields in the Relationships window.
5. The datasheet of a relational table will provide expand and collapse indicators to view sub datasheets containing matching information from the other table. In the example below, the student address database and student grade database were related and the two can be shown simultaneously using the expand feature. To expand or collapse all sub datasheets at once, select Format |Sub datasheet |Expand All or Collapse All from the toolbar.

Sorting and filtering allow you to view records in a table in a different way either by reordering all of the records in the table or view only those records in a table that meets certain criteria that you specify.

Sorting and filtering

You may want to view the records in a table in a different order than they appear such as sorting by a date or in alphabetical order. Follow these steps to execute a simple sort of records in a table based on the values of one field:

1. In table view, place the cursor in the column that you want to sort by.
2. Select Records |Sort |Sort Ascending or Records |Sort| Sort Descending from the menu bar or click the Sort Ascending or Sort Descending buttons on the toolbar.

To sort by more than one column (such as sorting by date and then sorting records with the same date alphabetically), highlight the columns by clicking and dragging the mouse over the field labels and select one of the sort methods stated above.



Filter by Selection

To Filter by Selection, place the cursor in the field that you want to filter the other records by and click the Filter by Selection button on the toolbar or select Records |Filter |Filter By Selection from the menu bar.



Filter by Form, Saving and Removing a Filter

If the table is large, it may be difficult to find the record that contains the value you would like to filter by using Filter by Form may be advantageous instead. This method creates a blank version of the table with drop-down menus for each field that each contains the values found in the records of that field. Under the default Look for tab of the Filter by Form window, click in the field to enter the filter criteria. To specify an alternate criteria if records may contain one of two specified values, click the or tab at the bottom of the window and select another criteria from the drop-down menu. More **or** tabs will appear after one criteria is set to allow you to add more alternate criteria for the filter. After you have selected all of

the criteria you want to filter, click the Apply Filter button  on the toolbar. The filtered contents of a table can be saved as a query by selecting File |Save As Query from the menu bar. Enter a name for the query and click OK. The query is now saved within the database. To view all records in a table again, click the depressed Apply Filter toggle button on the toolbar.

Print a Datasheet

Datasheets can be printed by clicking the Print button on the toolbar or select File |Print to set more printing options.

Activity 2: Cataloguing your books - Time allocated: 20 minutes

In activity 1, that is in what you did for this chapter in section 1, you created a Library database with a table for your books. Now you can enter actual information about your book collection into this database table. Because you may not have access to your personal book collection while you work through this unit, some book information is provided for you. Type the following information into the Books table:

Table 5.3.1 Book issue information

First Name	Father Name	Book Title	Type of Book	Publication Date
A3lem	Alemayehu	Arengwade Feres	Romance	1940
Siraj	Daniel	Yehenew	Mystery	1996
Musa	Muhammad	Yaager Lej	Fiction	1984
Mamo	Wedneh	Yeberehaw Tekula	Mystery	1985
Berhanu	Zerihun	Maebel	Fiction	1986
Merrill	Markoe	What interesting Dogs	Humor	1992

5.3 Creating Queries

What do you think is the main purpose of query?

Well! Queries select records from one or more tables in a database so they can be viewed, analyzed, and sorted on a common datasheet. The resulting collection of records, called a

dynast (short for dynamic subset), is saved as a database object and can therefore be easily used in the future. The query will be updated whenever the original tables are updated. Types of queries are select queries that extract data from tables based on specified values, find duplicate queries that display records with duplicate values for one or more of the specified fields, and find unmatched queries that display records from one table that do not have corresponding values in a second table.

Create a Query in Design View

Follow these steps to create a new query in Design View:

1. From the Queries page on the Database Window, click the New button.
2. Select Design View and click OK.
3. Select tables and existing queries from the Tables and Queries tabs and click the Add button to add each one to the new query.
4. Click Close when all of the tables and queries have been selected.
5. Add fields from the tables to the new query by double-clicking the field name in the table boxes or selecting the field from the Field and Table drop-down menus on the query form. Specify sort orders if necessary.
6. Enter the criteria for the query in the Criteria field.
7. After you have selected all of the fields and tables, click the Run button on the toolbar.
8. Save the query by clicking the Save button.

Query Wizard

Access' Query Wizard will easily assist you to begin creating a select query.

- 1 Click the Create query by using wizard icon in the database window to have Access step to you through the process of creating a query.
- 2 From the first window, select fields that will be included in the query by first selecting the table from the drop-down Tables/Queries menu. Select the fields by clicking the > button to move the field from the Available Fields list to Selected Fields. Click the

double arrow button >> to move all of the fields to Selected Fields. Select another table or query to choose from more fields and repeat the process of moving them to the Selected Fields box. Click Next > when all of the fields have been selected.

- 3 On the next window, enter the name for the query and click Finish.
- 4 Refer to steps 5-8 of the previous tutorial to add more parameters to the query.

Find Duplicates Query

This query will filter out records in a single table that contain duplicate values in a field.

1. Click the New button on the Queries database window, select Find Duplicates Query Wizard from the New Query window and click OK.
2. Select the table or query that the find duplicates query will be applied to from the list provided and click next >.
3. Select the fields that may contain duplicate values by highlighting the names in the available fields list and clicking the > button to individually move the fields to the Duplicate-value fields list or >> to move all of the fields. Click Next > when all fields have been selected.
4. Select the fields that should appear in the new query along with the fields selected on the previous screen and click Next >.
5. Name the new query and click Finish.

Delete a Query

To delete a table from the query, click the table's title bar and press the Delete key on the keyboard.

Activity 3: Querying your Library database : Time allocated: 10 minutes

Use the library database to work on this activity. You can use a query in your library database to find out exactly what types of books you have. You want to view a list of only book names and authors to see what your collection contains. You also want to determine the most common type of book in your collection. Create a query to display only Fiction books.

5.4 Creating Forms

What do you understand by the term form? How can you create a form?

Forms are used as an alternative way to enter data into a database table. The following sub-section guides you to create form. There are actually two ways: using wizard and from scratch.

To create a form using the assistance of the wizard, follow these steps:

1. Click the Create form by using wizard option on the database window.
2. From the Tables/Queries drop-down menu, select the table or query whose datasheet form will modify. Then, select the fields that will be included on the form by highlighting each one of the Available Fields window and clicking the single right arrow button > to move the field to the Selected Fields window. To move all of the fields to Select Fields, click the double right arrow button >>. If you make a mistake and would like to remove a field or all of the fields from the Selected Fields window, click the left arrow < or left double arrow << buttons. After the proper fields have been selected, click the Next > button to move on to the next screen.
3. On the second screen, select the layout of the form.
 - Columnar - A single record is displayed at one time with labels and form fields listed side-by-side in columns
 - Justified - A single record is displayed with labels and form fields are listed across the screen.
 - Tabular - Multiple records are listed on the page at a time with fields in columns and records in rows
 - Datasheet - Multiple records are displayed in Datasheet View
4. Click the Next > button to move on to the next screen.
5. Select a visual style for the form from the next set of options and click next >.

6. On the final screen, name the form in the space provided. Select "Open the form to view or enter information" to open the form in Form View or "Modify the form's design" to open it in Design View. Click Finish to create the form.

Create Form in Design View

To create a form from scratch without the wizard, follow these steps:

1. Click the New button on the form database window.
2. Select "Design View" and choose the table or query the form will be associated with the form from the drop-down menu.
3. Select View |Toolbox from the menu bar to view the floating toolbar with additional options.
4. Add controls to the form by clicking and dragging the field names from the Field List floating window. Access creates a text box for the value and label for the field name when this action is accomplished. To add controls for all of the fields in the Field List, double-click the Field List window's title bar and drag all of the highlighted fields to the form.

How can we add Records Using a Form

Dear students! Input data into the table by filling out the fields of the form. Press the Tab key to move from field to field and create a new record by clicking Tab after the last field of the last record. A new record can also be created at any time by clicking the New Record button  at the bottom of the form window. Records are automatically saved as they are entered so no additional manual saving needs to be executed.

Do you think it is possible to edit Forms?

Yes! The following points may be helpful when modifying forms in Design View.

Grid lines - By default, a series of lines and dots underlay the form in Design View so form elements can be easily aligned. To toggle this feature on and off, select View |Grid from the menu bar.

Snap to Grid - Select Format |Snap to Grid to align form objects with the grid to allow easy alignment of form objects or uncheck this feature to allow objects to float freely between the grid lines and dots.

Resizing Objects - Form objects can be resized by clicking and dragging the handles on the edges and corners of the element with the mouse.

Change form object type - To easily change the type of form object without having to create a new one, right click on the object with the mouse and select Change To and select an available object type from the list.

Label/object alignment - Each form object and its corresponding label are bounded and will move together when either one is moved with the mouse. However, to change the position of the object and label in relation to each other (to move the label closer to a text box, for example), click and drag the large handle at the top, left corner of the object or label.

Tab order - Alter the tab order of the objects on the form by selecting View |Tab Order... from the menu bar. Click the gray box before the row you would like to change in the tab order, drag it to a new location, and release the mouse button.

Form Appearance - Change the background color of the form by clicking the Fill/Back Color button on the formatting toolbar and click one of the color swatches on the palette. Change the color of individual form objects by highlighting one and selecting a color from the Font/Fore Color palette on the formatting toolbar. The font and size, font effect, font alignment, border around each object, the border width, and a special effect can also be modified using the formatting toolbar:

Page Header and Footer - Headers and footers added to a form will only appear when it is printed. Access these sections by selecting **View |Page Header/Footer** on the menu bar.

Page numbers can also be added to these sections by selecting Insert |Page Numbers. A date

and time can be added from Insert |Date and Time.... Select **View |Page Header/Footer** again to hide these sections from view in Design View.

This page explains the uses for other types of form controls including lists, combo boxes, checkboxes, option groups, and command buttons.

List and Combo Boxes

If there are small, finite number of values for a certain field on a form, using combo or list boxes may be a quicker and easier way of entering data. These two control types differ in the number of values they display. List values are all displayed while the combo box values are not displayed until the arrow button is clicked to open it. Follow these steps to add a list or combo box to a form:

1. Open the form in Design View.
2. Select View |Toolbox to view the toolbox and make sure the "Control Wizards" button is pressed in.
3. Click the list or combo box tool button and draw the outline on the form. The combo box wizard dialog box will appear.
4. Select the source type for the list or combo box values and click next >.
5. Depending on your choice in the first dialog box, the next options will vary. If you chose to look up values from a table or query, the following box will be displayed. Select the table or query from which the values of the combo box will come from. Click Next > and choose fields from the table or query that was selected. Click Next > to proceed.
6. On the next dialog box, set the width of the combo box by clicking and dragging the right edge of the column. Click Next >.
7. The next dialog box allows (tells) Access what to do with the value that is selected. Choose "Remember the value for later use" to use the value in a macro or procedure (the value is discarded when the form is closed), or select the field that the value should be stored in. Click Next > to proceed to the final screen.

8. Type the name that will appear on the box's label and click Finish.

Check Boxes and Option Buttons

Use check boxes and option buttons to display yes/no, true/false, or on/off values. Only one value from a group of option buttons can be selected while any or all values from a check box group can be chosen. Typically, these controls should be used when five or less options are available. Combo boxes or lists should be used for long lists of options. To add a checkbox or option group:

1. Click the Option Group tool on the toolbox and draw the area where the group will be placed on the form with the mouse. The option group wizard dialog box will appear.
2. On the first window, enter labels for the options and click the tab key to enter additional labels. Click Next > when finished typing labels.
3. On the next window, select a default value if there is any and click Next >.
4. Select values for the options and click Next >.
5. Choose what should be done with the value and click Next >.
6. Choose the type and style of the option group and click Next >.
7. Type the caption for the option group and click Finish.

Command Buttons

In this example, a command button beside each record is used to open another form.

1. Open the form in Design View and ensure that the Control Wizard button on the toolbox is pressed in.
2. Click the command button icon on the toolbox and draw the button on the form. The Command Button Wizard will then appear.
3. On the first dialog window, action categories are displayed in the left list while the right list displays the actions in each category. Select an action for the command button and click Next >.
4. The next few pages of options will vary based on the action you selected. Continue selecting options for the command button.

5. Choose the appearance of the button by entering caption text or selecting a picture. Check the Show All Pictures box to list of available images. Click Next >.
6. Enter a name for the command button and click Finish to create the button.

What is a Sub-form?

A sub form is a form that is placed in a parent form, called the main form. Sub forms are particularly useful to display data from tables and queries that have one-to-many relationships. The remainder of this sub-section explains three methods for creating sub forms and they assume that the data tables and/or queries have already been created.

Create a Form and Sub form at Once

Use this method if neither form has already been created. A main form and sub form can be created automatically using the form wizard if table relationships are set properly or if a query involving multiple tables is selected. For example, a relationship can be set between a table containing customer information and one listing customer orders so the orders for each customer are displayed together using a main form and sub form. Follow these steps to create a sub form within a form:

1. Double-click Create form by using wizard on the database window.
2. From the Tables/Queries drop-down menu, select the first table or query from which the main form will display its data. Select the fields that should appear on the form by highlighting the field names in the Available Fields list on the left and clicking the single arrow > button or click the double arrows >> to choose all of the fields.
3. From the same window, select another table or query from the Tables/Queries drop-down menu and choose the fields that should appear on the form. Click Next to continue after all fields have been selected.
4. Choose an arrangement for the forms by selecting form with sub form(s) if the forms should appear on the same page or Linked forms if there are many controls on the main form and a sub form will not fit. Click Next to proceed to the next page of options.

5. Select a tabular or datasheet layout for the form and click next.
6. Select a style for the form and click next.
7. Enter the names for the main form and sub form. Click Finish to create the forms.
8. New records can be added to both tables and queries at once by using the new combination form.

Sub form Wizard

If the main form or both forms already exist, the Sub form Wizard can be used to combine the forms. Follow these steps to use the Sub form Wizard:

1. Open the main form in Design View and make sure the Control Wizard button  on the toolbox is pressed in.
2. Click the Sub form/Sub report icon  on the toolbox and draw the outline of the sub form on the main form. The Sub form Wizard dialog box will appear when the mouse button is released.
3. If the sub form has not been created yet, select "Use existing Tables and Queries". Otherwise, select the existing form that will become the sub form. Click Next to continue.
4. The next dialog window will display table relationships assumed by Access. Select one of these relationships or define your own and click next.
5. On the final dialog box, enter the name of the sub form and click Finish.

Drag-and-Drop Method

Use this method to create sub forms from two forms that already exist. Make sure that the table relationships have already been set before proceeding with these steps.

1. Open the main form in Design View and select Window |Tile Vertically to display both the database window and the form side-by-side.
2. Drag the form icon beside the name of the sub form onto the detail section of the main form design.

Multiple-Page Forms Using Tabs

Tab controls allow you to easily create multi-page forms. Create a tab control by following these steps:

1. Click the Tab Control icon on the toolbox and draw the control on the form.
2. Add new controls to each tab page the same way that controls are added to regular form pages and click the tabs to change pages. Existing form controls cannot be added to the tab page by dragging and dropping. Instead, right-click on the control and select cut from the shortcut menu. Then, right-click on the tab control and select Paste. The controls can then be repositioned on the tab control.

Add new tabs or delete tabs by right-clicking in the tab area and choosing Insert Page or Delete Page from the shortcut menu.

Reorder the tabs by right-clicking on the tab control and selecting Page Order. Rename tabs by double-clicking on a tab and changing the Name property under the other tab.

Conditional Formatting

Special formatting that depends on the control's value can be added to text boxes, lists, and combo boxes. A default value can set along with up to three conditional formats. To add conditional formatting to a control element, follow these steps:

1. Select the control that the formatting should be applied to and select Format |Conditional formatting from the menu bar.

2. Under Condition 1, select one of the following condition types:

Field Value applies formatting based upon the value of the control. Select a comparison type from the second drop-down menu and enter a value in the final text box.

Expression is applied on formatting if the expression is true. Enter a value in the text box and the formatting will be added if the value matches the expression. Field Has Focus will apply the formatting as soon as the field has focus.

3. Add additional conditions by clicking the Add >> button and delete conditions by clicking Delete... and checking the conditions to erase.

Password Text Fields

To modify a text box so each character appears as an asterisk as the user types in the information, select the text field in Design View and click Properties. Under the Data tab, click in the Input Mask field and then click the button [...] that appears. Choose "Password" from the list of input masks and click Finish. Although the user will only see asterisks for each character that is typed, the actual characters will be saved in the database.

Change Control Type

If you decide the type of control needs to be changed, this can be done without deleting the existing control and creating a new one although not every control type can be converted and those that can have a limited number of types they can be converted to. To change the control type, select the control on the form in Design View and choose Format | Change to from the menu bar. Select one of the control types that are not grayed out.

Multiple Primary Keys

To select two fields for the composite primary key, move the mouse over the gray column next to the field names and note that it becomes an arrow. Click the mouse, hold it down, and drag it over all fields that should be primary keys and release the button. With the multiple fields highlighted, click the primary key button.

5.5 Creating Reports

Reports will organize and group the information in a table or query and provide a way to print the data in a database.

Using the Wizard

Create a report using Access' wizard by following these steps:

1. Double-click the "Create report by using wizard" option on the Reports Database Window.

2. Select the information source for the report by selecting a table or query from the Tables/Queries drop-down menu. Then, select the fields that should be displayed in the report by transferring them from the Available Fields menu to the Selected Fields window using the single right arrow button > to move fields one at a time or the double arrow button >> to move all of the fields at once. Click the Next > button to move to the next screen.
3. Select fields from the list that the records should be grouped by and click the right arrow button > to add those fields to the diagram. Use the Priority buttons to change the order of the grouped fields if more than one field is selected. Click Next > to continue.
4. If the records should be sorted, identify a sort order here. Select the first field that records should be sorted by and click the A-Z sort button to choose from ascending or descending order. Click **Next** > to continue.
5. Select a layout and page orientation for the report and click **Next** >.
6. Select a color and graphics style for the report and click **Next** >.
7. On the final screen, name the report and select to open it in either Print Preview or Design View mode. Click the Finish button to create the report.

Create report in Design View

To create a report from scratch, select Design View from the Reports Database Window.

1. Click the New button on the Reports Database Window. Highlight "Design View" and choose the data source of the report from the drop-down menu and click OK.
2. You will be presented with a blank grid with a Field Box and form element toolbar that looks similar to the Design View for forms. Design the report in much the same way you would create a form. For example, double-click the title bar of the Field Box to add all of the fields to the report at once. Then, use the handles on the elements to resize them, move them to different locations, and modify the look of the report by using options on the formatting toolbar. Click the Print View button at the top, left corner of the screen to preview the report.

Printing Reports

Select File |Page Setup to modify the page margins, size, orientation, and column setup.

After all changes have been made, print the report by selecting File |Print from the menu bar or click the Print button on the toolbar.

Importing

Importing objects from another database will create a complete copy of a table, query, or any other database object that you select. Import a database object by following these steps:

1. Open the destination database.
2. Select File |Get External |Import from the menu bar.
3. Choose the database, the object is located in a click the Import button.
4. From the Import Objects window, click on the object tabs to find the object you want to import into the database. Click the Options >> button to view more options. Under Import Tables, select "Definition and Data" if the entire table should be copied or "Definition Only" if the table structure should be copied but not the data. Under Import Queries, select "As Tables" if the queries should appear as regular tables in the destination database. Highlight the object name, and click OK.
5. The new object will now appear with the existing objects in the database.

Exporting

The effect of importing can also be achieved using the opposite method of exporting.

1. Open the database containing an object that will be copied (exported) to another database.
2. Find the object in the Database Window and highlight it. Then, select File |Export... from the menu bar.
3. Select the destination database from the window and click save.
4. You will be prompted to name the new object and may also be given other options, such as whether to copy the structure or data and structure of a table. Click OK to complete the export procedure.

Linking

Unlike importing, linking objects from another database will create a link to an object in another database while not copying the table to the current database. Create a link by following these steps:

1. Open the destination database.
2. Select File |Get External |Link Tables... from the menu bar.
3. Choose the database that the table is located in and click the Link button.
4. A window listing the tables in the database will then appear. Highlight the table or tables that should be linked and click OK. A link to the table will appear in the Database Window as a small table icon preceded by a small right arrow.

Activity 5: Creating a Book List (report) : Time allocated: 20 minutes

Suppose that one of your friends wants to borrow some books to take on trip. You can give him/her your book list and then let him/her select the titles that interests him/her. Thus, generate a report.

Working on Legal Databases

A database from the library is usually a collection of information describing publications such as journal articles, cases and statutes or books.

You have free access to a range of searchable databases though you may need a password to use some of them. They will generally contain scholarly articles which have been "peer-reviewed" to ensure quality and accuracy of material on a particular topic.

You can search by keyword, author, title or citation, to search for articles, cases or books on your topic. In many cases the full text of the article will be directly available. Where there is no link, especially if this journal is in print only, you will check the catalogue to see if it is available.

These databases will help you find subject-related material which has been quality-assessed before publication, unlike items found from a search engine which may have no quality or evaluated material. Most of the databases include some journals which are not available in most of the libraries.

Databases for Law

Law databases provide access to case law and legislation. Most of the cases and legislation will be full text (you get the whole case or piece of legislation). Some law databases also provide access to summaries of journal articles, and in some cases the full-text. They can help you to trace journal articles, often providing an abstract (summary) of the article and in some cases the full-text.

All these databases are Web databases available to students from on and off campus. Click on the underlined link of the title to connect to the database. Many Web databases require confidential passwords. For further details check password information. Your PIP page (Personal Information Page) also provides details of the relevant passwords. The Legal Database is a collection of legal and policy information

Key databases for Law

- Casetrack - full text judgements from a range of Courts, including all divisions of the High Court, Court of Appeal and Employment Appeal Tribunal. Updated daily.
- Daily Cases - summaries of cases. Includes judgements of House of Lords, Court of Appeal, all High Court divisions, Employment Appeal Tribunal and European Court of Justice. Coverage from June 1999, updated daily.
- The English reports - full text of over 100,000 case reports. Coverage from 1220 to 1865. For case law since 1865, consult The Law Reports.
- Eurolaw - full text database of European case law and legislation. Case law includes the European Court of Justice and Court of First Instance. Legislation includes treaties and directives.

- The Law Reports - case law: full text version of the Law reports from 1865 to the present.
- Lawtel - provides digests of UK cases, including transcripts; legislation; journal articles; command papers and bills. Includes a human rights section with full text case law from the European Court of Human Rights, summaries of journal articles and legislation.
- LexisNexis Butterworths - full text database of English, European and some international law. Includes full text UK and American law journals. LexisNexis provides access to the Index to Legal Periodicals which indexes articles from a range of journals. LexisNexis also includes full text access to UK newspapers, legal commentary and legal forms.
- The Weekly Law Reports full text online version of The Weekly Law Reports from 1953, updated monthly.
- Westlaw - English case reports from 1886 (many full text) and full text legislation. Westlaw includes EU cases and legislation from 1952 and some US and international material. It also includes the Legal Journals Index (one of the main ways of tracing legal journal articles).
- LoisLaw- Loislawschool.com is an educational program for law schools and paralegal institutions that allow students (and their instructors) free access to Loislaw's primary law library as well as to other select Loislaw online research libraries. Not only does it enable students to source the content they need to facilitate their course work, it prepares them for their legal careers by giving them hands-on experience in conducting online legal research.

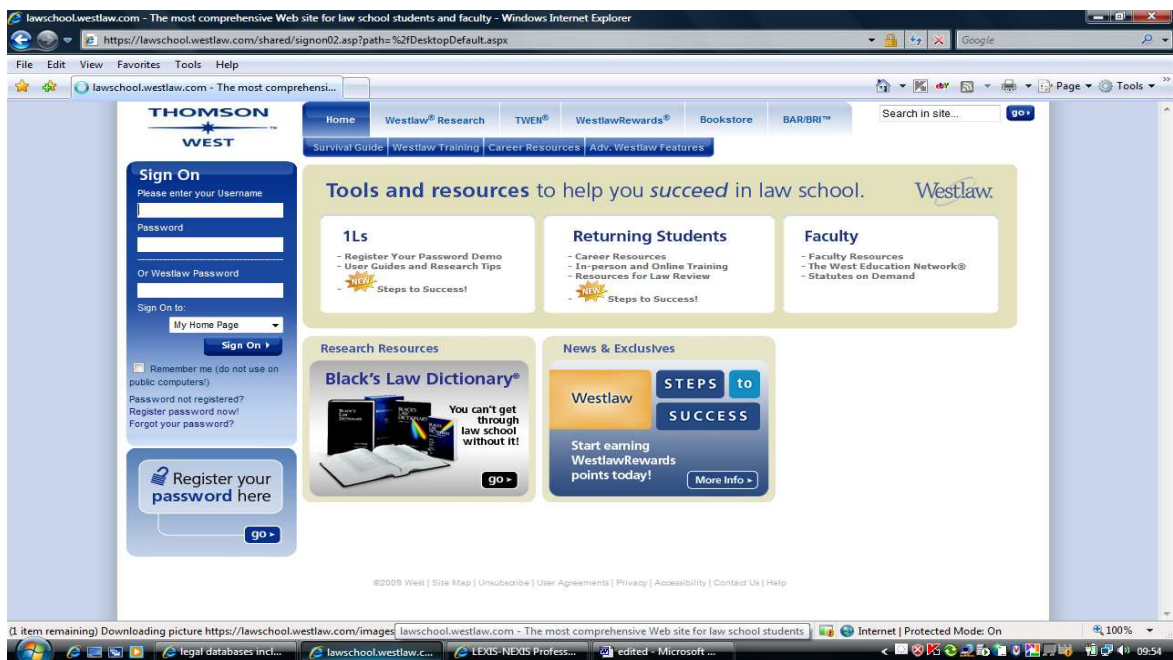
USE LOISLAW FOR:

- Legal Research and Writing
- Outside Class Reading
- Exam preparation
- Bar Review
- Legal News Updates

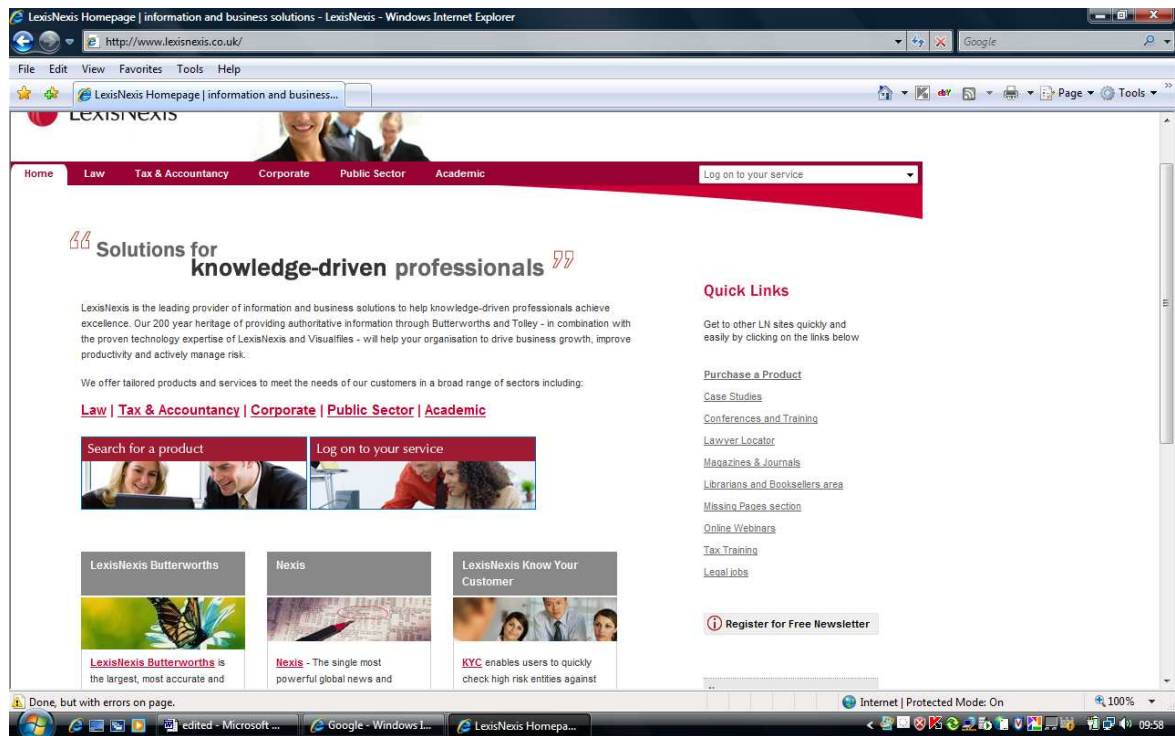
LOISLAW BENEFITS:

- Fast and easy navigation
- No restrictions or blackout periods
- Free printing and hyper linking
- Free technical support

The screen elements of west law is as follows:



The screen elements of Lexis nexis is as follows:



The following are also legal data bases used specifically for legal research

- Westlaw UK
- Westlaw International
- LexisNexis Butterworths
- HeinOnline
- Index to Foreign Legal Periodicals
- Oxford Reports on International Law
- Casetrack
- Justis
- Isinolaw

SUMMARY

A database is an organized collection of data (information) that provides a way of finding the stored information quickly and easily. DBMS is a software used to make correct data

available to all application programs (users), which require the data. The power of relational database lies on its capacity to extract data from more than one table in a database. MS Access is the most popular relational DBMS. MS Access database includes objects like: queries, forms, and reports. Queries are requests made by the user to get information from the database, or to create/ modify data in a database. Forms are used to enter or view data from one or more related tables in a database. Reports are used to represent data retrieved from related tables in a database in a clear and understandable way.

SELF-TEST EXERCISE

I. Write “True” for correct statement and “False” for wrong statement on the space provided.

- _____ 1. If the main form or both forms already exist, the Sub form Wizard can not be used to combine the forms.
- _____ 2. Importing objects from another database will create a complete copy of a table, query, or any other database object that you select.
- _____ 3. Reports will organize and group the information in a table or query and provide a way to print the data in a database.
- _____ 4. The effect of importing can not be achieved using the opposite method of exporting.
- _____ 5. To select two fields for the composite primary key, move the mouse over the gray column next to the field names and note that it becomes an arrow.
- _____ 6. Like word document, you can save Access database after you worked on
- _____ 7. Design view customizes the fields in the database so that data can be entered.
- _____ 8. If none of the existing fields in the table will produce unique values for every record, addition of separate field is not required.
- _____ 9. The datasheet allows you to enter data into the database.
- _____ 10. Datasheet View allows you to update, edit, and delete information from a table.
- _____ 11. Although it is best to add new fields in design view because more options are available, they can also be quickly added in datasheet view.

- _____12. Sorting and filtering allow you to view records in a table in a different way either by reordering all of the records in the table or view only those records in a table that meets certain criteria that you specify.
- _____13. Entire columns can not be deleted by placing the cursor in the column and selecting Edit |Delete Column from the menu bar.
- _____14. Unlike freezing panes in Excel, columns on an Access table can not be frozen.
- _____15. To edit records, simply place the cursor outside the record that is to be edited and make the necessary changes.

II. Choose the appropriate answer among the alternatives given for each of the following questions and write the letter corresponding to the correct answer on the space provided.

- _____1. Linking objects will:
- a) Create a link to an object in another database.
 - b) Not copy the table to the current database.
 - c) a & b
 - d) None.
- _____2. Which one of the following buttons belongs to the form control toolbox?
- a) Text box
 - b) Check box
 - c) List box
 - d) all.
- _____3. Press the _____ key to move from field to field:
- a) F1 key
 - b) Tab key
 - c) Insert key.
 - d) all
- _____4. Which one is important when modifying forms in Design view?
- a) Grid lines

- b) Resizing objects
- c) Form appearance
- d) all

_____ 5. Which one of the following is not a way of creating a form?

- a) Using wizard
- b) From scratch
- c) Using drawing toolbar
- d) None

_____ 6. _____ is a competition in a database such as a table, query, form, or macro.

- a) Field
- b) Object
- c) Record
- d) all

_____ 7. Which one of the following is true?

- a) A field is a column on a datasheet
- b) A field defines a data type for a set of values in a table.
- c) A record in a row on a datasheet
- d) all.

_____ 8. The top pane of the design view window is used for:

- a) Entering the field name
- b) Entering the data type.
- c) Entering option description of the field.
- d) all

_____ 9. MS -Access is_____ software.

- a) Database.
- b) Word processing
- c) Spreadsheet

d) None.

_____10. What is the first step in designing a database?

- a) Determine the fields that make up the tables
- b) Determine the tables you need.
- c) Determine the purpose of the database and how it is to be used.
- d) None

_____11. _____ select records from one or more tables in a database so they can be viewed, analyzed, and sorted on a common datasheet.

- a) Column
- b) Query
- c) Row
- d) all

_____12. Data in a datasheet can be quickly located by using the _____ command.

- a) Edit
- b) Insert
- c) Window
- d) None.

_____13. Datasheets can be printed:

- a) By clicking the print button on the toolbar.
- b) By selecting File |Print from the menu bar.
- c) a and b.
- d) None

_____14. Which one of the following is not a type of query?

- a) Select query.
- b) Find duplicate query.
- c) Find unmatched query
- d) None.

_____15. To delete a record in MS Excel;

- a) plac the cursor in any field of the record row and select Edit |Delete Record from the menu bar.
- b) Delete Record button on the Formatting toolbar
- c) Delete Record button on the datasheet toolbar
- d) a& c

III. Complete the following statements by filling the blank space.

1. _____are used as an alternative way to enter data into a database table.
2. To make changes to the structure of the form, you must change to _____view.
3. If there are small, finite number of values for a certain field on a form, using _____ may be a quicker and easier way of entering data.
4. Use _____and _____buttons to display yes/no, true/false, or on/off values.
5. _____ is a form that is placed in a parent form, called the main form.
6. _____ is a group of related data organized in fields and records on a datasheet.
7. _____organizes all of the objects in the database.
8. Every record in a table must have a _____ that differentiates it from every other record in the table.
9. _____are grids that store information in a database similar to the way an Excel worksheet stores information in a workbook.
10. _____ is a software that is used to create, store, modify and access data in a database.
11. The resulting collection of records in a query is called _____.
12. The _____ function allows you to quickly replace a single occurrence of data with a new value or to replace all occurrences in the entire table.
13. To prevent the duplication of information in a database by repeating fields in more than one table, _____can be established to link fields of tables together.

14. Add new records to the table in datasheet view by typing in the record beside the asterisk (*) that marks _____.
15. If the table is large, it may be difficult to find the record that contains the value you would like to filter by, so using _____ may be advantageous instead.

Chapter six: Ms- PowerPoint

Objectives

At the end of this chapter, you will be able to:

- start PowerPoint
- work with layouts, text, and slides
- work with templates and images
- work with drawing tools
- use different views and printing options
- put your presentation on the World Wide Web
- identify and employ elements of a good presentation

6.1 Introduction

PowerPoint is a visual medium that shows ideas with graphics instead of text. Use handouts for any complex written material.

Slides contain formatted text in outline form. You can also add pictures, clipart, charts, sound, and video. Templates can be used for slide background designs and formatting. Slides are dynamic, use animation effects and transitions to create movement.

Definitions

Presentation: The primary type of file PowerPoint is used to create. Presentations typically have the file extension .ppt; however, you can also save PowerPoint presentations as Adobe Acrobat documents with the file extension .PDF. Finally, you can save your presentation as a web page, with the file extension .html or .htm.

Slides: Individual parts of a presentation. Slides are similar to the individual pages in a print document, and can contain text, graphics, and animation.

Layout: The specific arrangement of text and images on a slide. Layouts can be very simple, consisting of simple titles and text, or they can be more complex and include elaborate colors and images. You can also include animation, sounds, and other multimedia objects in your layout.

View: Microsoft PowerPoint has three main views: normal view, slide sorter view, and slide show view. Normal view is the main editing view. Slide sorter view is an exclusive view of your slides in thumbnail form, helpful for rearranging the order of your slides. Slide show view takes up the full computer screen, like an actual slide show presentation. In this full-screen view, you see your presentation the way your audience will.

Design Template: The specific “look” of a slide or group of slides. A design template can be very basic - with black text on a white background - or it can be very colorful and complex. Typically, PowerPoint presentations have the same design template for all slides, although it is possible to select a different design template for each slide. Later, I’ll show you how to select different design templates.

Slide Show: The way a presentation appears when you are presenting it. When you display your slides in a slide show, the slides typically take up the whole screen, and they appear in sequence.

Placeholder: Boxes with dotted or hatch-marked outlines that appear when you create a new slide. These boxes act as “placeholders” for objects such as the slide title, text, clip art, charts, and tables. Placeholders are sometimes called “text boxes.”

Sizing handles: Small circles that appear along the edges of the selection rectangle around an object on your slide. You drag a sizing handle to change the shape or size of an object. To maintain the proportions of an object while resizing, simply drag a corner handle.

Task pane: A window within an Office application that provides commonly used commands. Its location and small size allow you to use these commands while still working on your files.

Toolbar: A bar with buttons and options that you use to carry out commands. To display a toolbar, use the Customize dialog box (point to Toolbars on the View menu and click Customize). To see more buttons, click Toolbar Options at the end of the toolbar.),

Layout: The arrangement of elements such as title and subtitle text, lists, pictures, tables, charts, AutoShapes, and movies, on a chart.

Natural language searches: A search method that lets you direct your search using conversational language. This enables you to give search instructions such as "Find all appointments for today."

6.2 Creating, saving, closing, and opening a presentation

Creating presentations

Creating a presentation in Microsoft PowerPoint involves starting with a basic design; adding new slides and content; choosing layouts, modifying slide design template if you want, by changing the color scheme, and creating effects such as animated slide transitions.

Design template: A file that contains the styles in a presentation, including the type and size of bullets and fonts; placeholder sizes and positions; background design and fill; color schemes; and a slide master and optional title master

Layout- The arrangement of elements such as title and subtitle text, lists, pictures, tables, charts, AutoShapes, and movies, on a chart

Color scheme-A set of eight balanced colors you can apply to slides, notes pages, or audience handouts. A color scheme consists of a background color, a color for lines and text, and six other colors designed to make slides easy to read

The New Presentation task pane in PowerPoint gives you a range of ways to start creating a presentation. These include:

Blank -Start with slides that have minimal design and no color applied to them.

Existing presentation - Base your new presentation on one that you have already written and designed. This command creates a copy of an existing presentation so you can make the design or content changes you want for the new presentation.

Design template - Base your presentation on a PowerPoint template that already has a design concept, fonts, and color scheme. In addition to the templates that come with PowerPoint, you can use the one you have created by yourself.

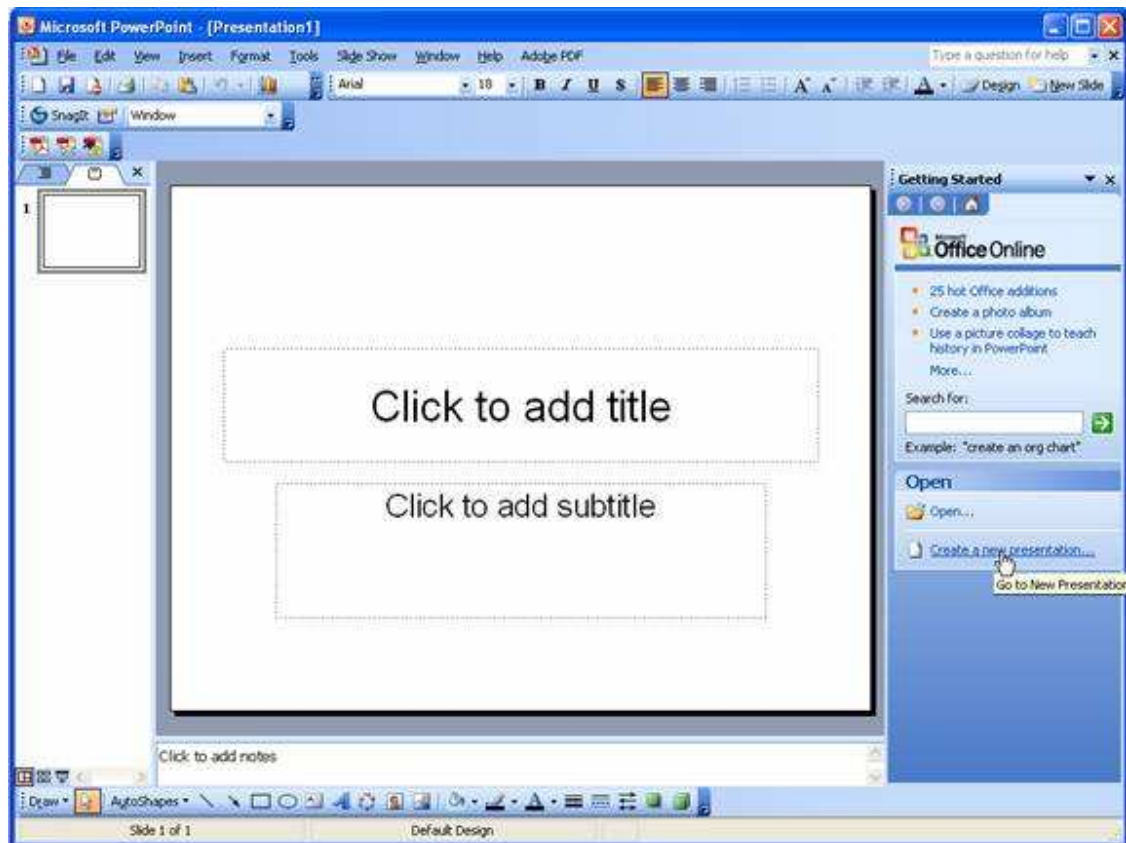
Templates with suggested content - Use the AutoContent Wizard to apply a design template that includes suggestions for text on your slides. You then type the text that you want.

A template on a Web site - Create a presentation using a template located on a Web site.

Content inserted from other sources

You can also insert slides from other presentations or text from other applications such as Microsoft Word

Fig 6.1 Screen elements of Microsoft power point



Creating a presentation using suggested content

1. If the New Presentation task pane isn't displayed on the File menu, click New.
2. Under New, click From AutoContent Wizard, and then follow the instructions in the wizard.
3. In the presentation, replace the text suggestions with the text you want, and then make any other changes you want, such as adding or deleting slides, adding art elements or animation effects, and inserting headers and footers.
4. When you finish, on the File menu, click Save, type a name in the File name box, and then click Save

Creating a presentation using blank slides

1. On the Standard toolbar, click New .

2. If you want to keep the default title layout for the first slide, go to step 3. If you want a different layout for the first slide, in the Slide Layout task pane, click the layout you want.
3. On the slide or on the Outline tab, type the text you want.
4. To insert a new slide, on the toolbar click New Slide, and click the layout you want.
5. Repeat steps 3 and 4 for each new slide, and add any other design elements or effects you want.
6. When you finish, on the File menu, click Save, type a name for your presentation, and then click Save.

You can also create a blank presentation in the New Presentation task pane File menu->New command

Create a presentation using a design template

1. If the New Presentation task pane isn't displayed, on the File menu, click New.
2. Under New, click From Design Template.
3. In the Slide Design task pane, click a design template that you'd like to apply.
4. If you want to keep the default title layout for the first slide, go to step 5. If you want a different layout for the first slide, on the Format menu, click Slide Layout, and then click the layout you want.
5. On the slide or on the Outline tab, type the text for the first slide.
6. To insert a new slide, on the toolbar, click New Slide , and click the layout you want for the slide.
7. Repeat steps 5 and 6 to keep adding slides, and add any other design elements or effects you want.
8. To save the presentation, on the File menu, click Save; in the File name box type a name for the presentation, and then click Save.

Note: If you have created a template, it will appear, in alphabetical order according to what you named it, among the Microsoft PowerPoint templates in the Slide Design task pane.

To apply an additional design template to selected slides, select the slide thumbnails (Slides tab), point to the design template you want in the Slide Design task pane, click the arrow, and then click Apply to Selected Slides

Creating a new presentation from an existing one

When you follow these steps, you create a copy of an existing presentation, so you can make design and content changes to it for a new presentation, without altering the original.

1. If the New Presentation task pane isn't displayed, on the File menu, click New.
2. Under New from existing presentation, click Choose presentation.
3. In the file list, click the presentation you want, and then click Create New.
4. Make the changes you want to the presentation, and then on the File menu, click Save As.
5. In the File name box, type a name for the new presentation.
6. Click Save.

You can insert existing slides from another presentation into your new one. With your presentation open, select the slide that you want your inserted slides to follow. On the Insert menu, click Slides from Files, browse to the presentation you want, and select the slides to insert

To Save a presentation

- On the File menu, click Save.

Note If you're saving the file for the first time, you'll be asked to give it a name.

1. On the File menu, click Save As.
2. In the File name box, enter a new name for the file.
3. Click Save.

To save the copy in a different folder, click a different drive in the Save in drop-down list or a different folder in the folder list, or both. To save the copy in a new folder, click Create New Folder.

Save a file to another format

1. On the File menu, click Save as.

2. In the File name box, enter a new name for the file.
3. Click the Save as type drop-down list, and then click the file format that you want the file saved in.
4. Click Save.

Save files automatically while working on presentation

1. On the Tools menu, click Options, and then click the Save tab.
2. Select the Save Auto Recover info every check box.
3. In the minute's box, enter the interval for how often you want to save files. The more frequently your files are saved, the more information is recovered if there is a power failure or similar problem while a file is open.

Note : Auto Recover is not a replacement for regularly saving your files. If you choose not to save the recovery file after opening it, the file is deleted and your unsaved changes are lost. If you save the recovery file, it replaces the original file (unless you specify a new file name).

Speed up saving a file

1. On the Tools menu, click Options, and then click the Save tab.
2. To save only the changes to a file, select the Allow fast saves check box, and then continue to save as you work on the file.
3. To save a complete file, clear the Allow fast saves check box when you finish working on the file, and then save it one last time. A full save occurs when this check box is clear

File formats for saving presentations

Save as type	Extension	Use to save
Presentation	.ppt	A typical Microsoft PowerPoint presentation
Windows Metafile	.wmf	A slide as a graphic
GIF (Graphics Interchange Format)	.gif	A slide as a graphic for use on Web pages

JPEG (File Interchange Format)	.jpg	A slide as a graphic for use on Web pages
PNG (Portable Network Graphics Format)	.png	A slide as a graphic for use on Web pages
Outline/RTF	.rtf	A presentation outline as an outline document
Design Template	.pot	A presentation as a template
PowerPoint Show	.pps	A presentation that will always open as a slide show presentation
Web Page	.htm; html	A Web page as a folder with an .htm file and all supporting files
Web Archive	.mht; mhtml	A Web page as a single file including all supporting files

To delete a slide:

Option #1: Go to Edit->Delete Slide. The current slide will disappear from the workspace.

Option #2: On the Slides pane (off to the left), click on the slide you would like to delete, and then hit the <Delete> key.

Open a file

1. In your Microsoft Office program, click File, and then click Open.
2. In the Look in list, click the drive, folder, or Internet location that contains the file you want to open.
3. In the folder list, locate and open the folder that contains the file.

Open a file as a copy

1. In your Office program, click File, and then click Open.
2. In the Look in list, click the drive, folder, or Internet location that contains the file you want to open.
3. In the folder list, locate and open the folder that contains the file.

Open a file as read-only

1. In your Office program, click File, and then click Open.

2. In the Look in list, click the drive, folder, or Internet location that contains the file you want to open.
3. In the folder list, locate and open the folder that contains the file.

6.3 Editing slides

Editing presentation

Working in an outline format

The outline format helps you edit your presentation's content and move bullet points or slides around. When you write using the Outline tab, buttons become available on the Standard and Formatting toolbars that let you increase or decrease text indents, collapse and expand content so that you see slide titles but no subordinate bullet points, and show or hide text formatting as you work.

The content in your outline can come from many sources: you can type it originally; use prepared text provided by the AutoContent wizard; or insert text that has heading and subheading styles and is in another file format, such as .txt or .doc, from Microsoft Word. When you save your presentation as a Web page, the text on the Outline tab becomes a table of contents so that you can navigate through the slides.

To use a toolbar that's dedicated to working with text in an outline, display the Outlining toolbar.

6.4 Using animations and multi media in presentation

Add a movie or animated GIF to a slide

"Movies" are desktop video files with formats such as AVI, QuickTime, and MPEG, and file extensions such as .avi, .mov, .qt, .mpg, and .mpeg. A typical movie might include a speaker

talking — an executive, for example — who is not able to be at the actual presentation. Or, you might use a movie to demonstrate a type of training.

An animated GIF (GIF: A graphics file format (.gif extension in Windows) is used to display indexed-color graphics on the World Wide Web. It supports up to 256 colors and uses lossless compression, meaning that no image data is lost when the file is compressed.) File includes motion and has a .gif file extension. Though not technically movies, animated GIFs contain multiple images which stream to create an animation effect; they are often used to accent a design or Web site.

You can add movies and animated GIFs to slides from files on your computer, the Microsoft Clip Organizer, a network or intranet, or the Internet. To add the movie or animated GIF, insert it onto the specific slide using commands on the Insert menu. There are several ways to you start it: have it play automatically when the slide displays; click it with the mouse; or create a timing for it so that it plays after a certain delay. It can also be part of an animation sequence.

Although accessed through the Insert menu, movie files are automatically linked (linked object: An object that is created in a source file and inserted into a destination file, while maintaining a connection between the two files. The linked object in the destination file can be updated when the source file is updated.)to your presentation, rather than embedded (embedded object: Information (object) that is contained in a source file and inserted into a destination file. Once embedded, the object becomes part of the destination file. Changes you make to the embedded object are reflected in the destination file) . Inside it like pictures or drawings. When your presentation has linked files, you must copy the linked files as well as the presentation if you need to show the presentation on another computer.

1. Display the slide to which you want to add a movie or animated GIF.
2. Do one of the following:

Add a movie or animated GIF file

1. On the Insert menu, point to Movies and Sounds, click Movie from File, locate the folder that contains the file you want, and then double-click the file.

Note : A movie or .gif file that you've added to Clip Organizer

(Clip Organizer: Microsoft Office program that contains drawings, photographs, sounds, videos, and other media files that you can insert and use in presentations, publications, and other Office documents.) is found in the Clip Organizer folder within the My Pictures folder on your hard disk. Or, go to the original location for these files.

2. When a message is displayed, do one of the following:
 - To play the movie or GIF automatically when you go to the slide, click yes.
 - To play the movie or GIF only when you click it, click No.

Note If you try to insert a movie and you get a message saying that Microsoft PowerPoint can't insert the file, try inserting the movie to play in Windows Media Player.

3. In Windows, launch Windows Media Player (from the Start button, on the Accessories submenu).
4. On the File menu in Windows Media Player, click Open, and then type the path or browse for the file you want to insert, and click OK.
 - If the movie opens and plays, complete the remaining steps in this task.
 - If the movie cannot play, then it won't play when you open the Windows Media Player in PowerPoint, so don't complete this task. You can consult Windows Media Player Help to try to troubleshoot the problem. Also, in PowerPoint, search on "Troubleshoot movies" in the Ask a Question box on the menu bar to get more suggestions.
5. Display the slide you want the movie on in PowerPoint, and on the Insert menu, click Object.

6. Under Object Type, click Media Clip, and make sure Create new is selected.
If you want the movie to display as an icon, select the Display as icon check box.
7. Click OK.
8. On the Insert Clip menu in Windows Media Player, click Video for Windows.
9. In the Files of type list, select All Files, select the file, and then click Open.
10. To play it, click the Play button just below the menu bar, on the upper left; to insert it onto your slide, click outside the movie frame.

Add a motion clip from Microsoft Clip Organizer

11. On the Insert menu, point to Movies and Sounds, and click Movie from Clip Organizer.
12. In the Insert Clip Art task pane, scroll to find the clip you want, and click it to add it to the slide.
13. If a message is displayed, do one of the following:
 - To play the movie or GIF automatically when you go to the slide, click Yes.
 - To play the movie or GIF only when you click it, click No.

Notes

- o Clip Organizer initially includes a collection of animated GIFs. Other GIF files and movie files you add to Clip Organizer will also appear in the task pane.
- o To do a search for clips in Clip Organizer, click Modify and select criteria for a search. To get more information about finding the clip you want, click Tips for Finding Clips at the bottom of the task pane; it gives details on finding files using wildcards and adding your own clips to the Clip Organizer.

To preview a clip: in the Insert Clip Art task pane, in the Results box that displays the clips available, move your mouse pointer over the clip's thumbnail; click the arrow that appears; and then click Preview/Properties.

Preview a movie or animated GIF in a presentation

- In normal view, display the slide, and click Slide Show in the lower-left corner of the Microsoft PowerPoint window. If you set up the movie or animated GIF to play when you click it, you'll have to click it to play it. (Or, if you've inserted a movie as an object to play in Microsoft Windows Media Player, you may have to click Stop, Start, and Pause buttons.)

Notes

- You can also preview a movie in normal view by double-clicking it.
- If your movie or animated GIF is part of a custom animation sequence, you can preview it by clicking Play in the Custom Animation task pane

Using Microsoft Windows Media Player for movies

If Microsoft PowerPoint won't play a movie file you try to insert, try to play the movie in Windows Media Player. First, test the movie outside of PowerPoint by opening Windows Media Player and opening your file from the File menu. If the movie doesn't play, Windows Media Player gives you detailed error messages and a Help link that can help you troubleshoot the problem.

If the movie plays in Windows Media Player, you can then insert it from within PowerPoint by clicking Object on the Insert menu and inserting it as a media clip.

A movie that you play in PowerPoint using Windows Media Player cannot have animation settings and special timings assigned to it; instead, you play it by clicking buttons in the Windows Media Player.

Loop a sound or movie

When you loop a sound or movie, the file plays until you advance to the next slide.

1. On the slide, right-click the sound icon or movie.
2. On the shortcut menu, click **Edit Sound Object** or **Edit Movie Object**.
3. Select the **Loop until stopped** check box.

6.5 Printing a presentation

Handouts

You can print your presentation in the form of handouts - with one, two, three, four, six, or nine slides on a page - that your audience can use for future reference.

The three-slides-per-page handout includes lined space for note-taking by the audience.

You can select a layout for your handouts in print preview or in the Print dialog box.

Previewing your handout

Print preview allows you to select a type of layout for your handout and to see exactly what the printed version will look like. You can also apply, preview, and edit headers and footers, such as page numbers. Layout options include landscape or portrait orientation. In the one-slide-per-page layout, you can apply headers and footers to the handout only and not the slides, if you don't want header and footer text, date, or slide numbers appearing on the slides.

Handout master

If you want to change the look, position, and size of the header and footer text, date, or page number on your handouts, make the changes to the handout master (master: A slide view or page on which you define formatting for all slides or pages in your presentation. Each presentation has a master for each key component slides, title slides, speaker's notes, and audience handouts.). To include a name or logo that should appear on every page of the handout, add it to the master. Changes you make to the handout master also appear when you print an outline.

Additional layout options

There are additional options for the look of your handout if you send the presentation from Microsoft PowerPoint to Microsoft Word.

About right-to-left presentations

The feature described in this Help topic is only available if support for Arabic or Hebrew is enabled through Microsoft Office Language Settings.

Microsoft PowerPoint allows you to enter, change, and display right-to-left (right-to-left: Refers to keyboard settings, document views, user interface objects, and the direction in which text is displayed. Arabic and Hebrew are right-to-left languages.) text in both right-to-left and combined right-to-left/left-to-right (left-to-right: Refers to keyboard settings, document views, user interface objects, and the direction in which text is displayed. English and most other European languages are left-to-right languages.) environments. If you are using the Arabic or Hebrew version of PowerPoint, then PowerPoint automatically opens new presentations with right-to-left paragraph alignment and text direction, and the screen will have a right-to-left appearance.

If you are not using the Arabic or Hebrew version of PowerPoint, you can still change paragraph alignment and text direction, and enter, change, and display right-to-left text by enabling Arabic or Hebrew through Microsoft Office Language Settings

Print notes pages

To print your presentation:

NOTE: You should always preview before printing, so that you don't waste paper or pay for printouts you did not want.

Step 1:

Go to File->Print Preview. You will be shown a preview of how your printed document will look like.

Step 2:

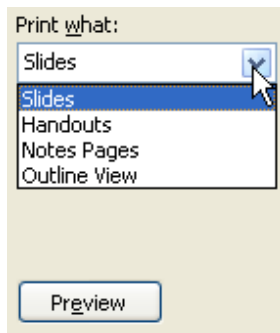
If you are satisfied with the appearance of your document, click on the "Print" button at the top left of the preview window. Otherwise, click on the "Close" button and make any necessary changes.



Choosing Options in the Print dialog box:

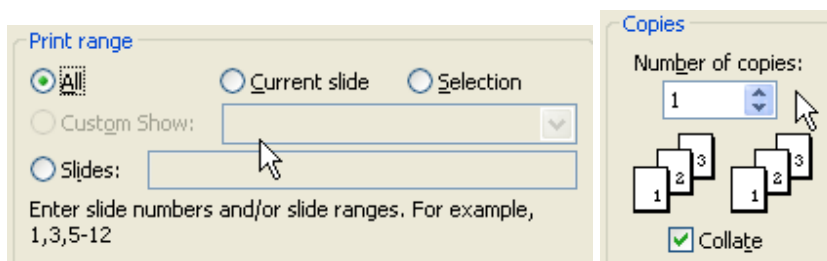
Step 1:

In the Print dialog box, you will see a "drop-down" menu labeled "Print what:". You can choose from Slides, Handouts, Notes Pages, and Outline View. You can preview what each one of these looks like by clicking the <Preview> button in the lower left corner of the Print dialog box.



Step2:

You also have the ability to choose which slides to print in the Range section of the dialog box, and how many copies in the Copies section of the dialog box.



Step 3:

Click the <OK> button to print.

To print your presentation with your notes displayed:

Step 1:

Go to File->Print Preview

Step 2:

In the drop-down box labeled "Print what:" change the text to read "Notes Pages."

Step 3:

If you are satisfied with the appearance of your document, click on the "Print" button.

Otherwise, click on the "Close" button in the Print Preview dialog box and make any necessary changes.

Create notes while working on a presentation

1. In the notes pane, type your notes for the current slide.
2. To navigate between slides as you add your notes to the notes pane, click the slide thumbnails on the Slides tab or click the icons on the Outline tab.

Note: If your text exceeds the size of the placeholder (placeholders: Boxes with dotted or hatch-marked borders that are part of most slide layouts. These boxes hold title and body text or objects such as charts, tables, and pictures.) On the notes page (notes pages: Printed pages that display author notes beneath the slide that the notes accompany.), Microsoft PowerPoint reduces the font size and line spacing incrementally as you type, to make the text fit.

- To see more of the notes pane, point to the top border of the notes pane until the pointer becomes a double-headed arrow, and then drag the border.
- To see the formatting and layout of your printed notes, click Print Preview on the Standard toolbar

Summary

Making a good presentation can be easy if you include the following elements:

- Simple slides, with no more than one concept per page, and no more than 25-30 words per page.
- Text and images kept within a reasonable distance from the edges of the slide. This prevents the slide from looking

- Slides that are easy to read. Avoid flashy color schemes, fonts, and animation. These features should complement a presentation, and not be the presentation itself.

Self Test Exercises

I. Write “True” for correct statement and “False” for wrong statement on the space provided.

- _____ 1. .ppt is the default Microsoft PowerPoint presentation extension file name
- _____ 2. It is not possible to add movies to power point presentation
- _____ 3. The extension to save power point graphics is .gpg
- _____ 4. It is not possible to print 5 or more slides on one page of a paper
- _____ 5. Individual parts of a presentation is called Slides.
- _____ 6. Toolbar is a bar with buttons and options that you use to carry out commands.
- _____ 7. Task pane is a window within an Office application that provides commonly used commands.
- _____ 8. Sizing handles are Small circles that appear along the edges of the selection rectangle around an object on your slide.
- _____ 9. Presentation is the primary type of file PowerPoint is used to create
- _____ 10. Print preview allows you to select a type of layout for your handout and to see exactly what the printed version will look like

II. Choose the appropriate answer among the alternatives given for each of the following questions and write the letter corresponding to the correct answer on the space provided.

1. One of the following extension is appropriate for saving web archives
 - a) mht
 - b) .rtf
 - c) .pot
 - d) .pps
2. The specific arrangement of text and images on a slide is:
 - a) Color scheme

- b) Design template
 - c) Layout
 - d) Slide
- 3. One of the following view is helpful for rearranging the order of your slides
 - a) Normal view
 - b) Slide sorter view
 - c) Slide show view
 - d) None
- 4. Boxes with dotted or hatch-marked outlines that appear when you create a new slide are :
 - a) Placeholder
 - b) Slide show
 - c) Design template
 - d) None
- 5. Which one starts with slides that have minimal design and no color applied to them?
 - a) Template with suggested content
 - b) Design template
 - c) Blank
 - d) None

IV. Complete the following statements by filling the blank space.

1. _____ is an extension used for presentation outline as an outline document.
2. _____ is an extension for slide as a graphic.
3. _____ is an extension for slide as a graphic for use on Web pages.
4. _____ is an extension for presentation as a template.
5. _____ is an extension for a typical Microsoft PowerPoint presentation.

Chapter seven: Internet Basics

Objectives:

Upon the completion of this unit, you will be able to:

- ❖ explain what computer networking and the Internet is;
- ❖ the functions of the internet;
- ❖ the services available on the internet;
- ❖ identify information resources on the Internet; and
- ❖ make use of the search and retrieval services available on various subjects and in various formats.

Introduction

The Internet is a global network of interconnected computers, enabling users to share information along multiple channels. Typically, a computer that connects to the Internet can access information from a vast array of available servers and other computers by moving information from them to the computer's local memory. The same connection allows computer to send information to servers on the network; that information is in turn accessed and potentially modified by a variety of other interconnected computers. A majority of widely accessible information on the Internet consists of inter-linked hypertext documents and other resources of the World Wide Web (WWW). Computer users typically manage sent and received information with web browsers; other software for users' interface with computer networks includes specialized programs for electronic mail, online chat, file transfer and file sharing.

The movement of information in the Internet is achieved via a system of interconnected computer networks that share data by packet switching using the standardized Internet Protocol Suite (TCP/IP). It is a "network of networks" that consists of millions of private and public, academic, business, and government networks of local to global scope that are linked by copper wires, fiber-optic cables, wireless connections, and other technologies.

Introduction to networking and evolution of the Internet

Networking

Computer Network is a collection of computers and terminal devices connected by a communication system. The use of computer network is to share resources like file, device, printer, scanner, and program. Topology refers to the way in which multiple devices are interconnected via communication links. There are two types of network: - Local area Network (LAN) and wide Area Network (WAN).

A local area network is a network confined to a small area like a building. Most LAN has communication stations that are physically linked by a cable. WAN are used to connect computers not located in the same building (or even in the same city). High-speed dedicated data lines or satellite connections may be used to link computers separated by great distance.

There are three main network topologies: bus, ring and star.

Bus topology: - In bus topology, all stations attach through appropriate interfacing hardware, directly to a line as transmission medium, or bus. A transmission from any station propagates the length of the medium in both directions and can be received by all other stations. The message that is transmitted contains the address of the station and the data and each station monitors the medium and copies packets addressed to it. Because all stations share a common transmission link, only one station can successfully transmit at a time, some form of medium access control technique is needed to regulate access.

Ring topology: - In the ring topology, the network consists of a set of repeaters joined by point-to-point links in a closed loop. The links are unidirectional, that is, data are transmitted in one direction only, and all oriented in the same way. The data circulates around the ring in one direction (clockwise or counter clockwise). Data are transmitted in packets inserted into the ring by the stations. The packet contains source and destination address as well as other control information and user data. As a packet circulates, the

destination station copies the data. Typically, the packet continues to circulate until it returns to the source station, where it is absorbed, removing it from the ring. Since the medium is shared, it needs to control the order and timing of packet transmission.

Star topology: In star topology, each station is directly connected to a common Central Switch (host). Each station transmits its message to the host and the host deliver the message to the correct distribution by identifying the address. The problem with star is, if the host fails there will not be any communication.

The transmission medium can be twisted pair coaxial cable, optical fiber. The main difference among the transmission medium is cost, speed and technology.

Distributed system is a system by which physically separated computers share resources in their respective information processing functions. This means, the number of users can use the same disk drives, printers, and other peripherals, rather than giving each computer these peripherals. This becomes an important advantage when a large database is required by two or more different computers.

Internet

This unit of the module has two major sections. The first section focuses on setting up Internet connections and working on Web browsers/communicators. It discusses about what Internet is, how you set up and connect to the Internet, how it works, what it can do for you, what Web browsers are and how they work. In this section, identification of resources on Internet and other related concepts are also discussed. The second section mainly deals with the provision of Internet services and searching information on the Internet.

Can you define the term Internet?

Good! For beginner, here is a basic answer: The Internet is a network of thousands of computers all over the world that can communicate with one another to exchange messages and share information. The computers on the Internet can talk to one another because they are networked; they are connected in some way so that they can exchange information with one another electronically. Although most people talk about the Internet as if it were some giant company or club, it really isn't. No single entity or organization controls it. The computers on it are controlled by their owners. The computers that constitute the Internet come in just about every size, shape, and type in use.

How did Internet emerge?

In the late 1960s, the United States Department of Defense developed an experimental communication system called ARPANet. This network initially linked the computer networks at U.S. military establishments, but it was soon extended to include defense-related corporations and research institutions. In the 1980s, these interconnected networks spread widely to reach universities and other organizations. Spurred by the rapid availability of the personal computer, the networks spread over most of the globe and began to attract thousands of individuals as well as a few private organizations. It was during this expansion that the phenomenon became to be known as the Internet.

Today, the Internet exists as an intricate pattern of smaller networks linked through servers. The servers transmit data through lines that, in most cases, are dedicated to Internet communications. Individual computers are connected to these servers either through direct lines or telephone lines and modems.

7.2 Setting up an Internet connection

Well! To have access to Internet, you need to look for a commercial Internet Service Provider (ISP), a company that provides access to the Internet. Some considerations associated with ISPs are: How much do they charge? Do they offer a free trial period? How good is their technical support? Do they offer any extra services? In Ethiopia, Ethiopian Telecommunication Corporation (ETC) is the official Internet Service Provider (ISP). There are also minimum hardware and software requirements to have Internet connection. If you want to explore Internet through dial-up connection from your local computer, you need:

1. Hardware Requirements

- a) A computer with a serial port for connecting external modem or a spare expansion slot for connecting an internal modem card.
- b) A modem, ideally the fastest one that you can afford.
- c) Connecting cables with jacks and sockets - to connect your modem with the computer and telephone connection.

2. The CPU

The CPU is analogous to a car engine: Fast, powerful CPUs make fast, powerful computers. A Pentium-based PC will give you enough horse power for the Internet. Although it is not recommended, even a 486-based PC is adequate. Almost any home computer manufactured after 1996 has enough horsepower for the Internet.

3. RAM Memory

You need 16Mb if you want to run Windows 95, and that is a minimal configuration for new machines. If you expect to get involved with Web page design and computer graphics, you'll want at least 32Mb of RAM.

4. The Hard Drive

A 1 GB hard drive is standard on even a low-end PC these days. Today's larger hard drives are designed to store memory-intensive applications and graphics.

5. Software

1. Windows 98 or later versions are recommended.
2. Any web browser like Internet Explorer, Netscape Navigator etc. for setting up a TCP/IP connection.

6. Others

1. A telephone connection.
2. A TCP/IP account with an Internet Service Provider (ISP).

Good! Setting up an Internet connection can be a time consuming and expensive proposition, especially if you do not do it right the first time. Setting up an Internet connection involves providing and synchronizing settings for various software and hardware components. Unless all these settings work in complete harmony, your Internet connections may either not work at all or may work erratically and may cause lot of problems. In order to make it easy, follow the Internet Connection wizard.

The Internet Connection wizard helps you set to up your computer to use the Internet. Whether you have spent many hours online or never explored the Internet, the Internet Connection wizard can help you quickly set up a connection. To connect your PC to the Internet for the first time, do the following:

1. First, start the Internet Connection wizard by clicking Start, pointing to Programs, pointing to Accessories, pointing to Communications, and then clicking Internet Connection Wizard.
2. Then, choose the third option which says 'I want to set up my Internet connection manually' and click 'Next' button. Under how do you connect to the Internet choose the first 'I will connect through phone and modem' then click 'Next' button.

3. Next, fill the area code, telephone number of the ISP and choose the country from the drop down box and click 'Next' button.
4. Insert the username and the password that you acquire from your ISP and click 'Next'. Under connection name write the connection name you like to be named. For example ETC and click 'Next' button.
5. Then, choose no, for our case, for the Internet mail account and click 'Next'.
6. Finally, click 'Finish'.

Now you can connect to the Internet by double click 'Dialup networking', on My Computer, and click the dialup connection you will be prompted for User name and a Password. Then, click **Connect** button and you will be connected.

7.3 Domain name system

What is domain name?

A Domain Name is your address on the Internet. It is your unique identity on the Internet that corresponds to your numeric address "IP". In simple terms, a domain name is part of your Internet address that comes after "www". For example, in <http://www.abc.com.et> the domain name is [abc.com.et](http://www.abc.com.et) i.e.

- ❖ [abc](http://www.abc.com.et) is the name of the company ABC.
- ❖ [com](http://www.abc.com.et) is to represent that ABC is a commercial company; and
- ❖ [et](http://www.abc.com.et) the top level domain that represents the country name Ethiopia.

Domain names provide a system of easy-to-remember Internet addresses, which is translated by the Domain Name System (DNS) into the numeric addresses (Internet Protocol (IP) numbers) used by the network.

What is .et domain name?

.et domain name is the CCTLD (Country Code Top Level Domain) name given to Ethiopia just like other countries by an International organization meant for this purpose. Ethiopian Telecommunications Corporation (ETC) is authorized to sell .et domain names like abc.com.et.

What makes an Internet important source of information?

Is the Internet really an important source of information nowadays?

Yes! Internet is really an important source of information nowadays. Internet is everything:

- ❖ It is a mailbox that allows sending messages to and receiving messages from, other Internet users through electronic mail (e-mail);
- ❖ It is a business tool that helps you conduct business in any part of the world;
- ❖ It is a library that allows you conduct research by reading or copying information stored on other computers and also finding books and other resources stored in libraries all over the world;
- ❖ It is a software shop that allows you copy computer software.
- ❖ It is also a newspaper that allows you read newspapers, newsletters, and magazines and also receiving news updates about specific events or topics and more.

Can you look into the things that can make you Internet literate?

By learning certain terminologies, concepts, and skills, you can become Internet literate. Using the Internet demands appropriate computer equipment, an Internet connection, software tools (or access to tools through another computer), and basic skills. It may also require money. Most of all, it requires that you have a need for what the Internet offers. If the need is there, none of the other requirements is too difficult to manage. If the need is not there, most of the other requirements represent a waste of time, money, and effort. You are better off walking to the library.

Working on Web browsers/ communicators

What do you think is a web browser? What are common features of web browsers?

A browser is a hypertext file reader. That is, a browser is a program that can display material containing links to other material (perhaps located in other files), and can provide quick and easy access to the contents associated with such links. Internet Explorer and Netscape are just two of the popular WWW graphic browsers that allow you access to images, films and sound via the Internet.

Browsers may be text, graphics, or multimedia based:

- A text-based, or line-oriented, browser is able to display texts.
- Graphics browsers can handle both text and graphics and generally have a much nicer display than line-oriented browsers.
- Multimedia browsers can display sound and video, in addition to the capabilities of graphics browsers.

Have you come across the concept Uniform Resource Locators (URLs) so far?

Well! URLs are the addresses of documents available on the Internet. With a URL, you can go directly to a specific document, rather than by selecting links from other documents. Every document on the WWW has a unique URL address.

The following is an example of anatomy of a URL:

Example: <http://www.lib.berkeley.edu/TeachingLib/About.html>

In this example address given above:

http:// - this part of the URL defines the Internet Protocol for the document. For example, **http://** indicates that the document is unique to the World Wide Web.

www.lib.berkeley.edu/ - This part of the URL is the address of the machine where the document is stored. It tells your WWW Browser which is a specific machine to connect to.

Teaching Lib/ - This part of the URL is the directory or path of the document. It indicates exactly where on the machine your document is located.

About.html – The very end of the URL is the name of the document itself. The .html indicates that the document is in hypertext. This last section of the URL may sometimes be omitted.

What are the capabilities you find in most Web browsers?

Dear students! Internally, Web browsers are incredibly complex programs. Externally, however, Web browsers are extremely easy to use. To get you up and running, take a look at the capabilities you find in most Web browsers:

- ❖ **Browsing URLs** - Each Web browser provides the same methods for opening a Web page. You can click a link, type the URL of the Web page in the Address bar, use the menu, pick a site from your list of favorites, and so on.
- ❖ **Toolbar buttons** - Most Web browsers provide the same buttons in their toolbars.
- ❖ **History list** - Your browser keeps three different history lists. First, it keeps a list of all the Web pages you have visited during the current session; you can move forward and backward through this list using the Forward and Back buttons. Second, it keeps the history of all the web pages you have opened by typing their URLs in the Address bar. Third, it keeps a separate list of every Web page you have visited.
- ❖ **Printing, saving, and Sending** - Your Web browser provides a number of ways to keep a copy of a Web page. You can print it. You can save the page to your disk. You can also send a page or a link to a page to someone else via Internet mail.
- ❖ **Book marking your Favorites** - The Web contains millions upon millions of web pages. Your browser makes it easier to go back to your favorite pages by allowing you to put links to those pages in a bookmarks or favorites list.

- ❖ **Offline Browsing** - A recent innovation is offline browsing. You specify parameters for a Web search and download the content to your computer while you are not using it. Then you can browse that content while you are not connected to the Internet. Because you do not have to wait for pages to download before your eyes, offline browsing makes the whole Web searching experience faster.
- ❖ **Channel support** - The latest browsers support channel casting. With channel casting, you subscribe to a channel, and the publisher determines the amount of content and the schedule on which the content is updated on your computer.
- ❖ **Customization** - Early browsers allow you very little customization. These days you can customize every thing. You can change your start page. You can customize the location, size, and contents of your toolbars.

Identification of resources on Internet

What resources can we get on Internet?

Good! You can get information resources on Internet about every thing. For instance, information resources are available on Internet for educational purposes, research and scholarship, entertainment, business and many more. If we take education, the Internet is reshaping educational systems globally and presenting different means of curriculum and instructional development. The opportunity exists to use this technology to transform classrooms into sites of learning and critical thinking through inquiry-based learning and by bridging reading and writing through online interaction. Some of the resources available on the Internet for educational purposes are on agricultural education, Business Education, Marketing, Counseling, English Language, Health, etc.

The Internet has reshaped research and scholarship. Traditional methods involve on-site examination, extensive note taking, and photocopying of paper-based journals and books. It also involves using indices and abstracts, such as the Social Science Index. For an increasing number of students and faculty, however, the Internet has dramatically improved the speed and quality of their work. It is increasingly common for students and instructors to use

remote databases, exchange e-mail with far-flung colleagues, collaborate on research, and get copies of the latest journals online, and without even going to office.

The resources available for students, teachers and faculty include library catalogs, databases, indices, electronic journals, electronic texts, papers, images, sound and music files, discussion groups, Use net news groups distance learning, issue-specific list serves and more. Each of these offers tools to the educator and the scholar. Books, chapters and articles are written, presentations are planned, conferences are convened and research is carried out on the Internet.

7.4 Internet services (WWW, E-mail, News groups, Use net)

What are the various types of services available through Internet connection?

Dear students, can you guess different types of services available through Internet connection?

Good! As you learnt in module one, there are various types of services available through Internet connection. The services are expanding and increasing from time to time. By learning certain common services provided through Internet, you will be familiar with them. Here are major services or applications of Internet:

❖ World Wide Web (WWW)

The World Wide Web (usually called the Web) is the premier and fastest growing Internet service. It is the application that made the Internet accessible to children, senior citizens, and everyone in between. The most remarkable thing about the Web is how easy it is to work with. Once you have a Web browser installed and working, the basic mechanics of the browser are very simple.

How do you navigate through a web page?

Well! There is a pointer that helps you move from place to place in a web page. The pointer from a main text to a related document is called a link. The terms hyperlink, hot link, hot button, and pointer are also used. Hyperlinks on a Web page may be underlined, appear in boldface, or be displayed in a different color (usually blue), so you can easily see them. Different browsers use different display conventions.

Other popular communication applications that have evolved with the Internet include Usenet newsgroups, Telnet (remote Login), File Transfer Protocol, Electronic mail (E-mail), etc. Each application is different and addresses different kinds of information needs as discussed in the following sections.

❖ Usenet Newsgroups

Usenet newsgroups allow the exchange of e-mail-like messages in a public forum open to millions of onlookers. Anyone can join in on any of the Usenet conversations at any time. Usenet newsgroups are worldwide discussion groups in which people share information and ideas on a particular area of interest such as social, economic, political, art, etc. Discussion takes place in large electronic bulletin boards where anyone can post messages on the topic for others to see. Members of the group access the bulletin board to see information posted by a member and give response/answer to queries asked, if any.

Chat channels enable typed conversations between two or more people in either a public or private manner. Chats are real time conversations. Many web pages feature chats. You may need to register in order to participate.

❖ E-mail

E-mail is the most popular activity on the Internet. Email is the most versatile and useful Internet communications tool. At least 75% of everyone with access to the Internet uses e-

mail. There are Internet based free e-mail and data storing services like Yahoo, etc. Hotmail, NetAddress.com, etc are free email accounts.

You can send or receive personal and business-related messages with attachments such as pictures or other documents. With the appropriate software you can even send sounds, videos, and computer programs. E-mail is one of the most widely used services on the Internet. E-mail is easy to send, read, reply to, and manage, and it is fast and convenient. For these reasons, it has grown from a simple service offered to researchers for communicating ideas and results to complex messaging system.

What do you think is the anatomy of an E-mail Message looks like?

Well! An e-mail message is very similar to an office memo. It is usually fairly short; usually addresses a single topic; relies mostly on plain text (no graphics or fancy fonts, and so on); is usually written in an informal style; might be a reply to a previous message; can be sent to one person or many people; can be passed along to lots of other people and is often timely.

Each e-mail message contains two parts: a message header and a message body. The header contains addressing information, such as from whom the message is coming and whom the message is being sent to, the time the message was sent, and a subject header describing the contents of the message.

When you create an e-mail message, some parts of the header are entered by you, specifically the To: field and the subject: field. Other parts of the header will be filled in for you. The From: and the Date: fields are always filled in automatically. In fact, the only part of the message that absolutely must be filled in is the To: field. You can leave Subject: blank. You can even leave the message body empty and still have a perfectly legal e-mail message. But if you leave the To: field unfilled, your message will have no place to go.

When you fill in the To: field, you must specify a valid e-mail address. A valid e-mail address consists of a user id and a host address separated by the @ character. If there are any typographical errors in the address, your message will be returned to you along with an error message. Note, however, that a typographical error might send your mail to a legitimate address, although not the one you intended. In that case, no error message will alert you. If the accidental recipient does not respond, you will have no reason to believe anything went wrong.

❖ **Telnet (Remote Login)**

Telnet provides a remote login capability which enables a user at a terminal or personal computer to logon to a remote computer and function as if it is directly connected to that computer. You can do on that computer whatever activities you can do on your local computer. The computer you log into can be in the same room, on the same campus, or a computer in a distant corner of the world.

❖ **File Transfer Protocol**

The Internet and its predecessors were created to facilitate information exchange. The oldest services to the Internet were developed for this purpose. One of these services is File Transfer protocol (FTP). It enables you to examine files of remote hosts on the Internet and to copy files to your computer or send your own files to the host computer. The files can have different formats. They can be program, data or other files.

7.5 Searching information on the Internet

What are search engines? How to choose appropriate search engines?

Dear students! What is a web search tool? How do they work?

Well! Search tools find documents matching your interests. Each search tool operates on its database of URLs, texts and descriptions selected from the entirety of the World Wide Web. When you search a search engine, you search the contents of its database - not the World

Wide Web directly. Since none of this database includes all the WWW pages in existence, you get different results from different search tools. Other reasons for search results to vary include differences in the features of each database.

All search tools provide hypertext links that permit you to retrieve Web documents found through a search of the tool's database. A search results in list of documents matching your search. When you click on the link representing one of these documents, you "go out on " the Web (in fact, you retrieve into your computer a document from some site on the WWW outside the database of the search engine). Up to this point you are working within the search tool's database.

Search Engine database are most frequently built by "robots"- computer programs that roam the WWW finding sites new to their home database, updating old ones, and deleting obsolete ones. The discoveries of these robots are then integrated in to the home database. Some web search databases are maintained with little human evaluation. In others, sites are hand-picked and evaluated or reviewed. Some offer a combination of these approaches.

Every search tool is different. They vary in features and size/comprehensiveness. The most important features in selecting a search tool are those which allow you to refine or focus your search when you need to. If you want comprehensiveness, you want large databases. If you want help sorting out "the best" pages on an extensively covered topic, you may profit from the selectivity of some of the smaller, hand-picked databases.

In general, search tool (search engine) is a computer program that does the following:

1. Allows you to submit a form containing a query that consists of a word or phrase describing the specific information you are trying to locate on the Web.
2. Searches its database to try to match your query.
3. Collates and returns a list of clickable URLs containing presentations that match your query; (the result list is usually ordered, with the better matches appearing at the top).

4. Permits you to revise and resubmit a query.

AltaVista (www.altavista.com), Excite (www.excite.com), HotBot (www.hotbot.com), Infoseek (www.infoseek.com), etc. are among the popular Search Engines.

What do you think are the issues that you should take into consideration when selecting a keyword for searching?

To get the appropriate information in the web, the number one skill to learn is how to pick good keywords. Here are some points to keep in mind: be specific; don't use common words; learn to adjust your query; use synonyms; use word variations, use quoted phrases; use upper case letters when appropriate; and understand the search tool you are using.

What are Meta-search Engines?

As we have discussed above, in ordinary search engines or search tools (such as Info seek, AltaVista, Yahoo, or Excite), you submit keywords to a single database of web pages owned by the search tool, and you get back a different display of documents from each search engine's unique database of web pages.

In a meta-search engine, you submit keywords in its search box, and it transmits your search simultaneously to most of the popular search engines and their databases of web pages. Within a few seconds, you get back a compilation of results containing matching sites from the entire search engines queried.

Meta-search engines do not own any database of web pages; they use and deliver the databases and searching programs of each of the popular, individual search tools they query. Meta-search engines act as intelligent middle-agents to pass your search through, gather the

responses from the individual search tools they query, and then give you a more unified report of results from many different resources.

A meta-search engine or all-in-one search engine performs a search by calling on more than one other search engine to do the actual work. The results are collated, duplicate retrievals are eliminated, and the results are ranked according to how well they match your query. Then you will be presented with a list of URLs.

The advantage of meta search engine is that you can access a number of different search engines with a single query. The disadvantage is that you will often have a high noise-to-signal ratio; that is, a lot of the “matches” will not be of interest to you. This means you will need to spend more time evaluating the results and deciding which hyperlinks to follow.

For very specific, hard-to-locate topics, meta-search engines can often be a good starting point. For example, if you try to locate a topic using your favorite search engine, but fail to turn up anything useful, you may want to query a meta-search engine. Meta-search (www.metasearch.com) and Meta Find (www.metafind.com) are among the popular Meta search engines.

SUMMARY

The Internet is a network, or more accurately, an inter-network, a vast collection of different types of computers all over the world that can share messages and information with one another. The Internet as a whole, however, is under the direct authority of no one—which makes the Internet open and free, but also complex and inconsistent. People exploit the resources on the Internet to stay informed, do research, make announcements, and exchange messages with colleagues, partners, etc. The world is made better in part by the Internet and the people who use it. The Internet opens a world of interpersonal communication, and it supplies this communication in several different forms: E-mail, one-to-one conversation, Chat, Mailing lists, and Newsgroups, etc.

Using the Internet demands appropriate computer equipment, an Internet connection, software tools (or access to tools through another computer), and basic skills. It also requires money. Most of all, it requires that you have a need for what the Internet offers. If the need is there, none of the other requirements is too difficult to manage.

SELF TEST EXERCISE 4.2

I. Write “True” for correct statement and “False” for wrong statement on the space provided.

- _____ 1. The disadvantage of meta-search engine is that you will often have a high noise-to-signal ratio; that is, a lot of the “matches” will not be of interest to you.
- _____ 2. Search engines permit you to revise and resubmit a query.
- _____ 3. When you search a search engine, you search World Wide Web directly.
- _____ 4. When you create an e-mail message, every part of the header is created by you.
- _____ 5. Meta-search engines act as intelligent middle-agents to pass your search.
- _____ 6. The Internet has reshaped research and scholarship.
- _____ 7. There are minimum hardware and software requirements to have Internet connection.
- _____ 8. Setting up an Internet connection involves providing and synchronizing settings for various software and hardware components.
- _____ 9. There is a single International organization that controls Internet.
- _____ 10. The Internet Connection wizard helps you to set up your computer to use the Internet.

II. Choose the appropriate answer among the alternatives given for each of the following questions and write the letter corresponding to the correct answer on the space provided.

- _____1. The term link in web page is interchangeably used with:
- a) hyperlink
 - b) Hot link
 - c) Hot button
 - d) Pointer
 - e) All
- _____2. Which one of the following should be kept in mind when submitting a keyboard to search engines?
- a) Be specific
 - b) Don't use common words c) learn to adjust your query d)all.
- _____3. A valid e-mail address consists of:
- a) user Id.
 - b) Host address.
 - c) a & b
 - d) None
- _____4. Which one of the following is an ordinary search engine?
- a) Info seek
 - b) AltaVista
 - c) Meta find.com
 - d) all except c.

- _____ 5. Which statement is true?
- a) For very specific, hard-to-locate topics, meta-search engines can often be a good starting point.
 - b) A meta-search engine is also called all-in-one search engine
 - c) The advantage of Meta search engine is that you can access a number of different search engines with a single query.
 - d) all
- _____ 6. Information resources are available on Internet for:
- a) Educational purpose
 - b) Research purpose
 - c) Entertainment
 - d) all
- _____ 7. Which one of the following is not the capability of most Web browsers nowadays?
- a) Customization
 - b) Offline browsing
 - c) Book marking your favorites
 - d) None.
- _____ 8. Browsers may be:
- a) text-based.
 - b) Graphics.
 - c) Multimedia.
 - d) all
- _____ 9. _____ is authorized to sell .et domain name.
- a) Ministry of Education.
 - b) Ethiopian Telecommunication Corporation
 - c) USA government
 - d) all

_____ 10. The resources available on Internet for teachers and students include:

- a) Databases
- b) Electronic journals
- c) Library catalogs
- d) all

III. Complete the following statements by filling the blank space.

1. A service of an Internet that provides a remote login capability which enables a user at a terminal or personal computer to logon to a remote computer is called _____ .
2. The two main parts of an e-mail message are _____ and _____.
3. The pointer from a main text to a related document in a Web document is called a _____.
4. _____ is an Internet service that enables typed conversation between two or more people.
5. _____ is the most popular activity on the Internet.
6. _____ is the addresses of documents available on the Internet.
7. _____ is network of thousands of computers all over the world.
8. Access to Internet is possible through companies known as _____.
9. _____ is your address on the Internet.
10. _____ is a hypertext file reader.