



SYLLABUS

Class – B.Com. I Year

Subject –Fundamental of Computer and PC Software

UNIT – I	<p>Introduction to Computer System: Block diagram, components: Mother board, Processor, main memory, cache memory, hard disk. Input devices, External storage devices: floppy disk, CD ROM, DVD, USB drives.</p> <p>Types of software: System software, Application software. System software: Operating system.</p> <p>Utility programs: anti-virus, disk cleaning, defragmentation, compression and decompression of files. Application software: examples of commercial software with brief introduction. Programming Languages: Low-Level Language, Assembly Language, Middle Level Language and High Level Language, Compiler, Interpreter, Assembler, Difference between Compiler & Interpreter.</p>
UNIT – II	<p>Operating System: Definition, functions of operating system, CUI, GUI, types of operating systems like single user, Multi-user, Real-time, Time Sharing and Batch processing, Multiprocessing, Multiprogramming, Multitasking, Distributed processing. Elementary idea of Various common operating systems prevalent round the world.</p> <p>MS Windows: An introduction and its features, desktop, taskbar, files and folders start menu operations, my computer, network neighborhood, recycle-bin, windows explorer, creating copying, moving and deleting files, setting wallpaper, changing the mouse pointer, paint, notepad, understanding the OLE features.</p>
UNIT – III	<p>Introduction to MS-Word: Advantages of word processing, creating, saving and editing a document: Selecting, deleting, Replacing Text, Copying Text to another file. Insert, Formatting Text and Paragraph, Using the font, Dialog Box , Paragraph Formatting using Bullets and Numbering in Paragraph, Use of Smart Art, Checking Spelling, Line spacing, Margins, Space before and after paragraph, Mail merge , customizing the ribbon.</p> <p>Introduction to MS-Excel: Entering Information: Numbers, Formula, Editing Data in a cell, Excel functions, using a range with SUM, Moving and copying data, Inserting and Deleting Row and Columns in the worksheet, Using the format Cells Dialog box, Using chart wizard to create a chart.</p> <p>Introduction to MS-Power Point: Introduction to Power point presentation, Slide Show, Formatting, creating a presentation, Inserting Smart Arts, Adding Objects, Applying Transitions, and Animation effects, Adding Tables, Charts and Media files.</p>



UNIT – IV	<p>Decision Support System: Importance of Decision support system, limitation, Characteristics of DSS, Decision Support and Structure of decision making decision Support and Repetitiveness of decision Making.</p> <p>Expert Systems: Support for System making phases, Support for the intelligence Phase, Support for the design phase, support for the support for the choice phase, decision Support and Alternative Concepts of Decision making.</p> <p>Management Information System: Introduction to role of IT, MIS characteristics and application areas Business and Technology trends-specialization, management by methodology, decentralization, internationalization etc.</p>
UNIT – V	<p>Internet: Meaning, Definitions, History, Internet protocols, TCP\IP, FTP, HTTP, URL. Internet Browsers, WWW Consortium, Search Engines. Introduction to Internet Security terminology-network security, firewall, cryptography, password, biometrics, digital signature, digital certificate. Business applications of internet, r-mail, UseNet, newsgroup, telnet, intranet, e-ticketing, chatting.</p> <p>E-Banking and its Benefits: Smart Card, E-cash, Online financial services stock trading, E-broking, E-business Model, Do-it-yourself model, Made-to-order model, Information Service Model, Emerging hybrid models.</p>



UNIT 1

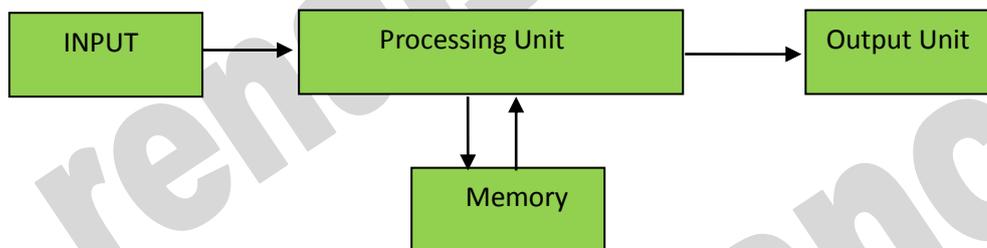
Introduction

A computer is a general purpose device that can be programmed to carry out a set of arithmetic or logical operations automatically.

A **computer** is an electronic device that manipulates information, or data. It has the ability to **store**, **retrieve**, and **process** data. You can use a computer to type documents, send email, and browse the Web. You can also use it to handle spreadsheets, accounting, database management, presentations, games, and more.

In World War II, mechanical analog computers were used for specialized military applications.

During this time the first electronic digital computers were developed. Computer was developed by **CHARLES BABBAGE**. He is also known as Father of computers.



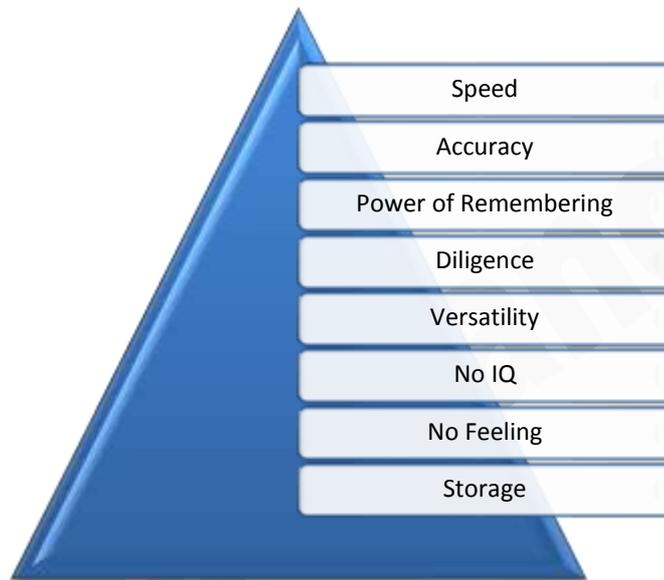
Organization of a Computer

Computer can also be defined in terms of functions it can perform. A computer can

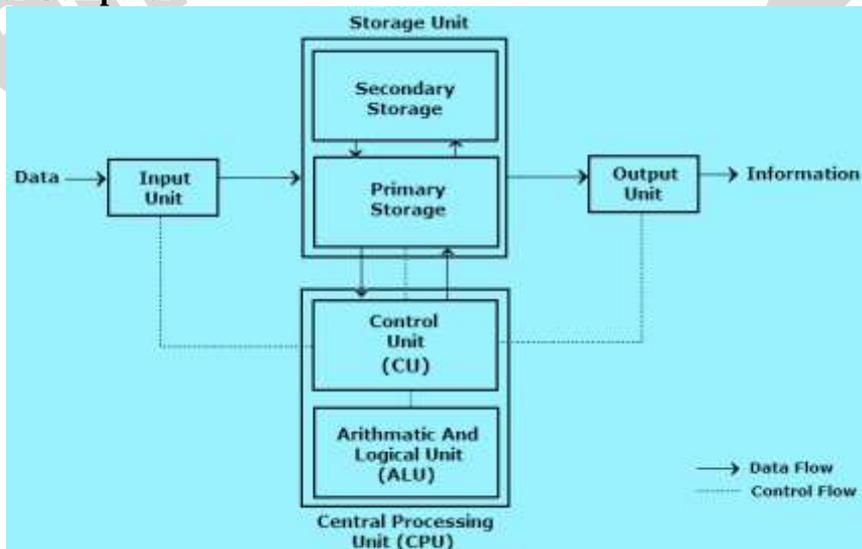
- Accept data,
- Store data,
- Process data as desired,
- Retrieve the stored data as and when required and
- Print the result in desired format.



Characteristics of computer:-



Block diagram of Computer:-



1. **Input:** this is the process of entering data and programs into the computer system.
2. **Control Unit (CU):** The process of input, output, processing and storage is performed under the supervision of a unit called 'Control Unit'. It decides when to start receiving data, when to stop it, where to store data, etc. It takes care of step -by-step processing of all operations inside the computer.
3. **Memory Unit:** Computer is used to store data and instructions.
4. **Arithmetic Logic Unit (ALU):** The major operations performed by the ALU are addition, subtraction, multiplication, division, logic and comparison.
5. **Output:** This is the process of producing results from the data for getting useful information. The ALU and the CU of a computer system are jointly known as the central processing unit (CPU). You may call CPU as the brain of any computer system.



Motherboard

A **motherboard** is the main printed circuit board (PCB) found in general purpose microcomputers and other expandable systems. It holds and allows communication between many of the crucial electronic components of a system, such as the central processing unit (CPU) and memory, and provides connectors for other peripherals. A motherboard usually contains significant sub-systems such as the central processor, the chipset's input/output and memory controllers, interface connectors, and other components integrated for general purpose use.

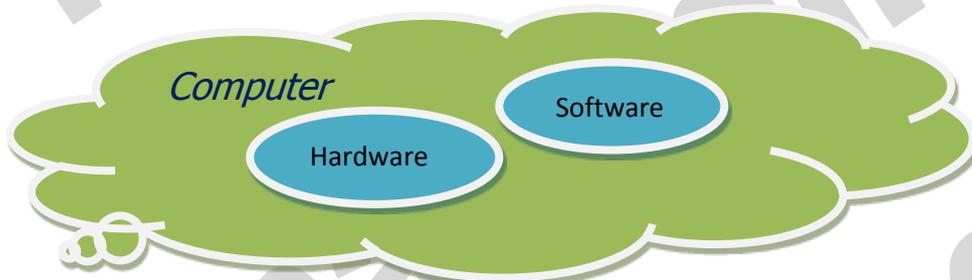
Motherboard specifically refers to a PCB with expansion capability and as the name suggests, this board is often referred to as the "mother" of all components attached to it, which often include peripherals, interface cards, and sound cards, video cards, network cards, hard drives, or other custom components.

Computer Hardware:

In simple terms we can say, computer parts that have tangible property are comes under computer hardware categories. Computer hardware is the physical parts or components of a computer. This is also sometime called the machinery or the equipment of the computer.

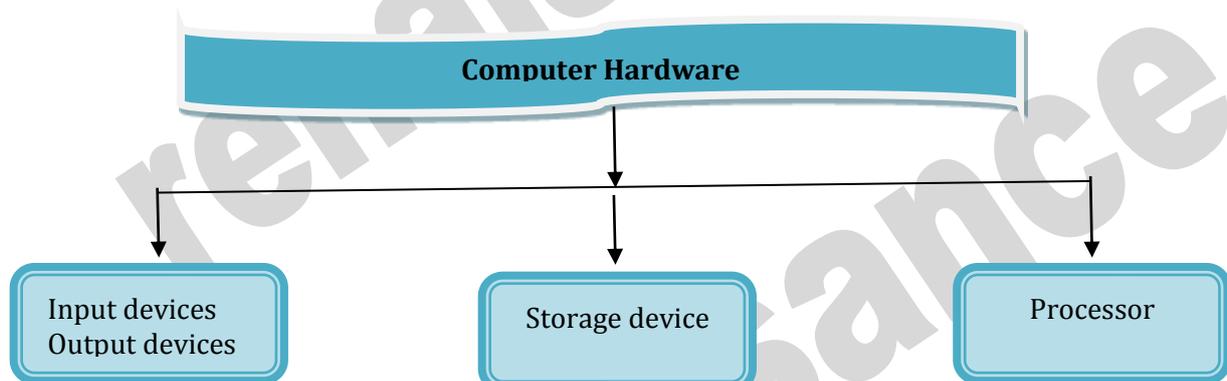
Computer Software:

Computer software is instructions that can be stored and run by hardware. Software is any set of machine-readable instructions that directs a computer's processor to perform specific operations.



The various applications of Computers:-

- Insurance
- Banking
- Business
- Education
- Marketing
- Health Care
- Engineering Design
- Military
- Communication
- Government Applications



Input devices

An input device is an **electromechanical device** as it utilizes both electronic and mechanical power. It aims in receiving data from external world. The input devices are responsible for converting data into a form that is understood by the computer. An input device is a peripheral device that converts symbols that people understand into bits that computers can process

Basic working of input devices:-

- Accept the data.
- Convert it into the machine understandable form.

Different Types of input devices:-

- Keyboard
- Mouse
- Joystick
- Light pen
- Track Ball
- Scanner
- Microphone
- Digitizing Table
- Magnetic Ink Card Reader (MICR)
- Optical Character Reader (OCR)
- Bar Code Reader
- Optical Mark Reader

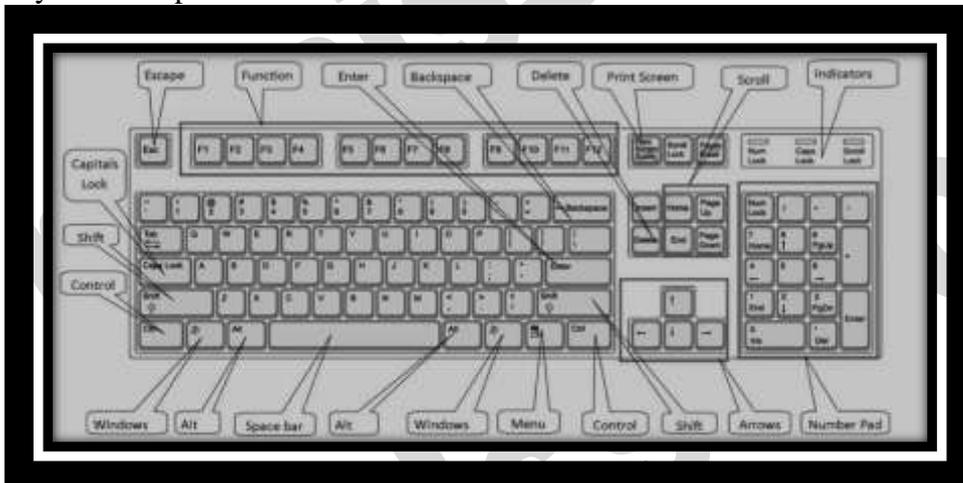




Keyboard

Keyboard is one of the most commonly used input devices to input the data into the computer. It is like the traditional typewriter, although there are some additional keys provided for performing some additional functions. Keyboards are of two sizes 84 keys or 101/102 keys, but now 104 keys or 108 keys.

- Keyboard is an input device used to enter data in to computer by pressing one key at one time.
- It has its own processor and circuitry that carries information to the processor.
- When you press a key, it presses a switch, completing the circuit and allowing a tiny amount of current to flow through.
- It tells the processor the position of each key what each keystroke or combination of keystrokes represents.



- Despite the development of alternative input devices, such as mouse, touch screen, light pen, the keyboard remains the most commonly used and most versatile device used for direct (human) input into computers.
- One factor determining the size of a keyboard is the presence of duplicate keys, such as a separate numeric keyboard, for convenience.
- Another factor determining the size of a keyboard is the size and spacing of the keys.

Generally the keyboards contain the following keys, they are:-

- Alphabets
- Arithmetic operators such as +, -, *, /
- Numeric digits 0–9
- Cursor arrow keys
- Navigation keys such as Home, End, PgUp, PgDown, etc.
- Num Lock button, used to enable or disable the numeric pad
- Enter key

Mouse:

The mouse is used to point to a particular place on the screen and select to perform one or more action. The pointing device may point to the menu, commands, size windows, starts programs etc. The most conventional kind of mouse has two buttons on top: the left one being used most frequently



then right one. A mouse is a pointing device that functions by detecting 2D motion relative to its supporting surface. The mouse's motion typically translates into the motion of a pointer on a display, which allows for fine control of a graphical user interface

Mouse Actions

- Left Click
- Double Click
- Right Click
- Drag and Drop

Types of mouse:-

- Mechanical mouse:
- Optical mouse:
- Cordless 3-D mouse:
- Wireless Mouse:
 - RF Transmitter:
 - RF Receiver:



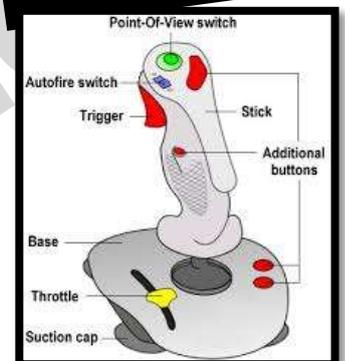
Track ball:

This is also a pointing device. Track ball is an input device that is mostly used in notebook or laptop computer, instead of a mouse. This is a ball, which is half inserted and by moving fingers on ball, pointer can be moved. Since the whole device is not moved, a track ball requires less space than a mouse. A track ball comes in various shapes like a ball, a button and a square.

Compared with a mouse, a trackball has no limits on effective travel; at times, a mouse can reach an edge of its working area while the operator still wishes to move the screen pointer farther. With a trackball, the operator just continues rolling, whereas a mouse would have to be lifted and re-positioned.

Joystick:-

The joystick is handheld stick. This stick can rotate about one end transmitting its angle to the computer in two or three dimensions. It typically has a button on top that is used to select the option pointed by the cursor. Joysticks are often used to control video games, and usually have one or more push-buttons whose state can also be read by the computer.



Digitizing Tablet:

An input device that permits drawing of images and graphics is called a digitizing tablet. They give feeling of drawing images with pencil and paper. The graphics tablet has two major parts that are:-

- A flat surface on which the image is drawn.
- Stylus that helps in drawing.





Scanners

An input device capable to read text or illustrations printed on a paper and interpret it in a form that can be used by a computer is known as a scanner. It converts the document image into digital form so that it can be fed into the computer. Capturing information like this reduces the possibility of errors typically experienced during large data entry.



Digital Camera

A digital camera can store many more pictures than an ordinary camera. Pictures taken using a digital camera are stored inside its memory and can be transferred to a computer by connecting the camera to it. A digital camera takes pictures by converting the light passing through the lens at the front into a digital image.

There are several categories in which the cameras can be classified:-

- **Video camera**
 - Professional video cameras
 - Camcorders used by amateurs.
 - webcams
- **Digital camera**
 - Live-preview digital cameras
 - Compact digital cameras
 - Bridge cameras



Magnetic Ink Character Recognition:



MICR is also an input device is commonly used in banks because of a large number of cheques to be processed. The bank's code number and cheque number are printed on the cheques with a special type of ink that contains particles of magnetic material that are machine readable. This reading process is called Magnetic Ink Character Recognition (MICR).

Magnetic Ink Character Recognition is a character recognition system that uses special ink and characters. When a document that contains this ink needs to be read, it passes through a machine, which magnetizes the ink and then translates the magnetic information into characters.

MICR technology is used by banks. Numbers and characters found on the bottom of checks (usually containing the check number, sort number, and account number) are printed using Magnetic Ink. To print Magnetic Ink need, you need a laser printer that accepts MICR toner.



MICR provides a secure, high-speed method of scanning and processing information.

Optical character Reader:-

Optical character Reader is an input device that is use to read a printed text. The OCR scans text optically character by character, converts them into a computer readable code and stores the text on the system memory.



Optical Mark Reader:-

Optical mark reader is also known as optical mark recognition that is same as the scanner which reads on specific areas of the page. Thus OMR can be defined as the process of scanning paper-based documents and identify data or marks in a location defined previously.

It is specially used for checking the answer sheets of examinations having multiple choice questions.

Bar Code Reader:-



An electronic device used to read barcodes printed on various surfaces is called barcode reader. It is also known as barcode scanner. Bar Code Reader scans a bar code image, converts it into an alphanumeric value, which is then fed to the computer to which bar code reader is connected.

Bar coded data is generally used in labeling goods, numbering the books, etc. It may be a hand-held scanner or may be embedded in a stationary scanner.

Voice Recognition System:-

Voice recognition systems are alternatively known as voice data entry or audio data entry terminals. This method of input enables a programmer to instruct the computer with spoken words instead of a written program

Light Pen:-

Light pen is also an input device used as pointing device, which is similar to a pen. It is used to select a displayed menu item or draw pictures on the monitor screen. It consists of a photocell and an optical system placed in a small tube.



- ✚ A light pen is a computer input device used in conjunction with a computer's CRT display.
- ✚ It allows the user to point to displayed objects or draw on the screen in a similar way to a touch screen but with greater positional accuracy.
- ✚ A light pen detects a change of brightness of nearby screen pixels when scanned by cathode ray tube electron beam and communicates the timing of this event to the computer.
- ✚ Because the user is required to hold his arm in front of the screen for long period of time, the light pen fell out of use as a general purpose input device.

Touch screen:-

An input device that permits users to operate a PC by simply touching the display screen is called a touch screen. The touch screen is as easy to use as trackballs or touchpad's.

Three major components form a basic touch screen they are as follows:-



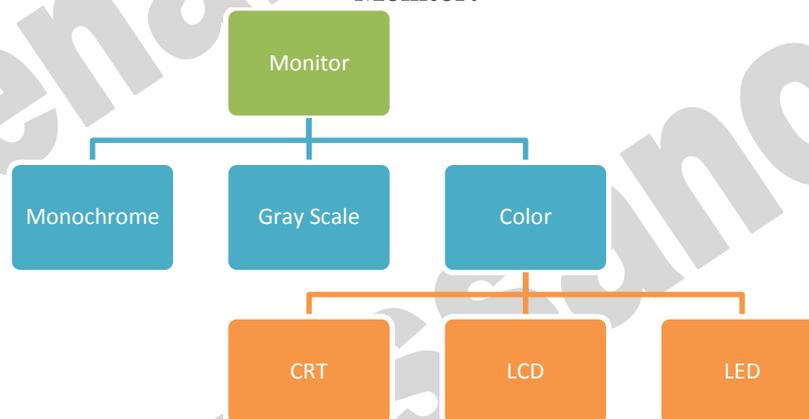
- Touch sensor
- Controller
- Software driver

Output Devices

An output is an electromechanical device that receives output from a computer in binary coded form and converts it into human understandable form and transmits to the user. An **output device** is any peripheral that receives data from a computer, usually for display, projection, or physical reproduction.

- Monitor / Visual Display Unit
- Printer
- Plotter
- Speaker

Monitor:



Monitor is the most common and the most popular output device. It forms images from tiny dots, called pixels that are arranged in a rectangular form. The sharpness of the image depends upon the number of the pixels.

There are two types of viewing screen used for monitors:

Cathode-Ray Tube (CRT):

The CRT display is made up of small picture elements called pixels. The smaller the pixels, the better the image clarity, or resolution. It takes more than one illuminated pixel to form whole character, such as the letter 'e' in the word help.

- There are some disadvantages of CRT:
- Large in Size
- High power consumption

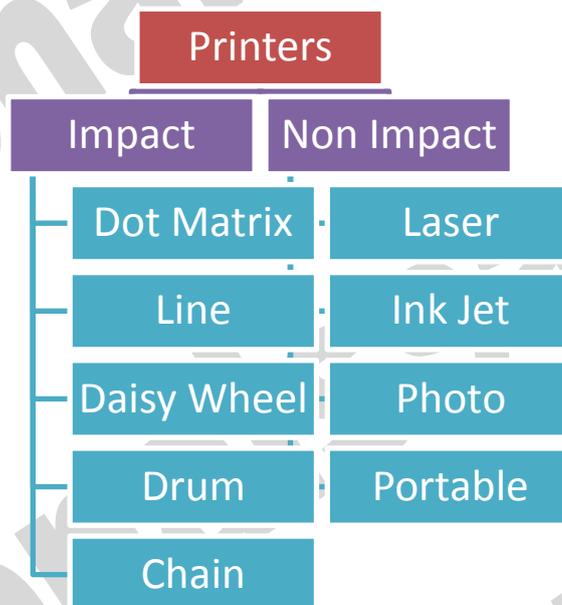


LCD(Liquid Crystal Display)



Printer:-

A printer is an output device that is used in a computer to print alphanumeric characters on papers. It converts the electronic signals from the computer into human readable form or hardcopy to produce a print out of the result of data processed in the computers.



Plotter:-

A plotter is a vector graphics printing device that connects to a computer. It draws pictures on paper based on commands from computer. A plotter is a very versatile tool.

Types of plotters:-

- Drum plotter
- Flat-Bed plotter

Sound Cards:-

Sound cards are an important part of computer, without sound cards you will have no music, no effects and no voices. Sound card is also referred as a **sound board** or an **audio card**, a **sound card** is an expansion card or integrated circuit that provides a computer with the ability to produce sounds that can be heard by the user either over speakers or headphones.



Sound card connections are as follows:-

- Digital out
- Sound in or line in
- Microphone or Mic
- Sound out or line out
- Fire wire
- MIDI or Joystick

Speakers:-

A hardware device that is connected to a computer's sound card that outputs sounds generated by the computer is referred as speaker. Speakers are rated in Frequency response, Total Harmonic Distortion, and Watts.

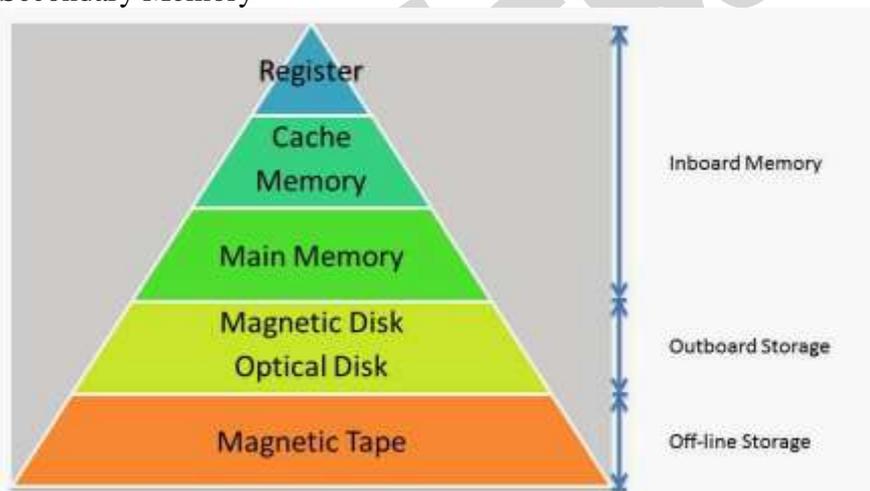


Storage:-

Computer data storage is often known as storage or memory refers to computer components and recording media that retain digital data used for computing for some interval of time. A memory is just like a human brain. It is used to store data and instructions. Computer memory is the storage space in computer where data is to be processed and instructions required for processing are stored.

Memory is primarily of two types:

- Primary Memory/Main Memory
- Secondary Memory



Primary memory:-

Primary memory holds only those data and instructions on which computer is currently working. It has limited capacity and data gets lost when power is switched off. It is generally made up of semiconductor device. These memories are not as fast as registers. The data and instructions required to be processed earlier reside in main memory. Primary memory is divided into two categories they are as follows:-

- RAM



- ROM.

RAM:-

Full form of RAM random access memory (RAM). A RAM constitutes the internal memory of the CPU for storing data, program and program result. It is read/write memory. Since access time in RAM is independent of the address to the word that is, each storage location inside the memory is as easy to reach as other location & takes the same amount of time. RAM is volatile, i.e., data stored in it is lost when there is a power failure. Hence, a backup uninterruptible power system (UPS) is often used with computers. RAM is small, both in terms of its physical size and in the amount of data it can hold.

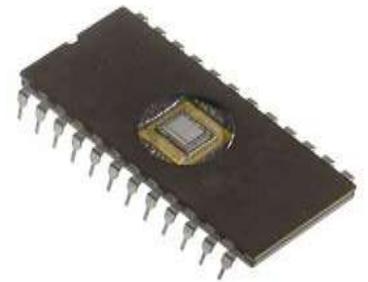


There are two types of RAM they are as follows:-

- Static RAM (SRAM)
- Dynamic RAM (DRAM)

ROM:-

ROM is Read Only Memory. ROM are the memories on which it is not possible to write the data when they are online to the computer. They can only be read. It is a permanent in built in the computer at the time of its production. It is also known as firmware. It stores the set of instructions permanently which instructs the computer how to work. The ROM can be used in storing micro programs, system programs, subroutines.



Types of ROM are as follows:-

- PROM
- EPROM
- EEPROM

Secondary memory:-

Secondary memory is also known as external memory or non-volatile. It is slower than primary memory. These are used for storing Data/Information permanently the data one stored will not be erased as the power is switched off. CPU directly does not access these memories, instead they are accessed via input-output routines. Contents of secondary memories are first transferred to main memory and then CPU can access it.

Types of secondary memory are as follows:-

- Magnetic tapes
- Magnetic disk

Magnetic tapes:-

Magnetic tape is the most commonly used device for storing large data. It is sequential access device. Magnetic tape is a strip or ribbon of plastic which is coated with Ferro magnetic oxides. It is generally 80-2400 feet long and ½ inch wide, in size.

Magnetic Disk:-



A magnetic disk is a circular plate constructed of metal or plastic coated with magnetized material. Both sides of the disk are used and several disks may be stacked on one spindle with read/write heads available on each surface. Bits are stored in magnetized surface in spots along concentric circles called tracks. Tracks are commonly divided into sections called sectors. Disk that are permanently attached and cannot be removed by occasional user are called hard disks. A disk drive with removable disks is called a floppy disk drive.

Types of magnetic disk:-

- Hard disk
- Floppy disk
- Compact disk
- Video CD
- DVD

Floppy Disk



The floppy disk gets its name from the fact that it is made out of a flexible plastic material. The plastic base is coated with an iron-oxide recording substance that's similar to the material applied to the plastic ribbon of a magnetic tape. Data are recorded as tiny invisible magnetic spots on this coating.

CD-ROM

The CD-ROM (Compact Disk Read Only Memory) is a direct extension of audio CD. CD-ROM players are more rugged and have error correction facility. This ensures proper data transfer from CD-ROM to the RAM of the computer. CD-ROM is written using a CD writer. Information is retrieved from a CD-ROM using a low power laser, which generates in an optical disk drive unit.

Hard Disk

The disk described so far is the type of disks which can be removed from the disk drive and carried from place to place. Some disks however, are built into the computer or a special disk drive. Hard disks can store anywhere from 20 MB to more than 40GB. Hard disks are also from 10 to 100 times faster than floppy disk.

USB drive (1) An external hard disk drive or optical disc drive that plugs into the USB port. portable hard drive. (2) A solid state storage module that plugs into the computer's USB port. Using flash memory chips that hold up to one terabyte of data, the solid state USB drive emulates a hard disk.

A USB flash drive -- also known as a USB stick, USB thumb drive or pen drive -- is a plug-and-play portable storage device that uses flash memory and is lightweight enough to attach to a keychain. A USB flash drive can be used in place of a compact disc.

Cache Memory

Cache memory is faster than the main memory. The cache memories although are fast yet are very expensive memories and are used in only small size. Thus, small cache memories are intended to provide fast speed of memory retrieval without sacrificing the size of memory. Cache memory stores a copy of the instructions and data to be immediately used of main memory. The memory reads or



writes operation is first checked with cache memory and if the desired location data is available in cache memory then used by the CPU directly.

Other Memories:-

- Flash memory
- Virtual memory
- Cache Memory

Software

Software is a set of program which performs desired task. Software runs on hardware. Software is a sequence of instructions written to solve a particular problem.

There are two types of software's:

- System Software
- Application Software

System Software:-

System Software performs the basic functions necessary to start and operate a computer. It refers to all programs that make computer work. It controls and monitors the various resources of a computer such as processor, input-output devices and communication links. Example : - Operating System and Compiler

System software is divided into three categories:-

- System management software
- System support software
- System development software

Application Software:-

Application software refers to the programs which help the computer to work effectively for specific applications. Example Ms- Office , Tally , Adobe etc.

Application software is of two types:-

- General purpose program
- Application specific program

Other software's are as follows:-

Utility software

utility software are those software that is used for system utilization .

like antivirus , window media player etc.

Virus :-

A computer virus is a program or piece of code that is loaded onto your computer without your knowledge and runs against your wishes. All computer virus are man made.

A few prominent virus are Michelangelo, dishwasher, C-brain , macmag , nenusalem , columbus etc.

Antivirus : - a utility software that searches a hard disk for viruses and removes any that are found. Most antivirus programs include an auto update feature that enables the program to download profiles of new virus so that it can check for the new viruses as soon as they are discovered.

Some popular antivirus are NPAV, Quick heal ,Avast and Mac fee etc.



Data compression is encoding of information using fewer bits than the original representation. The process of reducing the size of a data file is referred to as data compression

- Lossy
- Lossless

Compression is useful because it reduces resources required to store and transmit data. Data compression is subject to a space–time complexity trade-off. For instance, a compression scheme for video may require expensive hardware for the video to be decompressed fast enough to be viewed as it is being decompressed, and the option to decompress the video in full before watching it may be inconvenient or require additional storage

Disk Defragmenter is a utility in Microsoft Windows designed to increase access speed by rearranging files stored on a disk to occupy contiguous storage locations, a technique called defragmentation.

Disk Cleaning is a computer maintenance utility included in Microsoft Windows designed to free up disk space on a computer's hard drive. The utility first searches and analyzes the hard drive for files that are no longer of any use, and then removes the unnecessary files. There are a number of different file categories that Disk Cleanup targets when performing the initial disk analysis:

- Compression of old files
- Temporary Internet files
- Temporary Windows files
- Downloaded program files
- Recycle Bin
- Removal of unused applications or optional Windows components
- Offline web pages (cached)

Languages of Computer:-

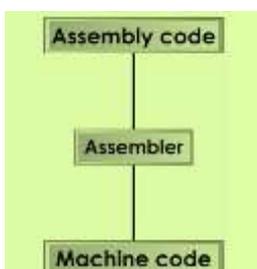
In order to communicate with the computer user also needs to have a language that should be understood by the computer. For this purpose, different languages are developed for performing different types of work on the computer. Basically, There are three types of computer languages they are as follows:-

- Low level language
- Assembly level language
- High level language

Low level language:-

Low level language is also known as Machine level language. The low level language is directly understood by the computer. In other words, the binary language is machine language(0s and 1s). any instruction given in the machine language has two parts:-

- OPCODE





- OPERAND

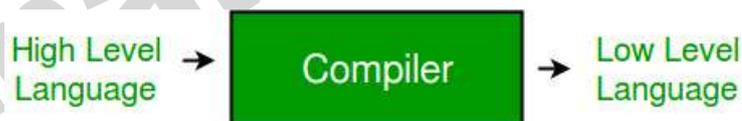
Assembly level language:-

The major drawback of machine language lead to the introduction of a new language called assembly level language. A program written in symbolic language is called an assembly code or a symbolic program. Assembler translates the assembly code into machine code, it also “assembles” the machine code into the main memory of the computer and makes it ready for execution.

High Level Language:-

To overcome the difficulties of low level language such as machine dependency, difficult to understand etc. high level languages are classified into two types- general and specific purpose high level language.

Compiler - Compiler is a system program which translates a high-level language program into machine language program is called a compiler. Compiler also checks error of the program to be executed.



Features of the compiler:

Compiler is more powerful than assembler.

Limitation of the compiler:

- Take longer time to produce result.
- It occupies more memory space.
- Low speed and low efficiency of memory utilization.

Interpreter - It is also a translator which translates a high-level language program into object code, statement wise. It doesn't translate the entire program at a time. It takes up one statement of a high-level language program at a time, translates it and then executes it and then takes up the next statement and repeats the whole process till end.



Features of the Interpreter:

- Interpreter is cheaper than compiler.
- It occupies less memory space.

Limitations of the Interpreter:

- Slower than compiler.
- Suitable only for small programs.

The difference between an interpreter and a compiler is given below:



Interpreter	Compiler
Translates program one statement at a time.	Scans the entire program and translates it as a whole into machine code.
It takes less amount of time to analyze the source code but the overall execution time is slower.	It takes large amount of time to analyze the source code but the overall execution time is comparatively faster.
No intermediate object code is generated, hence are memory efficient.	Generates intermediate object code which further requires linking, hence requires more memory.
Continues translating the program until the first error is met, in which case it stops. Hence debugging is easy.	It generates the error message only after scanning the whole program. Hence debugging is comparatively hard.
Programming language like Python, Ruby use interpreters.	Programming language like C, C++ use compilers.

Linker: In high level languages, some built in header files or libraries are stored. These libraries are predefined and these contain basic functions which are essential for executing the program. These functions are linked to the libraries by a program called Linker.

If linker does not find a library of a function then it informs to compiler and then compiler generates an error. The compiler automatically invokes the linker as the last step in compiling a program.

Not built in libraries, it also links the user defined functions to the user defined libraries. Usually a longer program is divided into smaller subprograms called modules. And these modules must be combined to execute the program. The process of combining the modules is done by the linker.

Loader: Loader is a program that loads machine codes of a program into the system memory. In Computing, a loader is the part of an Operating System that is responsible for loading programs. It is one of the essential stages in the process of starting a program. Because it places programs into memory and prepares them for execution. Loading a program involves reading the contents of executable file into memory. Once loading is complete, the operating system starts the program by passing control to the loaded program code. All operating systems that support program loading have loaders. In many operating systems the loader is permanently resident in memory.

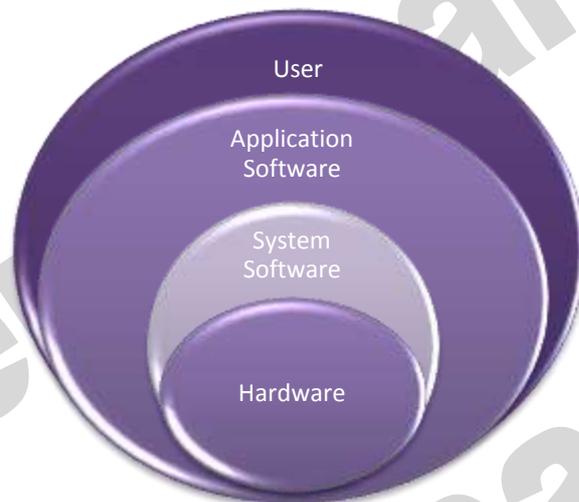


UNIT II

Operating System

An operating system is a program that acts as an interface between the user and the computer hardware and controls the execution of all kinds of programs.

In technical terms, it is software which manages hardware. An operating System controls the allocation of resources and services such as memory, processors, devices and information.



Following are some of important functions of an operating System.





CUI: character user interface or command-line user interface, CUI is a prompt used to interact with computer programs. It works by allowing the user (client) to issue commands as one or more lines of text (referred to as command lines) to a program. One of the CUI's uses is that it provides an easy way to implement programming scripts. The command-line user interface was the primary method of communicating with a computer from the first machines, all the way through the 1980s. Although it may still be accessed in most of today operating systems, it is utilized far less due to the ease of use and familiarity of the graphical user interface (GUI). The CUI, however, is still preferred by many advanced end users as its features provide them with more comprehensive control over an operating system's functions. Good examples of command lines include MS-DOS, Windows command line, Terminal, and the Linux command line.

GUI: GUI is what most modern computers make use of. This is an interface that makes use of graphics, images and other visual clues such as icons. This interface made it possible for a mouse to be used with a computer and interaction really became very easy as the user could interact with just a click of the mouse rather than having to type every time to give commands to the computer. Modern operating systems use a graphical user interface, or GUI (pronounced gooey). A GUI lets you use your mouse to click icons, buttons, and menus, and everything is clearly displayed on the screen using a combination of graphics and text.

TYPES OF OPERATING SYSTEM

Real-time

Single-user

Multi-user

Batch Processing

Time-sharing

Multi-programming

Multi Tasking

Distributed processing is a phrase used to refer to a variety of computer systems that use more than one computer (or processor) to run an application. This includes parallel **processing** in which a single computer uses more than one CPU to execute programs. Distributed computing is a technique of distributing the information over number of devices. Devices may be computers or data terminals. Devices are interconnected with communication facilities.

Microsoft Windows

Microsoft created the Windows operating system in the mid-1980s. Over the years, there have been many different versions of Windows, but the most recent ones are Windows 10 (released in 2015),



Windows 8 (2012), Windows 7 (2009), and Windows Vista (2007). Windows comes pre-loaded on most new PCs, which helps to make it the most popular operating system in the world.

Mac OS X

Mac OS is a line of operating systems created by Apple. It comes preloaded on all new Macintosh computers, or Macs. All of the recent versions are known as OS X (pronounced O-S Ten), and the specific versions include El Capitan (released in 2015), Yosemite (2014), Mavericks (2013), Mountain Lion (2012), and Lion (2011).

Linux

Linux is a family of open-source operating systems, which means they can be modified and distributed by anyone around the world. This is different from proprietary software like Windows, which can only be modified by the company that owns it. The advantages of Linux are that it is free, and there are many different distributions—or versions—you can choose from.

Different distributions of Linux

- Ubuntu,
- Linux Mint
- Fedora

Operating systems for mobile devices

The operating systems we've been talking about so far were designed to run on desktop and laptop computers. Mobile devices such as phones, tablet computers, and MP3 players are different from desktop and laptop computers, so they run operating systems that are designed specifically for mobile devices. Examples of mobile operating systems include

- Apple iOS
- Google Android

MS Windows

Windows XP is a personal computer operating system produced by Microsoft as part of the Windows NT family of operating systems. The operating system was released to manufacturing on August 24, 2001, and generally released for retail sale on October 25, 2001.

Windows XP is a graphical user interface (GUI). It has pictures (graphical) that you use (user) to communicate (interface) with the computer. This type of system is popular because it's logical, fun, and easy to use.

This operating system has multi-tasking capabilities, meaning it can run several applications at the same time. Multi-tasking allows you to view this lesson on the Internet at the same time you practice using other applications with Windows XP.



History of Windows:

Versions	Year
Windows	10 Nov.1983
Windows 1.0	Nov.1985
Windows 2.0	09 Dec.1987
Windows 3.0	22 May.1990
Windows 95	August 1995
Windows 98	June 1998
Windows 2000	Feb.2000
Windows XP	25 Oct. 2001
Windows Vista	2007
Windows 7	22 July 2009
Windows 8	26 Oct. 2012
Windows 10	2015

The New and updated features in the new program are:

- Windows XP is faster, smarter, safer
- Windows XP is easier to learn and use
- Windows XP offers better help for every task
- Playing music, video and CDs
- Offers wizard
- User interface
- Infrastructure
- Networking and internet functionality

Windows XP editions

- Home and Professional
- Starter Edition
- Media Center Edition
- Tablet PC Edition
- Subscription and pre-paid editions
- 64-bit editions
- Editions for embedded systems

Windows XP is an operating system

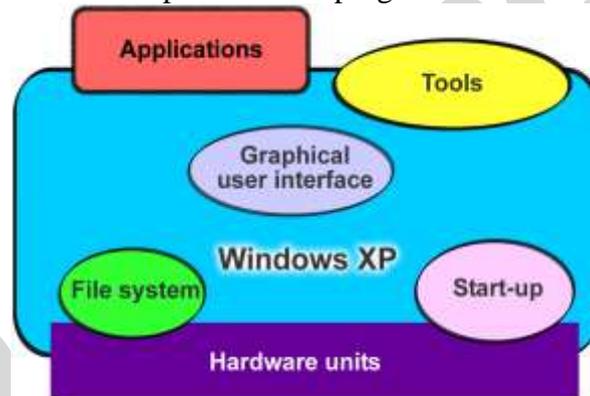
Windows XP is a collection of programs, which enables the entire pc to work. Among Windows' most important tasks are:

- Assist in starting the pc.
- Control and handling of all hardware, including RAM, I/O, cards and controllers.
- Read-in of a graphics user interface with windows, menu bars etc.



- Forms a platform for the user programs (*applications*) like Word, Internet Explorer, and Photoshop etc.
- Handling of user data in *files*.

Beyond the pure operating system tasks Windows XP includes a large collection of smaller and larger tools. Among others Windows XP comes with Internet Explorer and the multimedia player Windows Media Player, which are independent user programs.



Windows XP is both an operating system and a program package.

Desktop

Desktops in a WINDOWS is utility that allows users to manage applications on up to four virtual desktops, all accessible using the tray icon interface. 4. When referring to an operating system or GUI, the Desktop is a system of organization of icons on a screen. The Microsoft Windows Desktop was first introduced with Microsoft Windows 95 and has been included with every version of Windows since then.

Windows 7 Desktop



The desktop contains:

- **Start button:** This is one of the most important tools you will use while working with Windows XP. The Start button allows you to open menus and start applications.



- **Taskbar:** This is primarily used to switch between open windows and applications. Learn more about using the taskbar in a later lesson.
- **Icons (or graphical pictures):** This represents applications, files, and other parts of the operating system. By default, Windows XP provides you with one desktop icon, the Recycle Bin.
- **Windows Notification Area**
- **Time and Date:** The date and time is also shown on the Desktop, in the notification area on the taskbar. If the date and time is incorrect, you can change the date and time right from the Desktop.

Exploring Windows Explorer

Windows Explorer is a file management tool that lets you create, rename, and delete folders. It also allows you to copy, print, move, delete, rename, and manage files.

To open Windows Explorer:

1. Open **My Documents**.
2. Click the **Folders** button on the **Navigation** toolbar.
3. A **list of folders** opens in the **left pane**.

To explore Windows Explorer:

1. With **Windows Explorer open**, scroll until you see the **Control Panel icon** in the left pane.
2. Click the **Control Panel icon**. The contents (of the Control Panel folder) display in the **right pane**.
3. Practice viewing other folders in the list.
4. To **close Windows Explorer**, click the **small black X** in the upper right of the list OR click the **Folder** button.

The Taskbar

The **taskbar** is the small blue bar you see at the bottom of your desktop. It contains the **Start menu** and the **Quick Launch bar**, which contains **icons** for Internet Explorer, Windows Media Player, and Show Desktop. Click an icon to open a program. Click Show Desktop to quickly view your desktop without closing any programs or windows.



The box on the right is called the **Notification Area**. Microsoft also uses the Notification Area to remind you when **software updates** are available for download.



When you open or minimize a window or program, a **rectangular button** appears on the taskbar that shows the name of the application.

The Start menu

When you click the **Start** button, the **Start menu** appears. The **Start menu** is your path to the applications on your computer. It contains two columns. The left side of the **Start menu** lists programs, while the right side allows access to common Windows folders (My Documents, for example). It also provides access to **Help and Support**, **Search**, and **Run**. If you select **All**



Programs, a pop-up menu appears. Pop-up menus like this are called **cascading menus**. If a cascading menu is available, a **small black triangle** appears next to the name of the application or function.

To explore the Start menu:

1. Click the **Start** button.
2. Move the mouse pointer to each option, and view the various cascading menus.
3. Click (or roll your mouse pointer over) **All Programs**.
4. Move the mouse pointer to the right, and view other **cascading menus**.
5. To exit the menus, click outside the menu area or press **Esc** on your keyboard.



The Recycle Bin

The Recycle Bin is nothing more than a space on the hard disk reserved to store information that is deleted so that in the event of deleting a file or folder by mistake it is possible to retrieve it. By default the Recycle Bin restores files or folders to the place from where they were deleted. If, for example, a file is deleted from **D:\my documents**, when it is restored it will go to that folder.

The Recycle Bin will maintain the deleted documents until it is emptied.

To open the Recycle Bin place the cursor on *Desktop* and double-click on the **Recycle**

Bin icon. 

Restoring Files or Folders

To restore all of the elements from the Recycle Bin click on the green arrow on the left side that says restore all items.

If we only want to restore some of the elements:



1) Select the elements to be restored by clicking on them. If the elements are not in subsequent order, use the Ctrl key to select them or the Shift key if they are one below the other.

2) Once selected, a dialog box will appear on the green arrow on the left that will say Restore this item or Restore the selected items.

The selected files will return to where they were located before deletion.

Deleting Files or Folders from the Recycle Bin

Before deleting any element from the Recycle Bin you need to realize that once it is deleted it cannot be retrieved or restored.

● If you want to delete any file or folder from the Recycle Bin follow these steps:

1) Select the Elements to be deleted.

2) Click on ; this will delete the selected elements. You can also do this by pressing the Delete button.

The selected files will disappear and cannot be restored.

My Computer

It is another tool you can use to manage files and folders. With this tool, you can **create, rename and move folders** and **copy, print, move, delete and rename files**. It also allows you to gain access to other system tools.

To open My Computer:

1. Double-click the **My Computer icon** on the desktop.
2. **My Computer** opens.

My Network Places overview

My Network Places displays shortcuts to shared computers, printers, and other resources on the network. The shortcuts are created automatically in My Network Places whenever you open a shared network resource, such as a printer or shared folder.

Open My Network Places

- To open My Network Places, click Start, and then click My Computer. Under Other Places, click My Network Places.
- The View workgroup computers task is displayed in My Network Places when your computer is in a workgroup and not in a domain. Double-click this icon to narrow your search to only those computers, printers, and resources that share a workgroup with your computer.
- If your computer is connected to a workgroup that has less than 32 computers, Windows will automatically create shortcuts in My Network Places to the shared resources in your workgroup.
- To add a shortcut in My Network Places to a folder on a Web server, the Web server must support network places..

My Documents

The My Documents folder is your own personal folder in which you can store your documents, graphics, and other personal files. You can change the target if you want My Documents to point to a different folder location.



- Change the Default Location of the My Documents Folder
- To change the default location of the My Documents folder, follow these steps:
- Click Start, and then point to My Documents.
- Right-click My Documents and then click Properties. Click the Target tab.

User Accounts

To get at the settings for the User Accounts, click Start and then Control Panel. From the Control Panel, double click User Accounts.

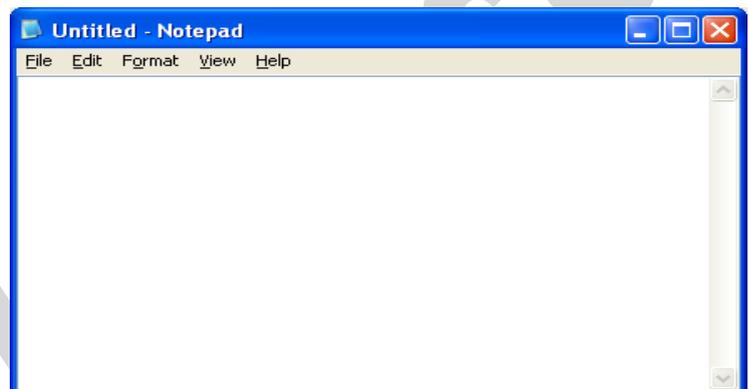
- We can create a new user account.
- We can make the account as password protected.
- Through admin we can even change the password.

Windows XP Accessories Applications:

- Calculator,
- Notepad,
- WordPad,
- Paint

Using Windows XP Notepad

Notepad is a miniature text editor after the calculations are performed. To enter numbers from the editor. Just as you use a notepad on your desk, you can use Notepad to take notes onscreen while working in other Windows applications.



Because Notepad stores files in text format, almost all word processing applications can retrieve Notepad's files.

However, if you want the capability of formatting your documents, you'll need a true word processor.

Starting Notepad

To start Notepad, open the Start menu and choose Programs, Accessories, Notepad. Notepad starts up and displays a blank document in the Notepad window .

Working with Documents in Notepad

You can move the insertion point by using either the mouse or the keyboard. You select and edit text in Notepad the same way you select and edit text in WordPad.

Limited formatting is available from the File, Page Setup command. You can change margins and add a header or footer, but you cannot format characters or paragraphs in any way. You also can use the Tab, Spacebar, and Backspace keys to align text. Tab stops are preset at every eight characters.

With the commands on Notepad's Edit menu, you can cut, copy, and move text from one place in a file to another. Text that you cut or copy is stored in the Clipboard. When you paste text, the contents of the Clipboard are copied from the Clipboard to the document at the location of the insertion point.

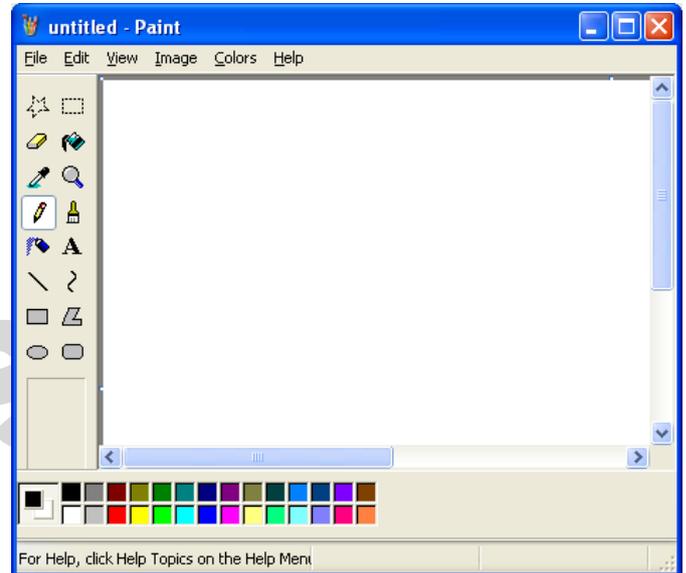


4.Using Windows XP Paint

Paint is an easy-to-learn graphics application that you can use to create and modify graphics images.

Steps for starting Windows Paint

To start Paint, click Start, Programs, Accessories, Paint. Paint starts up and opens a new, empty Paint file



5.Using Windows XP Entertainment

Windows XP includes entertainment programs for playing CDs, viewing multimedia files, and recording and playing back sounds.

It is capable of performing many tasks like:

1. Playing Games
2. Changing the Volume
3. Playing a Sound with Sound Recorder
4. Playing an Audio CD
5. Working with Media Player Controls
6. Changing the Visualizations
7. Copying CD Tracks
8. Using the Media Library
9. Creating a Playlist
10. Tuning into the Radio
11. Changing the Skin for Windows Media Player
12. Playing a Video Clip
13. Importing a Movie with Windows Movie Maker

Changing Mouse Pointer

1. Open Mouse Properties by clicking the Start button The Start button, and then clicking Control Panel. In the search box, type mouse, and then click Mouse.
2. Click the Pointers tab, and then do one of the following:
 - To give all of your pointers a new look, click the Scheme drop-down list, and then click a new mouse pointer scheme.
 - To change an individual pointer, under Customize, click the pointer you want to change in the list, click Browse, click the pointer you want to use, and then click Open.
3. Click OK.

To change your desktop background

1. Open Display in Control Panel.
To open Display, click **Start**, click **Control Panel**, click **Appearance and Themes**, and then click **Display**.
2. On the **Desktop** tab, do one or more of the following:



- Click a picture in the **Background** list. In **Position**, click **Center**, **Tile**, or **Stretch**.
- Click **Browse** to search for a background picture in other folders or on other drives. You can use files with the following extensions: .bmp, .gif, .jpg, .dib, .png, .htm. In **Position**, click **Center**, **Tile**, or **Stretch**.
- Select a color from **Desktop color**. The color fills the space not used by a picture.

Note

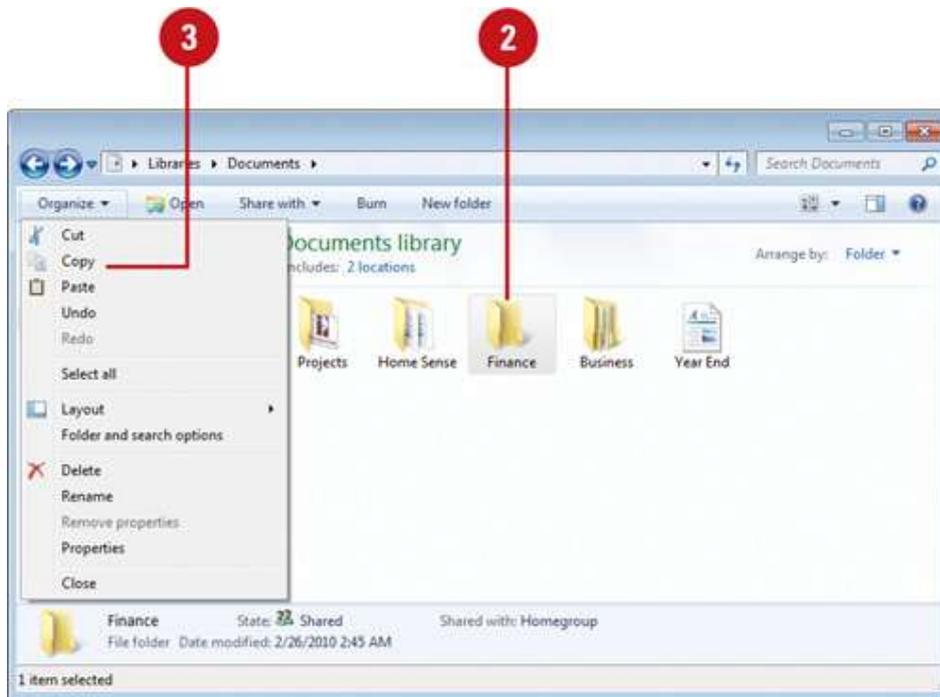
- To open Display, click **Start**, click **Control Panel**, click **Appearance and Themes**, and then click **Display**.
- You can use a personal picture as a background. All of your personal pictures located in **My Pictures** are listed by name in the **Background** list.
- You can save a picture from a Web site as a background. Right-click the picture and then click **Set as Background**. The picture is listed in the **Background** box as Internet Explorer Background.
- If you choose an .htm document as your background picture, the **Position** options are unavailable. The .htm document is automatically stretched to fill your background.

Copying and Moving Files and Folders

Sometimes you will need to move a file from one folder to another, or copy a file from one folder to another, leaving the file in the first location and placing a copy of it in the second. You can move or copy a file or folder using a variety of methods. If the file or folder and the location where you want to move it are visible in a window or on the desktop, you can simply drag the item from one location to the other. Moving a file or folder on the same disk relocates it whereas dragging it from one disk to another copies it so that it appears in both locations. When the destination folder or drive is not visible, you can use the Cut (to move), Copy, and Paste commands on the Edit menu to move or copy the items.

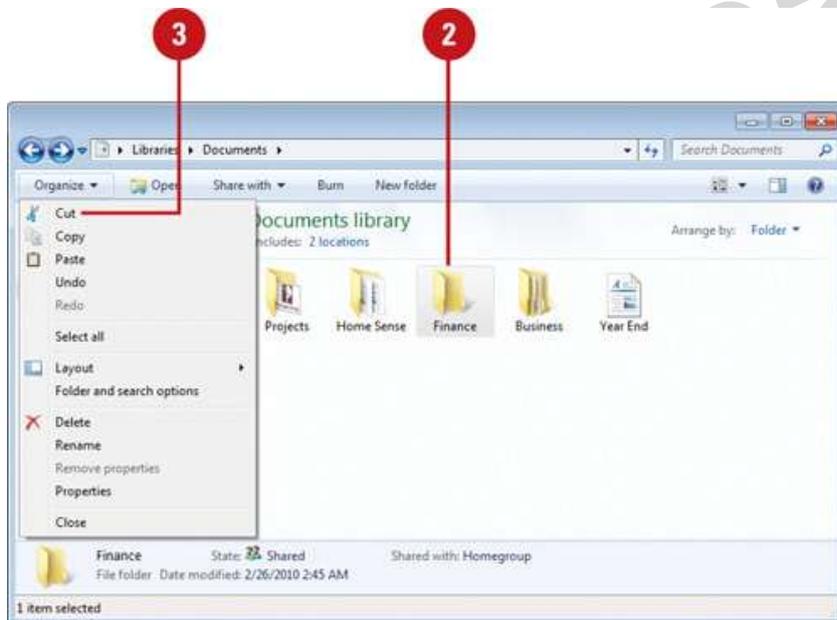
Copy a File or Folder

1. Open the drive or folder containing the file or folder you want to copy.
2. Select the files or folders you want to copy.



Move a File or Folder

1. Open the drive or folder containing the file or folder you want to move.
2. Select the files or folders you want to move.



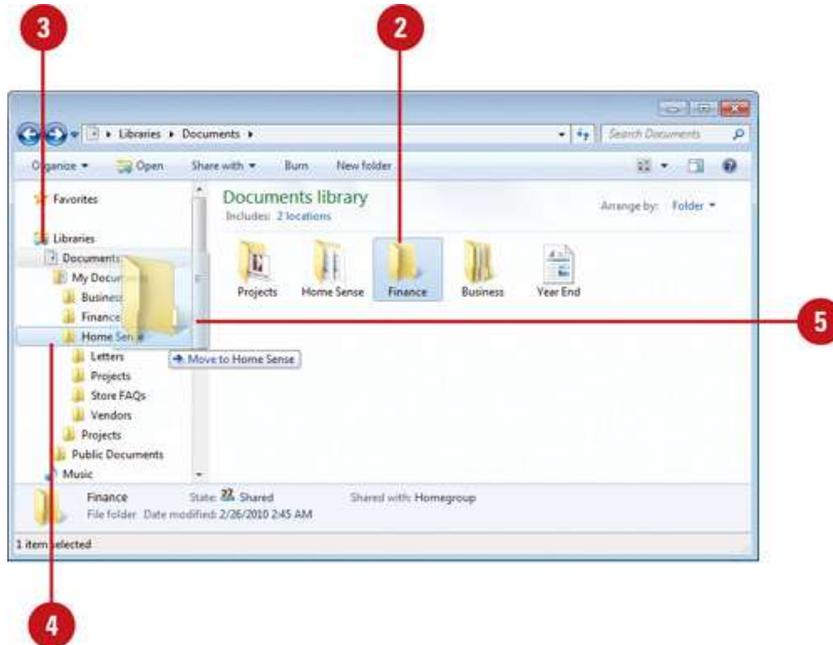
3. Click the **Organize** button on the toolbar, and then click **Cut**.
4. Display the destination folder where you want to move the files or folder.
5. Click the **Organize** button on the toolbar, and then click **Paste**.

Copy or Move a File or Folder Using Drag and Drop

1. Open the drive or folder containing the file or folder you want to copy or move.



2. Select the files or folders you want to copy or move.



3. In the Navigation pane, point to a folder list to display the expand and collapse arrows.
4. Click the arrows to display the destination folder, and then click the destination folder.
5. Right-click the selected files or folders, drag to the destination folder, and then click **Copy Here** or **Move Here**.

OLE (Object Linking and Embedding)

"Object Linking and Embedding" is a framework developed by Microsoft (way back in Windows 3.1) that allows you to take objects from a document in one application and place them in another. For example, OLE may allow you to move an image from a photo-editing program into a word processing document.

The OLE technology was initially created to allow the linking of objects between "compound documents," or documents that support multiple types of data. Microsoft has since developed OLE into a wider standard, known as the Component Object Model (COM). COM is supported by Mac, Unix, and Windows systems, but is primarily used with Microsoft Windows. The COM framework is the foundation of ActiveX, which allows developers to create interactive content for the Web

OLE (Object Linking and Embedding) is Microsoft's framework for a compound document technology. Briefly, a compound document is something like a display desktop that can contain visual and information objects of all kinds: text, calendars, animations, sound, motion video, 3-D, continually updated news, controls, and so forth. Each desktop object is an independent program entity that can interact with a user and also communicate with other objects on the desktop. Part of Microsoft's ActiveX technology, OLE takes advantage and is part of a larger, more general concept, the Component Object Model (COM) and its distributed version, DCOM. An OLE object is necessarily also a component (or COM object). OLE contains about 660 new function calls or individual program interfaces in addition to those already in Win32.



UNIT III

Microsoft Word

Word processor

A word processor is an electronic device or computer application software that performs word processing: the composition, editing, formatting and sometimes printing of any sort of written material. Word processing can also refer to advanced shorthand techniques, sometimes used in specialized contexts with a specially modified typewriter.

The word processor emerged as a stand-alone office machine in the 1970s and 1980s, combining the keyboard text-entry and printing functions of an electric typewriter with a dedicated computer processor for the editing of text.

Characteristics

Word processing typically implies the presence of text manipulation functions that extend beyond a basic ability to enter and change text, such as automatic generation of:

- batch mailings using form letter template and an address database (also called mail merging);
- indices of keywords and their page numbers;
- tables of contents with section titles and their page numbers;
- tables of figures with caption titles and their page numbers;
- cross-referencing with section or page numbers;
- footnote numbering;
- New versions of a document using variables (e.g. model numbers, product names, etc.)

Examples of different word processing software are:

- WordPerfect
- Microsoft Word
- WordMark
- Lotus WordPro
- Procedure Write

Types of word processor:-

- Dedicated word processor
- Standard word processor software packages
- Word processing packages on minicomputer

Microsoft office Word:-

Microsoft Office Button :- After clicking you get the Menu to create, open, save and perform other operations

The Ribbon:- The Ribbon is the panel at the top portion of the document. It has seven tabs: Home, Insert, Page Layout, References, Mailings, Review, and View that contain many new and existing features of Word.

Each of the tabs contains the following tools:

- **Home:** Clipboard, Fonts, Paragraph, Styles, and Editing.
- **Insert:** Pages, Tables, Illustrations, Links, Header & Footer, Text, and Symbols
- **Page Layout:** Themes, Page Setup, Page Background, Paragraph, Arrange
- **References:** Table of Contents, Footnote, Citation & Bibliography, Captions, Index, and Table of Authorities
- **Mailings:** Create, Start Mail Merge, Write & Insert Fields, Preview Results, Finish



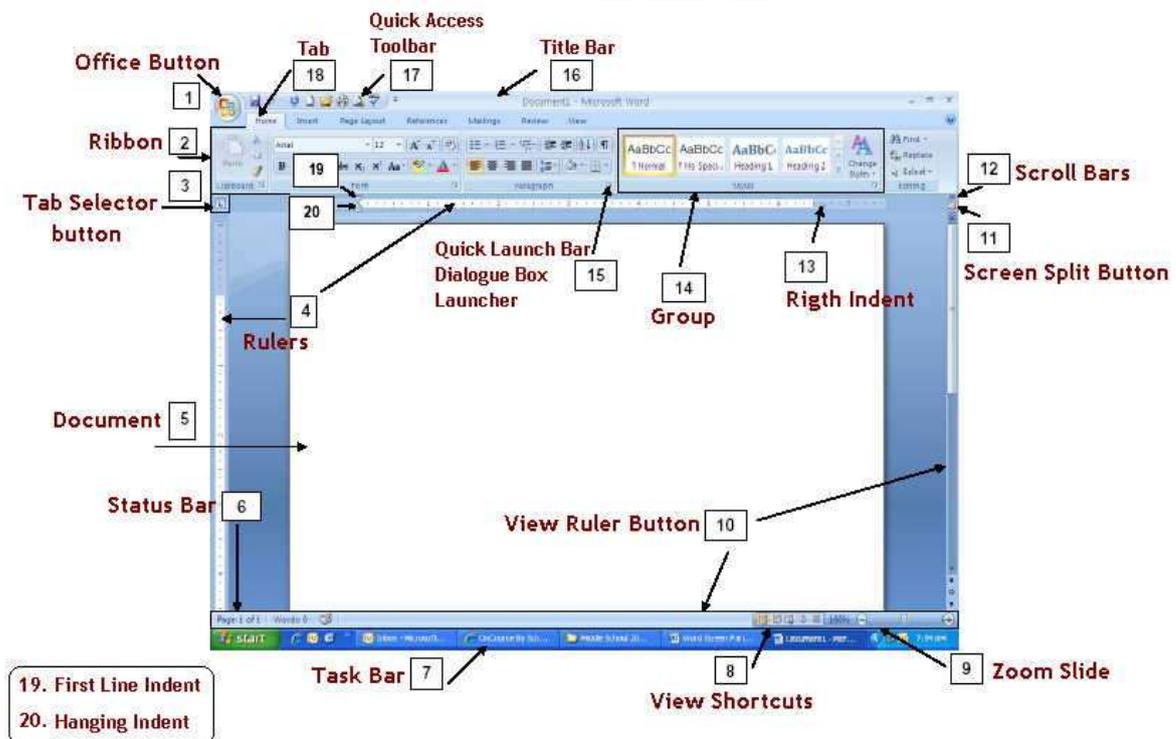
- **Review:** Proofing, Comments, Tracking, Changes, Compare, Protect
- **View:** Document Views, Show/Hide, Zoom, Window, Macros

Ruler: - Can use to change the format of your document quickly.

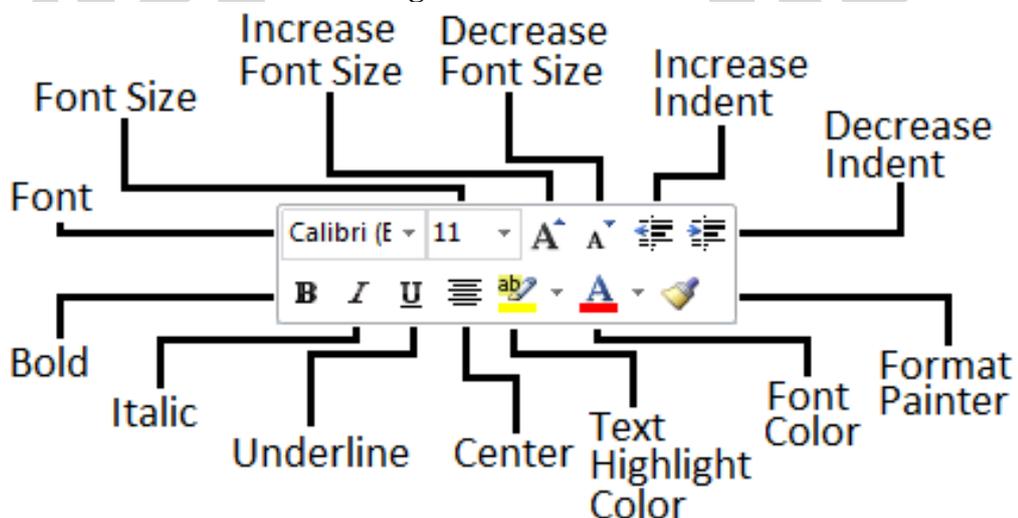
Text area: - The area for writing the document is called Text Area.

Status Bar: - appears at the very bottom of your window and provides the information about the current page and number of words in your document.

Scroll Bar: - you have two types of scroll bar i.e. horizontal and vertical scroll bar to move the document.



Formatting Features of Ms Word:-





The commonly used are as follows:-

- Bold and italic
- Underlined
- Font style
- Font size
- Text color
- Indent
- Alignment

To format font size:

- Select the text you wish to modify.
- Left-click the **drop-down arrow** next to the **font size box** on the Home tab. The font size drop-down menu appears.
- Move your cursor over the various font sizes. A **live preview** of the font size will appear in the document.
- Left-click the font size you wish to use. The font size will change in the document.

To format font style:

- Select the text you wish to modify.
- Left-click the **drop-down arrow** next to the **font style box** on the Home tab. The font style drop-down menu appears.
- Move your cursor over the various font styles. A **live preview** of the font will appear in the document.
- Left-click the font style you wish to use. The font style will change in the document.

To format font color:

- Select the text you wish to modify.
- Left-click the drop-down arrow next to the **font color box** on the Home tab. The font color menu appears.
- Move your cursor over the various font colors. A live preview of the color will appear in the document.
- Left-click the font color you wish to use. The font color will change in the document.

To use the bold, italic, and underline commands:

- Select the text you wish to modify.
- Click the bold, italic, or underline command in the **Font group** on the Home tab.

To change the text case:

- Select the text you wish to modify.
- Click the **Change Case** command in the **Font** group on the Home tab.
- Select one of the case options from the list.

To change text alignment:

- Select the text you wish to modify.
- Select one of the four **alignment options** from the Paragraph group on the Home tab.
 - **Align Text Left:** Aligns all of the selected text to the left margin.
 - **Center:** Aligns text an equal distance from the left and right margins.
 - **Align Text Right:** Aligns all of the selected text to the right margin.



- **Justify:** Justified text is equal on both sides and lines up equally to the right and left margins. Traditionally, many books, newsletters, and newspapers use full justification.

Working with text:-

To insert text:

- Move your mouse to the location you wish text to appear in the document.
- Left-click the mouse. The insertion point appears.
- Type the text you wish to appear.

To delete text:

- Place your cursor next to the text you wish to delete.
- Press the Backspace key on your keyboard to delete text to the left of the cursor.
- Press the Delete key on your keyboard to delete text to the right of the cursor.

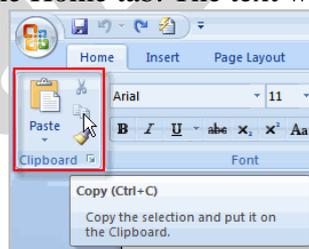
To select text:

- Place the insertion point next to the text you wish to select.
- Left-click your mouse and while holding it down, drag your mouse over the text to select it.
- Release the mouse button. You have selected the text. A highlighted box will appear over the selected text.

When you select text or images in Word, a hover toolbar with formatting options appears. This makes formatting commands easily accessible, which can save you time.

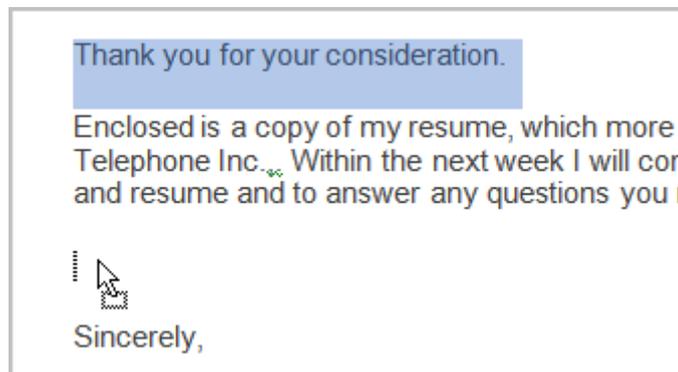
To copy and paste text:

- Select the text you wish to copy.
- Click the Copy command on the Home tab.
- Place your insertion point where you wish the text to appear.
- Click the Paste command on the Home tab. The text will appear.



To drag and drop text:

- Select the text you wish to copy.
- Left-click your mouse, and drag the text to the location you wish it to appear. The cursor will have a text box underneath it to indicate that you are moving text.



Word Art

Word Art are styles that can be applied to text to create a visual effect. To apply **Word Art**:-

- Select text
- Click insert tab
- Click word Art
- Choose the Word Art
- Select the Word Art
- Click the format tab from the drawing tools
- Click Word Art button

Working with Header, Footers and Footnotes

The header is a section of the document that appears in the top margin, while the footer is a section of the document that appears in the bottom margin. Headers and footers generally contain information such as page number, date, and document name.

Header: - Header consists of text and graphics appears at the top of every page of a document.

Footers: - Footers appears at the bottom of every page in the same document.

For e.g.: - you can date page number, the time and date, a company logo, the document title.

Steps to insert header and footers:-

There are different options to inset header and footer they are as follows:-

- Insert the same header or footer on each page
- ✓ Insert predefined header and footer
- ✓ Insert custom header and footer
- Make the first page header or footer different from the rest of the pages.
- Make the header or footer different for odd and even pages.
- Make the header or footer different in each section or chapter
- Use documents section breaks to vary the header or footer.
- Use the same header or footer across section boundaries
- Change the contents of a header or footer
- Insert a page number

To insert a header or footer:

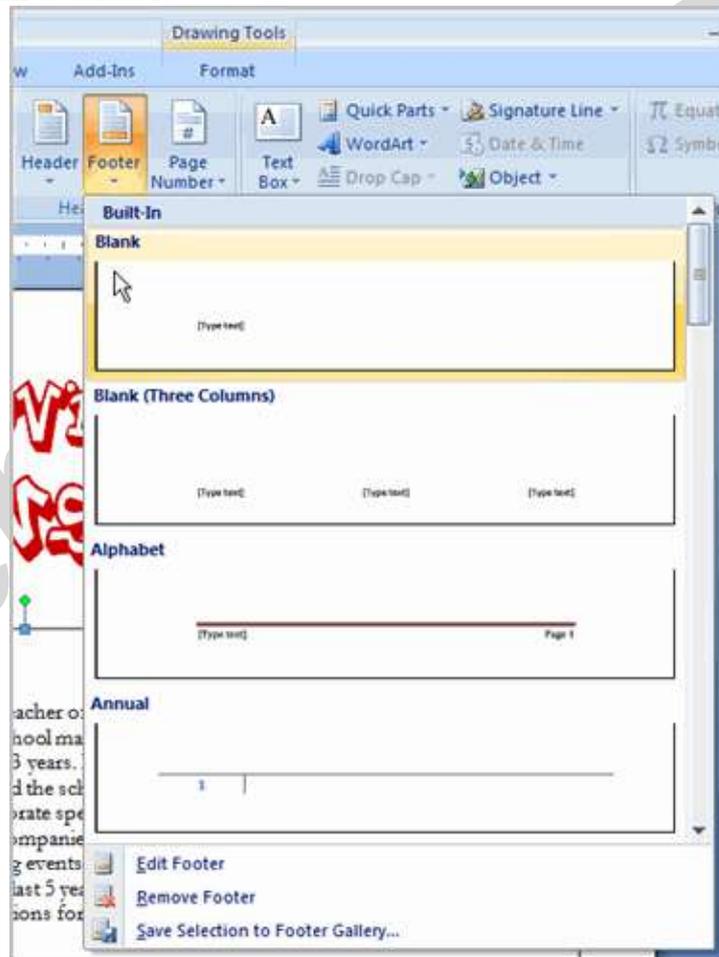
- Select the **Insert** tab.
- Click either the **Header** or **Footer** command. A menu appears with a list of **built-in options** you can use.



- Left-click one of the built-in options, and it will appear in the document.

OR

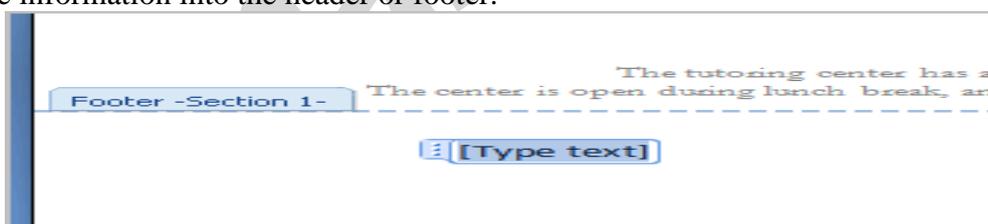
- Left-click **Blank** to select it.



- The **Design** tab with **Header** and **Footer** tools is active.



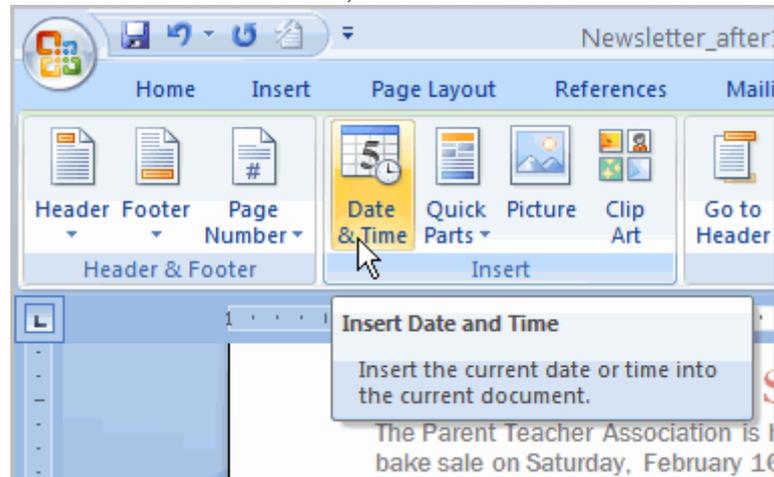
- Type information into the header or footer.





To insert the date or time into a header or footer:

- With the header or footer section active, click the **Date & Time** command.



- Select a **date format** in the dialog box that appears.
- Click OK. The date and time now appear in the document.

Other header and footer options

There are many other **header and footer options** you can use to design these sections of your document. From the Header and Footer Tools Design tab, you can see all of your design options.

Footnotes and end notes:-

- A footnote or an endnote consists of two linked parts — the note reference mark (note reference mark: A number, character, or combination of characters that indicates that additional information is contained in a footnote or endnote.) and the corresponding note text.
- When you add, delete, or move notes that are automatically numbered, Word rennumbers the footnote and endnote reference marks.

To insert a foot note:-

- In Print Layout view, click where you want to insert the note reference mark.
- On the References tab, in the Footnotes group, click Insert Footnote or Insert Endnote.
- To make changes to the format of footnotes or endnotes, click the Footnotes Dialog Box Launcher, and do one of the following:
- In the Number format box, click the format that you want.
- To use a custom mark instead of a traditional number format, click Symbol next to Custom mark, and then choose a mark from the available symbols.
- Click Insert.
- Type the note text.
- Double-click the footnote or endnote number to return to the reference mark in the document.

Adding SmartArt:

- Click insert tab
- Click SmartArt button
- Choose the Smartart
- Click the SmartArt.
- Drag it to the desired location in document



Mail Merge

Mail Merge is used to create and print letters and other documents, such as a form letter that is sent to many customers. Each letter has the same kind of information, yet the content is unique. For example, in letters to your customers, each letter can be personalized to address each customer by name. The unique information in each letter comes from entries in a data source.

The mail merge process entails the following overall steps:

- **Set up the main document:** - The main document contains the text and graphics that are the same for each version of the merged document — for example, the return address or salutation in a form letter.
- **Connect the document to a data source:**-A data source is a file that contains the information to be merged into a document. For example, the names and addresses of the recipients of a letter.
- Refine the list of recipients or items. Microsoft Office Word generates a copy of the main document for each item, or record, in your data file. If your data file is a mailing list, these items are probably recipients of your mailing. If you want to generate copies for only certain items in your data file, you can choose which items (records) to include.
- Add placeholders, called mail merge fields, to the document. When you perform the mail merge, the mail merge fields are filled with information from your data file.
- Preview and complete the merge. You can preview each copy of the document before you print the whole set.
- You use commands on the Mailings tab to perform a mail merge.

You can also perform a mail merge by using the Mail Merge task pane, which leads you step by step through the process. To use the task pane, in the Start Mail Merge group on the Mailings tab, click Start Mail Merge, and then click Step by Step Mail Merge Wizard.

Steps 1-3

- Choose the type of document you wish to create. In this example, select **Letters**.
- Click **Next: Starting document** to move to Step 2.
- Select **Use the current document**.
- Click **Next: Select recipients** to move to Step 3.
- Select the **Type a new list** button.
- Click **Create** to create a data source. The **New Address List** dialog box appears.
 - Click **Customize** in the dialog box. The Customize Address List dialog box appears.
 - Select any field you do not need and click **Delete**.
 - Click **yes** to confirm that you wish to delete the field.
 - Continue to delete any unnecessary fields.
 - Click **Add**. The Add Field dialog box appears.
 - Enter the new field name.
 - Click **OK**.



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- Continue to add any fields necessary.
- Click **OK** to close the Customize Address List dialog box.

To Customize the New Address List:

- Enter the necessary data in the New Address List dialog box.
- Click **New Entry** to enter another record.
- Click **Close** when you have entered all your data records.
- Enter the file name you wish to save the data list as.
- Choose the location you wish to save the file.
- Click **Save**. The Mail Merge Recipients dialog box appears and displays all the data records in the list.
- Confirm the data list is correct and click **OK**.
- Click **Next: Write your letter** to move to Step 4.

Steps 4-6

- Write a letter in the current Word document, or use an open, existing document.

To Insert Recipient Data from the List:

- Place the insertion point in the document where you wish the information to appear.
- Select Address block, Greeting line, or Electronic postage from the task pane. A dialog box with options will appear based on your selection.

OR

- Select More Items. The Insert Merge Field dialog box will appear.
- Select the field you would like to insert in the document.
- Click **Insert**. Notice that a placeholder appears where information from the data record will eventually appear.
- Repeat these steps each time you need to enter information from your data record.
- Click **Next: Preview your letters** in the task pane once you have completed your letter.
- Preview the letters to make sure the information from the data record appears correctly in the letter.
- Click **Next: Complete the merge**.
- Click **Print** to print the letters.
- Click **All**.
- Click **OK** in the Merge to Printer dialog box.
- Click **OK** to send the letters to the printer.

The Mail Merge wizard allows you to complete the mail merge process in a variety of ways.

MS Excel 2007

Excel Basics:-

Excel 2007 is the spreadsheet software in the Microsoft 2007 Office Suite. It allows you to store, organize, and analyze numerical and text data.



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Ribbons

Located where taskbars used to be, ribbons graphically display the changing features as you click on the menu-bar tabs. It may take you time to adjust to the new locations of familiar options, but ribbons may expose you to new commands and tools.

The Ribbon provides you the below tabs:-

- Home:- Change the Font, Paragraph and Heading styles and view the clipboard and editing options
- Insert:- Insert pages, tables, illustrations, links, headers, footers, text and symbols
- Page Layout:- Alter page setup, background, themes, paragraph properties, and arrangement of document
- Formulas:- Insert functions and create custom formulas.
- Data:- Get external data, sort, filter, and outline existing.
- Review:- Use proofing techniques, insert comments, track changes, compare and protect documents
- View:- Change document and window layout, show/hide thumbnails, and view/record macros
- Add-Ins:- Customize toolbars

Above the Ribbon in the upper-left corner is the Microsoft Office Button. From here, you can access important options such as New, Save, Save As, and Print. By default, the Quick Access Toolbar is pinned next to the Microsoft Office Button and includes commands such as Undo and Redo.

At the bottom-left area of the spreadsheet, you will find worksheet tabs. By default, three worksheet tabs appear each time you create a new workbook. On the bottom-right area of the spreadsheet you will find page view commands, the zoom tool, and the horizontal scrolling bar.

To change page views:

- Locate the Page View options in the bottom-right corner. The Page View options are Normal, Page Layout, and Page Break.
- Left-click an option to select it.

“The default is Normal View.”

To add commands to the Quick Access Toolbar:

- Click the arrow to the right of the Quick Access Toolbar.
- Select the command you wish to add from the drop-down list. It will appear in the Quick Access Toolbar.



Spreadsheets and Workbooks

A spreadsheet is a grid of data divided into numbered rows and lettered columns. Each block in this grid is called a cell, and it can hold an individual piece of text or data. In Excel, a file/document is considered a spreadsheet, although it is commonly referred to as a workbook.

Worksheets

The worksheet is a page of data in your spreadsheet (or workbook) that is organized by the labeled tabs displayed at the bottom of the Excel window.

- Your spreadsheet can contain as many worksheets as you want. By default, however, all newly opened Excel spreadsheets have three worksheets.
- To view the contents of a worksheet, click on its tab.

Create or delete an Excel table in a worksheet

A worksheet consists of cells that are organized into columns and rows; a worksheet is always stored in a workbook. The primary document that you use in Excel is to store and work with data. It is also called a spreadsheet. You can manage and analyze the data in that table independently of data outside the table

Create a table

You can use one of two ways to create a table. You can either insert a table in the default table style or you can format your data as a table in a style that you choose.

Insert a table

1. On a worksheet, select the range of cells that you want to include in the table. The cells can be empty or can contain data.
2. On the Insert tab, in the Tables group, click Table.

Keyboard shortcut:- You can also press CTRL+L or CTRL+T.

3. If the selected range contains data that you want to display as table headers, select the My table has headers check box.

Format data as a table

1. On the worksheet, select a range of empty cells or cells that contain the data that you want to quickly format as a table.
2. On the Home tab, in the Styles group, click Format as Table.
3. Under Light, Medium, or Dark, click the table style that you want to use.

Convert a table to a range of data

1. Click anywhere in the table.
2. On the Design tab, in the Tools group, click Convert to Range.



Delete a table

- On a worksheet, select a table.
- Press DELETE.

To create a new, blank workbook:

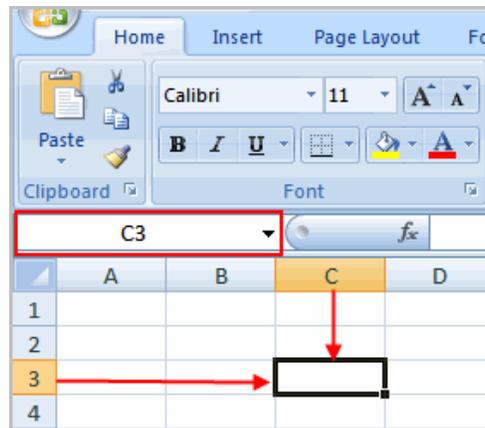
- **Left-click the Microsoft Office Button.**
- **Select New:-** The New Workbook dialog box opens, and Blank Workbook is highlighted by default.
- Click **Create:-** A new, blank workbook appears in the window.

To insert text:

- Left-click a cell to select it. Each rectangle in the worksheet is called a cell. As you select a cell, the cell address appears in the Name Box.
- Enter text into the cell using your keyboard. The text appears in the cell and in the formula bar.

Cell addresses

Each cell has a name, or a cell address, based on the column and row where it is located. For example, this cell is C3 because it is where column C and row 3 intersect.



To edit or delete text:

- Select the cell.
- Press the Backspace key on your keyboard to delete text and make a correction.
- Press the Delete key to delete the entire contents of a cell.

To save the workbook:

- Left-click the Microsoft Office Button.
- Select Save or Save As.



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- Save As allows you to name the file and choose a location to save the spreadsheet. Choose Save As if you'd like to save the file for the first time or if you'd like to save the file as a different name.
- Select Save if the file has already been named.

Formatting Your Spreadsheet

- Inserting Columns
- Inserting Rows
- Deleting Columns
- Deleting Rows
- Resizing Columns
- Resizing rows

Excel formatting tips and techniques:-

There are many formatting tools some are explained below:-

To format text in **bold or italics**:

- Left-click a cell to select it, or drag your cursor over the text in the formula bar to select it.
- Click the Bold or Italics command.

To format text as **underlined**:

- Select the cell or cells you want to format.
- Click the drop-down arrow next to the Underline command.
- Select the Single Underline or Double Underline option.

To change the **font style**

- Select the cell or cells you want to format.
- Left-click the drop-down arrow next to the Font Style box on the Home tab.
- Select a font style from the list.

To change the **font size**:

- Select the cell or cells you want to format.
- Left-click the drop-down arrow next to the Font Size box on the Home tab.
- Select a font size from the list.

To change the **text color**:

- Select the cell or cells you want to format.
- Left-click the drop-down arrow next to the Text Color command. A color palette will appear.
- Select a color from the palette.



Introduction to functions:-

A function is a predefined formula that performs calculations using specific values in a particular order. While you may think of formulas as being short mathematical equations, like $2+2$ or $F2*C2$, they can actually be very lengthy and involve complex mathematical calculations.

One of the key benefits of functions is that they can save you time because you do not have to write the formula yourself. For example, you could use an Excel function called Average to quickly find the average of a range of numbers or the Sum function to find the sum of a cell range.

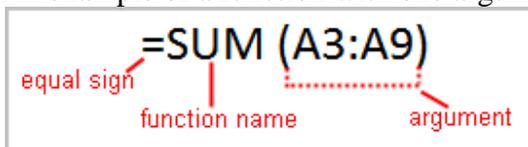
The parts of a function:

Each function has a specific order, called syntax, which must be strictly followed for the function to work correctly.

Syntax order:

1. All functions begin with the = sign.
2. After the = sign, define the **function name** (e.g., Sum).
3. Then there will be an **argument**. An argument is the cell range or cell references that are enclosed by parentheses. If there is more than one argument, separate each by a comma.

An example of a function with one argument that adds a range of cells, A3 through A9:



An example of a function with more than one argument that calculates the sum of two cell ranges:

Excel's different functions

There are many different functions in Excel 2007. Some of the more common functions include:

Statistical functions:

SUM: Adds a range of cells together

AVERAGE: Calculates the average of a range of cells

COUNT: Counts the number of chosen data in a range of cells

MAX: Identifies the largest number in a range of cells

MIN: Identifies the smallest number in a range of cells

Financial functions:

Interest rates

Loan payments

Depreciation amounts

Date and time functions:



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DATE: Converts a serial number to a day of the month

Day of Week

DAYS360: Calculates the number of days between two dates based on a 360-day year

TIME: Returns the serial number of a particular time

HOUR: Converts a serial number to an hour

MINUTE: Converts a serial number to a minute

TODAY: Returns the serial number of today's date

MONTH: Converts a serial number to a month

YEAR: Converts a serial number to a year

Chart:-

A chart is a tool you can use in Excel to communicate your data graphically. Charts allow your audience to more easily see the meaning behind the numbers in the spreadsheet, and to make showing comparisons and trends much easier. In this lesson, you will learn how to insert and modify Excel charts and see how they can be an effective tool for communicating information.

Creating a chart

Charts can be a useful way to communicate data. When you insert a chart in Excel, it appears in the selected worksheet with the source data by default.

To create a chart:

- Select the cells you want to chart, including the column titles and row labels.
- Click the Insert tab.
- Select one of the Chart options.
- Select a type of chart from the list that appears. The chart appears in the worksheet.

Working with graphic:-

Microsoft Office Excel 2007 gives you the tools to create a variety of graphic objects—boxes, lines, circles, ovals, arcs, freeform polygons, text boxes, buttons, and a wide assortment of complex predefined shapes, clip art, and the new SmartArt graphics.

Using the Shapes tools

The Excel graphics tool chest contains many of the powerful capabilities of dedicated illustration programs. Using only the tools in the Shapes palette on the Ribbon, you can create lines, rectangles, and ovals; smooth and freeform curves; linked objects using connectors; basic and not-so-basic shapes, such as pentagons and lightning bolts; a variety of straight, curved, three-dimensional (3-D), and multiheaded arrows; stars, emblems, and banners; and even a variety of callouts.

Creating WordArt

The WordArt button on the Insert tab opens a palette containing a number of fancy text styles you can employ to create impressive logos and headings. After you click the effect you want in the palette, a new WordArt graphic object appears on the worksheet. You can then type your text and modify the WordArt object using controls on the Format tab under Drawing Tools; this tab appears on the Ribbon when you select the WordArt object.



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Creating SmartArt

The SmartArt button on the Insert tab represents a significant new set of features in the 2007 Microsoft Office system. SmartArt replaces the Organization Chart feature with all that and more—a comparative cornucopia of new functionality and graphic complexity. SmartArt graphics are prepackaged sets of graphic objects designed to address a variety of presentation tasks, such as creating timelines and decision trees, illustrating procedural steps and relationships, and, yes, even creating organizational charts.

MS POWERPOINT 2007

Microsoft Office Button: The Microsoft Office button appears in the top left corner of the window and includes basic file functions such as New, Open, Save, and Print.

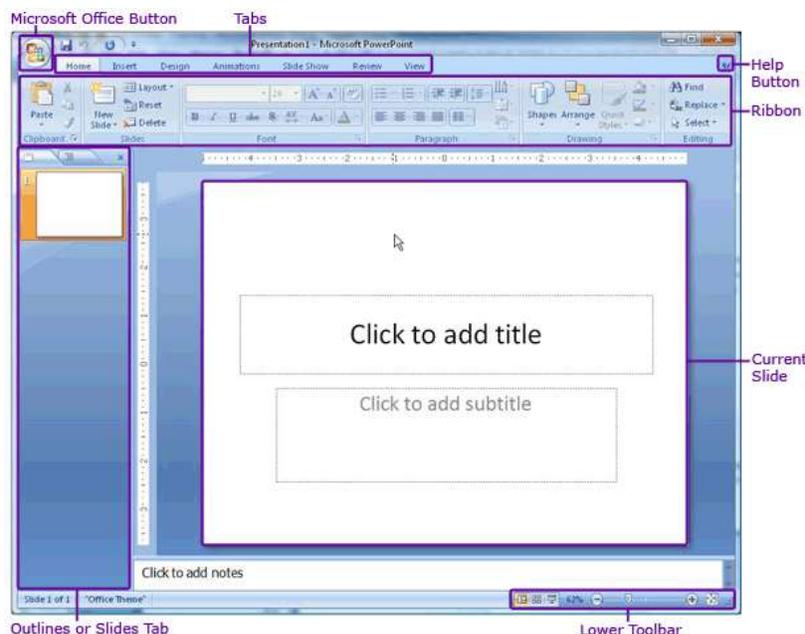
Tabs: The many buttons and menu options required to create and edit presentations are grouped into seven distinct categories and accessible from tab-like buttons which appear across the top of the window.

Ribbon: The ribbon contains the buttons and menu options specific to each tab for creating and editing presentations.

Current Slide: The current slide appears in the middle of the screen and contains the contents of a particular PowerPoint slide.

Outline or Slides Tab: The Slides tab displays thumbnails of all slides in a presentation. The Outline tab displays an automatically generated outline of the presentation.

Help button: The help button in the top right corner of the window provides access to an index of help topics as well as a key-word search of the extensive help files.





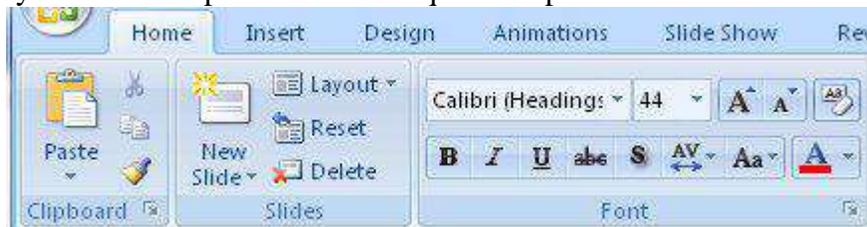
Lower Toolbar: The lower toolbar allows easy toggling between viewing options and also displays the number of the slide currently on screen.



Tabs and the Ribbon

The ribbon includes seven tabs to choose from. After selecting a tab, the ribbon will automatically update to display the appropriate menu options and buttons. The menu options and buttons are grouped by functional category into distinct toolbars.

More Options button to display a pop-up window with the full set of menu options and buttons for that category. The More Options button is square-shaped with an arrow.



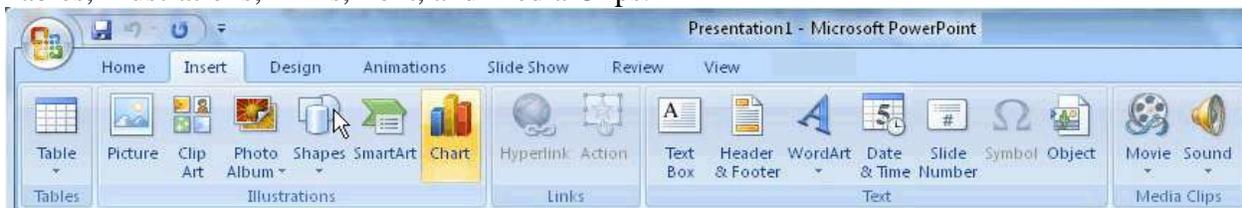
Home Tab

The Home tab includes basic functions for creating and manipulating a presentation. The toolbars that make up the Home tab include Clipboard, Slides, Font, Paragraph, Drawing, and Editing. Example menu and button options include copying and pasting, adding a new slide, adjusting fonts and paragraph formatting, and basic drawing features.



Insert Tab

Use the Insert tab to add a wide variety of content into a presentation including tables, charts, images, links, text boxes, audio, and video. The toolbars that make up the Insert tab include Tables, Illustrations, Links, Text, and Media Clips.



Design Tab

The Design tab provides a variety of options for designing and formatting a presentation. Use the Design tab to manipulate the page setup, color themes, and backgrounds of a presentation. The toolbars that make up the Design tab include Page Setup, Themes, and Background.



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Animations Tab

Use the Animations tab to add, customize, and preview animations and transitions between slides. The toolbars that make up the Animations tab include Preview, Animations, and Transition to This Slide.



Slide Show Tab

Manage the settings for showing a presentation with the Slide Show tab. The toolbars that make up the Slide Show tab include Start Slide Show, Set Up, and Monitors.



Review Tab

The Review tab provides access to proofing features like spell check and also allows for embedding comments in a presentation. The toolbars that make up the Review tab include Proofing and Comments.



View Tab

The View tab presents a number of options to specify how to view a presentation such as hiding or displaying notes, hiding or displaying gridlines, zooming in and out, displaying in gray scale, and more. The toolbars that make up the View tab include Presentation Views, Show/Hide, Zoom, Color/Grayscale, Window, and Macros.



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Create a New Presentation

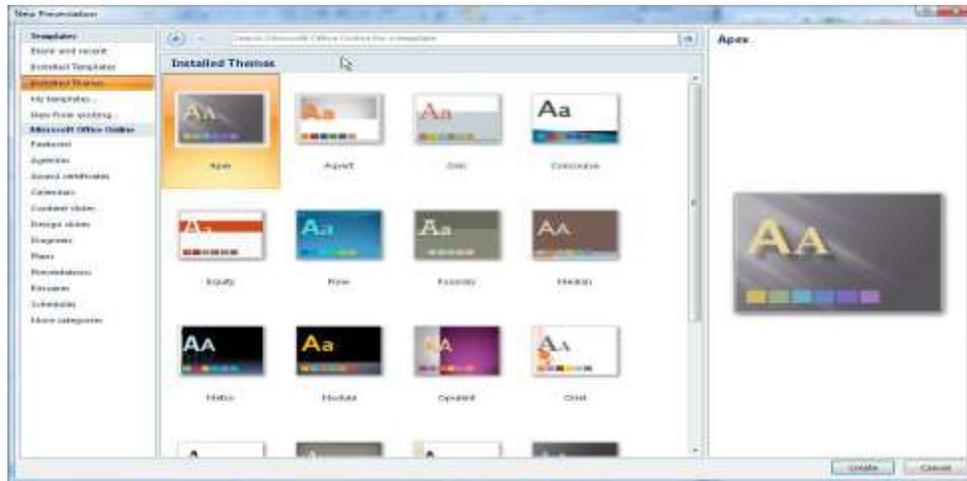
To create a new presentation,

- Click the **Microsoft Office** button and select **New**. The New Presentation pop-up window will appear, Choose to start with one of Microsoft's Installed Templates, Installed Themes, or a Blank presentation to create a customized presentation.
- Click the **Installed Themes** menu option to browse through the available graphical themes. Select one that will work for the presentation.
- Click the **Create** button in the lower right-hand corner.

Or

To create a completely custom-designed presentation,

- Select the **Blank and recent** menu option.
- Click the **Blank Presentation** button and then the **Create** button in the lower right-hand corner.



Design a Presentation

PowerPoint includes a number of ready-made design themes. These themes serve as the basis for the graphic design of a presentation. Each theme consists of a background design, placeholder layouts, a color palette, and font styles. To browse through the available themes, click the Design tab in the ribbon.. Click a particular theme to apply it to the presentation.



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To skip the ready-made themes in order to create a custom-designed presentation,

- Select the Design tab in the ribbon.
- Click the Background Styles menu to choose the background.
- Click the Colors, Fonts, and Effects menus in the Themes toolbar to customize the design of the presentation.
- To customize a ready-made theme, click an element within a slide.
- Select the Design tab and then choose from the various options available from the Colors, Fonts, and Effects menus in the Themes toolbar.
- Adjust the Background using the Background Styles menu in the Background toolbar.

Insert a New Slide

To insert a new slide into a presentation,

- Click the **Home** tab in the ribbon.
- In the Slides toolbar, select the **New Slide** button



Save the Presentation

To save a presentation,

Click the **Microsoft Office** button and choose **Save As**.

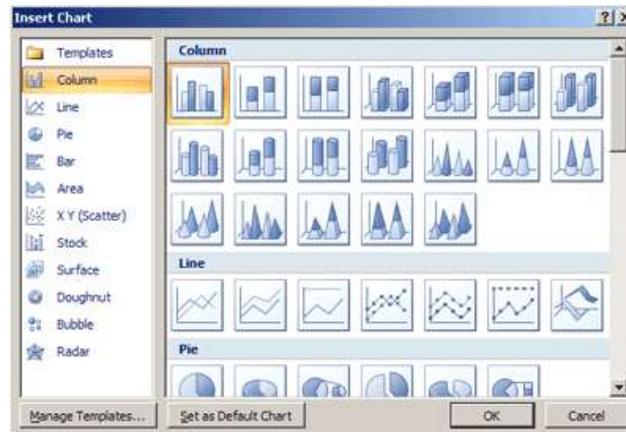
Charts

Charts and graphs are an effective way to present information than a simple list of numbers. PowerPoint 2007 is fully integrated with the spreadsheet tools of Excel 2007, making it very easy to create a chart from scratch or to import data from an existing spreadsheet.

Creating Charts

1. Select the slide where you want the chart to appear.

2. In the **Insert** tab, under the **Illustrations** group, click on **CHART**  to open the *Insert Chart* dialog.



3. Select the type of chart from the category list on the left, or simply scroll through the gallery on the right to view all the available charts. Once you have made your selection, click **OK**.
4. The chart will appear on your slide, and Excel will open as a split screen with dummy data already filled in.
5. Add your data and labels to the Excel spreadsheet and the chart will be automatically updated on your slide.
6. When finished, click the  in the upper right hand corner of Excel to close the worksheet..

Animation

PowerPoint allows you to animate objects or specific content within a slide and also to add animated transitions between slides. Transitions are a common and easy way to liven up a presentation.

Add Transitions

To add a consistent transition between each slide throughout the presentation, follow these instructions.

1. Click the **View** tab and click the **Slide Master** button.
2. In the left-hand **Slides** tab, select the first slide which is numbered “1.”
3. Click the **Animations** tab.
4. In the Transition to This Slide toolbar, browse through the transition options and click the appropriate choice. Place the mouse over each option to preview the transition within the slide currently on screen.
5. When satisfied with the transition, click the **Slide Master** tab and then the **Close Master View** button.



Add Animation

With PowerPoint, you can animate virtually any object or specific content that appears on a slide.

- To animate an object or content, select it.
- Click the **Animations** tab.
- Select from the menus and buttons available in the Animations toolbar.
- After selecting the appropriate animation settings, use the **Preview** button to see the animation in.

Audio

To add audio to a presentation

1. Click the **Insert** tab.
2. Then click the **Sound** button.
3. Navigate to the correct audio clip and select it.
4. A pop-up window will ask if the audio should play Automatically or When Clicked.
5. An audio icon will automatically appear on the slide. To preview the audio, right click the audio icon and select **Preview**.

Inserting and Format Picture Tab:-

You can even insert the image in your presentation. To insert click on insert option and then on picture, a window will open you can insert the picture from any desired location.

After you insert an image the **Picture Tools - Format** tab will automatically appear.

Adjust Picture Settings



The **Adjust** group on the Picture Tools tab allows you to adjust the **brightness and contrast** of your image. You can also use the **recoloring** options to change the tint of your picture.

Borders and Effects



With the **Picture Styles** group you can add some interesting effects to your images, including regular borders and shaped borders, shadows and reflections, and 3-D rotation options.



PowerPoint comes with a number of built-in options, or you can customize your own using the drop down **Picture Shape**, **Picture Border**, and **Picture Effects** menus on the right.

Arranging, Aligning & Grouping Images



Arranging

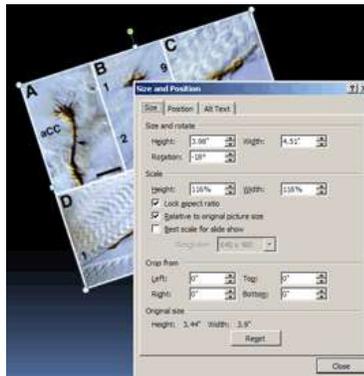
PowerPoint allows you to **overlap objects**, so that for example you could have a text box or a callout over an image, or two images that overlap each other, or several solid shapes and lines arranged to make an interesting background on a slide master.

Aligning

You can always move them, but if you want to be more exact with your placement, place objects to the right, slide, make sure the object centered by using the to help with your manual

Grouping

The final option in the button. This button is used they can be moved and edited all at once.



objects by clicking and dragging more exact with your placement, **Align** menu. You can use this to left, top, bottom, and center of the is both horizontally or vertically distribute options, or display a grid placements.

Arrange section is the **Group** to combine objects into one so that

Cropping & Resizing Images

You can also use the **Crop** tool to remove unnecessary parts of your images. Cropping resizes an image by hiding horizontal or vertical edges.

To crop an image, click the **Crop button**.

Inserting animated pictures

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.
(A movie or .gif file that you've added to Clip Organizer 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 automatically.
 - To play the movie or GIF only when you click it, click When Clicked.

Inserting Sounds:

PowerPoint 2007 provides some videos and sound clips that are free to use in the *Clip Manager*. You can also use clips from other sources, such as the Web, a CD of sound effects, or sounds you create yourself.

You can insert sound using following:-

- Inserting sounds using the Clip Organizer
- Inserting sounds from a file



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- **Recording your own sounds**

Adding Notes

There are two ways to insert notes in PowerPoint.

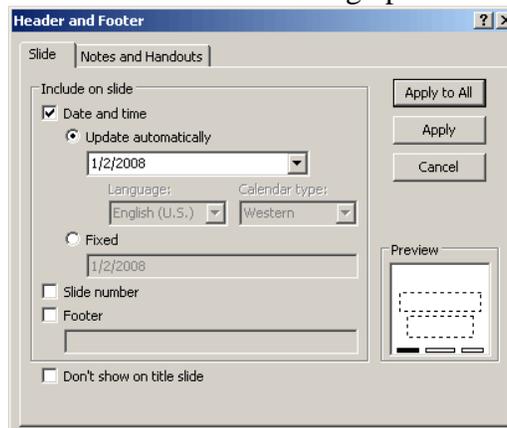
1. **To insert short notes:** In the Normal view, click on the Notes box at the bottom of your screen and type your text.

2. **To insert longer notes:** Click on the **View** tab. Under **Presentation Views** select the **Notes Page** button. Type your notes in the space that appears below your slide.

Inserting Headers & Footers

To add a header and footer, click on the **Insert** tab, then on the **Header & Footer** button.

The **Date & Time** and **Slide Number** buttons will bring up the same dialog box.



1. **Fixed and Automatic Dates** - PowerPoint gives you the option to add either a **fixed** date and time, which will remain the same, or a date and time that **automatically update**. If you choose to have a date and time that automatically update, the date and time will always match the date and time that you run your slide show.

2. **Slide Number** - Check this box to show the slide number.

3. **Footer** - Check the Footer box and add text to have text appear at the bottom of the slide.

4. **Apply/Apply To All** - To insert your chosen elements into your slide, select **Apply** to have the information appear only on your current slide, or **Apply To All** to have it appear on every slide. If any of the information is repeated on the title slide, check the **Don't show on title slide** box to avoid repeating the information.

5. **Preview** - The Preview box shows you where on your slide the information will appear. You can not change this from within this screen, but once you insert the information you can click and drag the box anywhere in your slide, just like any other text box.

Note: If you chose to Apply To All, moving the text box in one slide will not effect the placement of the information in the rest of your slides.

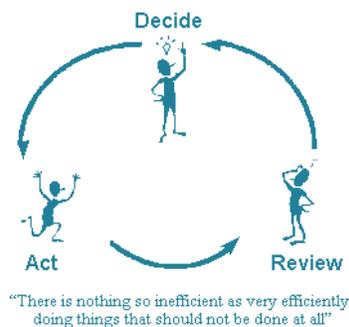
6. **Notes and Handouts** - Under this tab, you can choose your header and footer preferences for your handouts.



UNIT IV

Decision Making

Decision making is a cognitive process that results in the selection of a course of action among several alternative scenarios. It is a daily activity for any human being. When it comes to business organizations, decision making is a habit and a process as well. Effective and successful decisions make profit to the company and unsuccessful ones make losses. Therefore, corporate decision making process is the most critical process in any organization. In the decision making process, we choose one course of action from a few possible alternatives. In the process of decision making, we may use many tools, techniques and perceptions. In addition, we may make our own private decisions or may prefer a collective decision. Usually, decision making is hard. Majority of corporate decisions involve some level of dissatisfaction or conflict with another party.



Types of Decision:

1. **Structured or programmable Decision-** A decision can be programmed, if it follows decision rule, decision procedure or specified sequence of activity is performed. This can be expressed as a flowchart, a decision table or a formula. The decision procedure will also specify the information to be acquired before the decision can be pre-specified; many of these decisions can be handled by lower-level personnel with little specialized knowledge. For example, inventory recording decision or the decision rule for granting credit. The important characteristics of programmed decision are-
 - These decisions can be delegated.
 - The cost of taking such decision is not as high as that of non-programmed once.
 - These decisions can be made with the help of computer systems.
2. **Non-programmed or unstructured decision-** This type of decision is occasional and unique in nature. There are no predefined procedures available to solve these problems and a

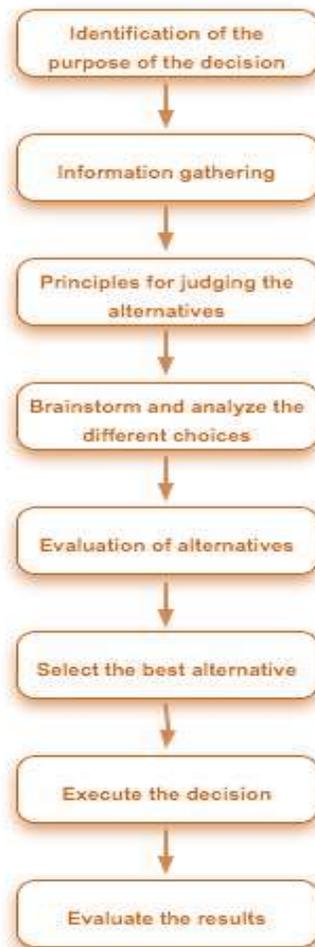


new analysis is required for each occurrence. Production scheduling, advertising budget, taking of capital projects i.e., capital executives have to make use of problem-solving methodology, which itself depends on subjective human judgments. The risk involved in taking decision to solve the problems in this manner is usually high. The important feature of non-programmed decision is that these decisions cannot be delegated.

3. **Semi-structured-** Semi structured decisions are such type of decision procedures that can be pre-specified, but not enough to lead to a definite recommended decision.

Decision Making Process:

Following are the important steps of the decision making process. Each step may be supported by different tools and techniques.





Dimensions and characteristics of managerial decision making:

- it is sequential in nature
- it is exceedingly complex due to risks and trade offs
- managerial decisions are influenced by personal values

Decision Support system (DSS)

The decision support system is an interactive computer based system, which helps decision-makers to utilize data and models to solve unstructured problems. The DSS is designed to facilitate the solutions of problem of structured than those of MIS and TPS which are less structured. The nature of decision taken by DSS is of non-routine and less structured. The DSS is a collection of data and data processing tools used to creatively manipulate data to answer unknown and often unexpected questions. DSS is a coordinated collection off data, system, tools and techniques with the necessary, S/W and computer H/w through which an organization gathers and interprets relevant information from the business and environment and turns into information that acted upon. In the end, we can say that- DSS aims at supporting the decision maker by providing the information with the aid of quantitative techniques.

DSS provides varying analysis without much programming effort and is usually directed towards non-technical users/managers. Managers main uses for a DSS includes searching, retrieving and analyzing decision relevant data to allow them to summarize main points which assist them in making more informed and educated decisions. Users often search for correlations between data without rewriting the underlying MIS or software application and most DSS allows graphic capabilities, which not only allows trend analysis and reporting for top executives, but also assists managers in mapping out conjoint analysis and alternative scenarios to answer “what if” queries. Consequently, DSS supports both tactical and strategic decisions and are employed to leverage manager’s expertise in a certain field

Attributes of a DSS

- Adaptability and flexibility
- High level of Interactivity
- Ease of use
- Efficiency and effectiveness
- Complete control by decision-makers.
- Ease of development
- Extendibility
- Support for modeling and analysis
- Support for data access



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- Standalone, integrated and Web-based

Characteristics of a DSS

- Support for decision makers in semi structured and unstructured problems.
- Support for managers at various managerial levels, ranging from top executive to line managers.
- Support for individuals and groups. Less structured problems often requires the involvement of several individuals from different departments and organization level.
- Support for interdependent or sequential decisions.
- Support for intelligence, design, choice, and implementation.
- Support for variety of decision processes and styles
- DSSs are adaptive over time.

Applications of D.S.S

- An airline DSS
- A Marketing DSS
- Government DSS-
- Banking DSS-MAPP (Managerial analysis for profit planning)

Many types of Decision Support Systems

As mentioned earlier, DSS can be classified in many different categories. Amongst the common ones are the following:

- Data driven DSS
- Model driven
- Knowledge driven
- Document driven
- Communication driven
- Inter- and Intra-organization DSS
- New breeds of DSS
 - Hybrid Systems
 - On-line Analytical Processing (OLAP)
 - OLAP and web-based Decision Support System

Benefits of DSS

- Improves efficiency and speed of decision making activities
- Increases the control, competitiveness and capability of futuristic decision making of the organization
- Facilitates interpersonal communication



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- Encourages learning or training
- Since it is mostly used in non-programmed decisions, it reveals new approaches and sets up new evidences for an unusual decision
- Helps automate managerial processes

Components of a DSS

- Database Management System (DBMS):
- Model Management system
- Support Tools.

Classification of DSS

There are several ways to classify DSS. Hoi Apple and Whinstone classify DSS in following:

- Text Oriented DSS
- Database Oriented DSS
- Spreadsheet Oriented DSS
- Solver Oriented DSS
- Rules Oriented DSS
- Rules Oriented DSS
- Compound DSS

The tools of decision support systems

Decision support system's tools are programs or codes which are the foundation used to create the generations and in turn specific DSS.

Decision support tools may involve the following:-

- Material requirement planning (MRP) –
- Linear programming.
- Queuing theory.
- Descriptive statistics-
- Correlation analysis-.
- Variance analysis-
- Network analysis-
- Transportation problems-.
- Maximum flow or distance –
- Dynamic programming –
- Regression analysis-
- Markov processes –.



Users of Decision Support System:

The ultimate user of a decision support system is the decision maker; however, he may not actually run the system. Based on his research on Decision Support Systems, Alter identified following four distinct usage patterns.

1. Terminal mode
2. Clerk mode
3. Subscription mode
4. Intermediary mode.

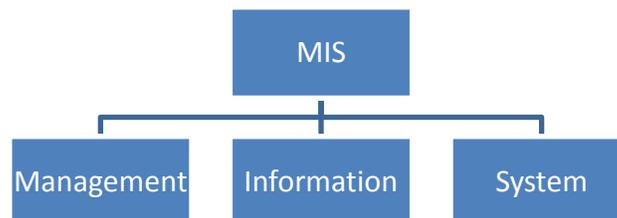
INTRODUCTION TO MIS

Definition of MIS:- A system that collects, process, stores the data and distributes information to help in decision making for managerial function. It is also defined as the integrated user machine system for providing information to supports the decision making operations & achieving organizational goal.

According to Jerome “A system that aids management in making, carrying out and controlling decisions”.

According to Kelley, “A combination of human and computer based resources which results in collection, storage, retrieval, communication and use of efficient management of operations and for business planning”.

Right Information → To the right person → At the right place → At the right time → In the right form → At the right cost



Management: - Management covers the planning, control and administration of the operations of a concern.

Information: - Information, in MIS, means the processed data that helps the management in planning, controlling and operations.



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System: - data is processed into information with the help of a system.

Need of MIS

MIS helps the management at various levels and it is mean of communication where data are collected, processed, stored and retrieved for making decisions regarding planning, operation and control of an organization.

Characteristics of MIS

- Management Oriented
- Management Directed
- Integrated System
- Avoid Redundancy
- Common Data Flow
- Heavy Planning Element
- Subsystem Concept
- Common Database
- Flexibility
- Computerization

Components of MIS

Management information system refers to the data, hardware and the computer programs that are used to develop information for managerial use.

- **People** – it is the only living component of MIS which operates, controls the other components of MIS.
- **Procedure** – procedure explain people how to operate the computer hardware.
- **Data** – Data provide interface between the user and computer.
- **Hardware** – It is the machine part of the system which executes the instruction in programs.
- **Programs** – The program is the set of instruction written in logical order for performing specific task related to information production.

Function of MIS

It is used to collect the data and present the information to the managers. MIS is the combination of computer and procedures for providing information that manager's use in making decision.

- **Collect Data** – Data can be obtained from sources within organization and outside world.

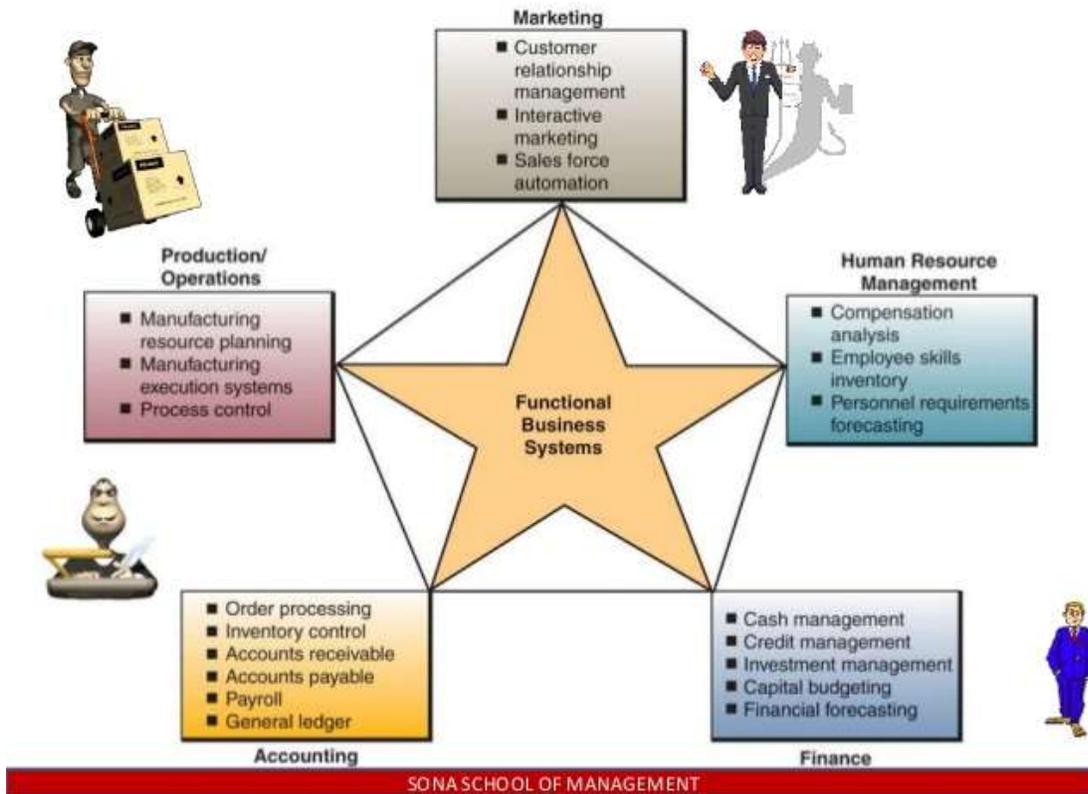


- **Store & Process Data** – After creation of the data, a database must be stored and process in the form useful to manager's data is generally stored to CD ROM or hard disk.
- **Present Information to Managers** – After collection, storing and processing of data, the next step is to present information to the managers.
- **Retrieval of Information**

Role of MIS

- MIS ensure that appropriate and relevant data is collected from various sources, processed and is sent further to the needy destination.
- It fulfills the need of individual, workgroup and management.
- MIS satisfies the diverse need of various systems like query, Analysis, Modeling, DSS.
- MIS helps in strategic planning, management control, operational control and transaction processing level.
- MIS play important role in information generation, communication, problem identification and decision making administration.
- With good MIS support marketing, finance, production, and personal functions increases efficiently.
- MIS helps in streamlining of the operations.
- MIS creates structured database and therefore saves the time.
- MIS bring clarity in communication and understanding this help in bringing high degree of professionalism.
- MIS helps in systemization of business operation through tools and techniques of the computer, which makes task simpler, accurate and faster.
- There are two basic approaches for development of MIS:
 - System development life cycle:** The system development life cycle have following steps of development:
 - Systems Planning
 - Systems Analysis
 - Systems Design
 - Systems Implementation
 - Systems Operation and Support (System Maintenance)
 - Prototyping:** Prototyping is the process of creating an incomplete model of the future full-featured system, which can be used to let the users have a first idea of the completed program or allow the clients to evaluate the program.

Application of MIS in different business areas



Process of MIS

The process of MIS starts by knowing MIS objectives. The objectives of MIS should be compatible with the company's objectives.

Management comprises process or activities they are as follows:-

1. Recognition of a problem and an opportunity
2. Define problem or opportunity
3. Develop alternative course of action
4. Decision
5. Implementation of plan
6. Control performance against plan



UNIT V

INTERNET – IMPORTANT TERMS/FACTS:-

Define internet

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.

From a social point of view – the internet is a device through which millions of people are communicating and sharing their idea and information.

From a technical point of view – the internet is a network of thousands of computer networks. Together the networks making up the internet consist of over million computer systems.

Growth of internet: - internet started as a government project in the US, has spread all across the world connecting thousands of networks and millions of people Is an amazing truth today. The growth of internet can be estimated by the fact that users on internet were only 124 millions in 2000 while it increased to 175 millions in 2004 only in the United States. The current internet subscriber base in India is 3.3 millions.

Owner of internet: - the internet has no president nor has it a CEO the ultimate authority on the internet is the internet society, which is a voluntary membership organization whose purpose is to promote global information exchange through the internet technology.

Advantages of internet:

1. Information
2. Entertainment
3. Services
4. News
5. E-commerce
6. Communication
7. Formation of communities

Disadvantages:

1. Spamming
2. Theft of personal details
3. Pornography



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4. Virus threat
5. Waste of time and money

Internet Based Services:

Some of the basic services available to Internet users are:

Email: A fast, easy, and inexpensive way to communicate with other Internet users around the world.

Telnet: Allows a user to log into a remote computer as though it were a local system.

File Transfer Protocol (FTP)

It allows a user to transfer virtually every kind of file that can be stored on a computer from one Internet-connected computer to another. FTP is used to copy files from one host to another. It is used to exchange and manipulate files over as TCP computer network, such as the internet. An FTP client may connect to an FTP server to manipulate files on that server.

Transmission control Protocol/Internet Protocol [TCP/IP] it is actually a collection of protocols that govern the way data travel from one computer to another across networks. A user connected on any network on the Internet can communicate with people or software located on any other network connected to the internet using this common set of protocols. On the internet, the protocol that permits two internet connected computers to establish a reliable connection is called TCP/IP

Usenet news: A distributed bulletin board that offers a combination news and discussion service on thousands of topics.

A Usenet newsgroup is a repository usually within the Usenet system, for messages posted from many users in different locations using Internet. Despite the name, newsgroups are discussion groups, and are not devoted to publishing news, but were when the internet was young.

World Wide Web (WWW): A hypertext interface to Internet information resources.

WWW- This stands for World Wide Web. A technical definition of the World Wide Web is: all the resources and users on the Internet that are using the Hypertext Transfer Protocol (HTTP). A broader definition comes from the organization that Web inventor Tim Berners-Lee helped found, the World Wide Web Consortium (W3C):



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The World Wide Web is the universe of network-accessible information; an embodiment of human knowledge. In simple terms, The World Wide Web is a way of exchanging information between computers on the Internet, tying them together into a vast collection of interactive multimedia resources.

World wide web is a series of servers that are interconnected through hypertext. Tim burner lee is widely known as the father of the world wide web . burners was working with the European organization for nuclear research(CERN), in Switzerland).

URL (Uniform resource locator) :- URL is a type of uniform resource identifier that specifies where an identified resource is available and the mechanism for retrieving it.

There are several parts to a URL. The first part of a URL defines a web protocol, such as the hypertext transfer protocol (HTTP), this part of URL (eg http://) allows the machines to talk to one another , the complete URL specifies the name of a server or a path to a web resource on a server, which a user can access by using browsers like Firefox, Opera , and Internet Explorer.

Hyper Text Transfer Protocol (HTTP) - This stands for Hyper Text Transfer Protocol. This is the protocol being used to transfer hypertext documents that makes the World Wide possible. Hyper Text Transfer Protocol [HTTP] HTTP is an internet standard or set of rules that allows the exchange of information on the World Wide Web. Hypertext is a method of preparing and publishing text, ideally suited to the computer, in which users can select their own text. To prepare hypertext, the whole material should be divided into small segments such as single pages of text. These small segments are called nodes. Then hyperlinks are embedded in the text. When the user clicks on a hyper link, the hypertext software displays a different node. The process of navigating among the nodes linked in this way is called browsing. A collection of nodes that are interconnected by hyperlinks is called a web. A Hypertext is prepared using Hyper Text Markup Language [HTML].The html codes are used to create links. Http is also based on the client/server principle. It allows the client computer to contact with server computer and make a request. The server accepts the connection requested by the client and sends back a response. An Http request identifies the information or text that the client is needed and it tells the server to supply the text. A standard web address such as <http://www.yahoo.com/> is called a URL and here the prefix http indicates its protocol

URL- URL stands for Uniform Resource Locator, and is used to specify addresses on the World Wide Web. A URL is the fundamental network identification for any resource connected to the web (e.g., hypertext pages, images, and sound files).



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A URL will have the following format: protocol://hostname/other_information

The protocol specifies how information from the link is transferred. The protocol used for web resources is Hypertext Transfer Protocol (HTTP). Other protocols compatible with most web browsers include FTP, telnet, newsgroups, and Gopher. The protocol is followed by a colon, two slashes, and then the domain name. The domain name is the computer on which the resource is located.

Links to particular files or subdirectories may be further specified after the domain name. The directory names are separated by single forward slashes.

WEBSITE - Currently you are on our website <http://www.tutorialspoint.com> which is a collection of various pages written in HTML markup language. This is a location on the web where people can find tutorials on latest technologies. Similar way there are millions of websites available on the web.

Each page available on the Website is called a web page and first page of any web site is called home page for that site.

WEB SERVER - Every Web site sits on a computer known as a Web server. This server is always connected to the internet. Every Web server that is connected to the Internet is given a unique address made up of a series of four numbers between 0 and 256 separated by periods. for example, 68.178.157.132 to 68.122.35.127.

When you register a Web address, also known as a domain name, such as tutorialspoint.com you have to specify the IP address of the Web server that will host the site.

WEB BROWSER - Web Browsers are software installed on your PC. To access the Web you need a web browsers, such as Netscape Navigator, Microsoft Internet Explorer or Mozilla Firefox.

Currently you must be using any sort of Web browser while you are navigating through my site tutorialspoint.com. On the Web, when you navigate through pages of information this is commonly known as browsing or surfing.

SMTP SERVER - This stands for Simple Mail Transfer Protocol Server. This server takes care of delivering emails from one server to another server. When you send an email to an email address, it is delivered to its recipient by a SMTP Server.



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ISP - This stands for Internet Service Provider. They are the companies who provide you service in terms of internet connection to connect to the internet. You will buy space on a Web Server from any Internet Service Provider. This space will be used to host your Web site.

HTML - This stands for HyperText Markup Language. This is the language in which we write web pages for any Website. Even the page you are reading right now is written in HTML. This is a subset of Standard Generalized Mark-Up Language (SGML) for electronic publishing, the specific standard used for the World Wide Web.

HYPERLINK - A hyperlink or simply a link is a selectable element in an electronic document that serves as an access point to other electronic resources. Typically, you click the hyperlink to access the linked resource. Familiar hyperlinks include buttons, icons, image maps, and clickable text links.

DNS - DNS stands for Domain Name System. When someone types in your domain name, www.example.com, your browser will ask the Domain Name System to find the IP that hosts your site. When you register your domain name, your IP address should be put in a DNS along with your domain name. Without doing it your domain name will not be functioning properly.

W3C - This stands for World Wide Web Consortium which is an international consortium of companies involved with the Internet and the Web. The W3C was founded in 1994 by Tim Berners-Lee, the original architect of the World Wide Web. The organization's purpose is to develop open standards so that the Web evolves in a single direction rather than being splintered among competing factions. The W3C is the chief standards body for HTTP and HTML

Applications OF INTERNET

Internet is today one of the most important part of our daily life. There are large numbers of things that can be done using the internet and so it is very important. You can say that with the progress in the internet we are progressing in every sphere of life as it not only makes our tasks easier but also saves a lot of time. Today internet is used for different purposes depending upon the requirement. Here in this very article we have mentioned then ten best uses of the internet. Here goes some of them.



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Internet browsers:

Internet browser or web browser are softwares that allow you to explore the net. These are actually client programs and are capable to display and interact with hypertext document. These softwares are especially designed for the web use.

There are two types of browsers text based browser and graphical browser. Graphical browser supports multimedia like text, video, animation, audio etc.

Some popular browsers are –

- Microsoft Internet Explorer
- Mozilla Firefox
- Google Chrome
- Opera

INTERNET SERVICE PROVIDER (ISP):-

A company that provides internet access is known as internet service provider. A ISP charge for its services. In general ISPs take two types of fees:

- A charge for using the internet
- A charge for a physical connection to the internet



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Use charges are billed at a fixed rate, ISPs do discriminate among classes of users. An ISP might provide dial up access, a cable connection, an ADSL connection or other types of internet access. In India there are more than 150 ISPs (including BSNL, Airtel , etc)

Kinds of connection

1. Dialup accounts
2. ISDN(Integrated Service Digital Network):
3. Broadband :

Domain name systems(DNS): -

It is an internet engineering task force(IETF) standard name service that allows your computer to register and resolve domain names. In other words DNS is a system that translates domain names into IP address. This is necessary because computers only make use of IP address yet we use only readable names since the name are easier to remember than IP address.

Categories : -

1. .com for commercial purpose
2. .edu for education domains
3. .net for network, internet service provider and other network related companies
4. .org for non government organization and non commercial
5. .mil for the united state military.

Country level domain: - it is reserve for country. For example .in for India, .uk for united kingdom, .pk for Pakistan.

Introduction to firewall: -

A firewall is an executable code , the attacker could compromise that code and execute from the firewall device. A firewall is a computer that sits between internal network and the rest of the network and attempts to prevent bad things from happenings

Firewall uses the following technique to control access and enforce the site's security policy:

1. Service control – determine the types of internet service that can be accessed inbound or outbound.
2. Direction control – decides direction for initiation of service request and allowed to flow through the firewall.
3. User control – controls access to a service ,which user is attempting to access it.



4. Behavior control – controls how particular services are used. For example the firewall may filter e-mail to eliminate spam.

Types of firewall: -

1. Packet filtering router
2. Application gateways
3. Circuit level gateway
4. Stateful packet inspection firewalls
5. Guard
6. Personal firewall

Pop-up blocker: - a pop-up blocker refers to any software or application that disables any pop – up , pop over or pop under advertisement window that you would see while using a web browser. Some pop up blockers may try to close all pop – up windows ,some may remove all advertisement from a publisher’s web site , an still others may help you choose which popup windows you want to be closed with block list feature.

Virus:-

A computer virus is a program or piece of code that is loaded onto your computer without you knowledge an runs against your wishes. All computer virus are man made. A few prominent virus are Michelangelo, dishwasher, C-brain , macmag , nenusalem , columbus etc.-

How a virus spread :

1. Using a paired device
2. Through network system
3. Through secondary storage devices
4. Through internet

Types of computer virus : -

1. Boot sector virus - these types of viruses get themselves stored in th boot sector of floopy and hard disk. When we boot a computer system it hinders the loading of oprating system.
2. Partition table virus – these kind of viruses affect the partition table of hard disk but do not affect the data in the computer.it only affects MBR(master boot record) of the hard disk.
3. File virus- this kind of virus get associated with executable files. When an EXE file is executed , virus may executes to affect the computer system.
4. Stealth v-virus – a stealth virus is a computer virus that makes every effort to conceal its presence from the user.
5. Polymorphic virus – a polymorphic virus is one that is capable of changing itself so that each infection of the virus is completely different from the original.



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6. Macro virus – a macro virus is a virus specially meant to infect specific type of file such as document file and spreadsheet file.

Antivirus : - a utility software that searches a hard disk for viruses and removes any that are found. Most antivirus programs include an auto update feature that enables the program to download profiles of new virus so that it can check for the new viruses as soon as they are discovered.

Some popular antivirus are NPAV, Quick heal ,Avast and Mac fee etc.

Email basic :

Email is a method of exchanging digital messages , designed primarily for human use. A message at least consists of its content , an author address and one or more recipient addresses. The foundation for today's global internet email service was created in the early Arpanet and was codified as a standard for encoding of messages , as RFC 733.

Features of email :

1. Address book
2. Statistics
3. Sorting of mails
4. Security
5. Edit/draft option
6. File attachment
7. Reply/forward option

Working of email –

Email is based around the use of electronic mailboxes. When an email is sent, the message is routed from server to server, all the way to the recipient's email server. The message is sent to the mail server tasked with transporting emails (called the MTA, for Mail Transport Agent) to the recipient's MTA. On the Internet, MTAs communicate with one another using the protocol SMTP, and so are logically called SMTP servers (or sometimes outgoing mail servers).

The recipient's MTA then delivers the email to the incoming mail server (called the MDA, for Mail Delivery Agent), which stores the email as it waits for the user to accept it. There are two main protocols used for retrieving email on an MDA:



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POP3 (Post Office Protocol), the older of the two, which is used for retrieving email and, in certain cases, leaving a copy of it on the server.

IMAP (Internet Message Access Protocol), which is used for coordinating the status of emails (read, deleted, moved) across multiple email clients. With IMAP, a copy of every message is saved on the server, so that this synchronization task can be completed. To keep everyone from checking other users' emails, MDA is protected by a user name called a login and by a password. Retrieving mail is done using a software program called an MUA (Mail User Agent). When the MUA is a program installed on the user's system, it is called an email client (such as Mozilla Thunderbird, Microsoft Outlook, Eudora Mail, Incredimail or Lotus Notes).

Types of email –

1. **Marketing Emails :** - Marketing (or Bulk) emails stimulate your clients and leads. They contain informative / incentive messages. The recipient must agree to receive such emails: opt-in is mandatory.
Examples : - Newsletters , Flash sales , Sales/promotions announcements
2. **Notification Emails:-** Notification email are also known as trigger, alert or auto-responder. They allow the user to be notified each time a particular event happens (or has happened). More generally, the notification email may be used in order to celebrate and/or mark an event.
Examples: - getting in touch a few days after registration , Congratulations after a status change (first purchase, subscription...) , Birthday email , Shopping Cart Abandonment email
3. **Transactional Emails:-** This is an expected message and its content is information that the client wishes to check or confirm, and not "discover". This type of email is not intended to optimize the customer relationship but to define it and mark it out. It is a point of reference in one's CRM.
Examples; - Welcome message / Account opening , Shipment tracking and order status , Order shipment confirmation , Account termination

Free email sites are :-

www.google.com
www.yahoo.com
www.rediff.com
www.indiatimes.com
www.mail.com
www.inbox.com



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Simple Mail Transfer Protocol (SMTP) :-

The Simple Mail Transfer Protocol (SMTP) service, which transfers e-mail, is installed as part of E-mail Services, along with the POP3 service.

SMTP controls how e-mail is transported and then delivered across the Internet to the destination server. The SMTP service sends and receives e-mail between servers, whereas the POP3 service retrieves e-mail from the mail server to the user's computer. For more information, see the SMTP documentation Microsoft SMTP Service.

Pop3(post office protocol) :- the post office protocol is an application layer protocol used by local email clients to retrieve email from a remote server over a TCP/IP connection. The POP protocol has been developed through several versions. With version 3 being the current standard .like IMAP , POP3 is supported by most webmail services such as Hotmail, Gmail And yahoo mail.

Internet security

Internet security refers to securing communication over the internet. Internet security threats impact the network, data security and other internet connected systems. Cyber criminals have evolved several techniques to threat privacy and integrity of bank accounts, businesses, and organizations.

Following are some of the internet security threats:

- Mobile worms
- Malware
- PC and Mobile ransom ware
- Large scale attacks that attempts to destroy infrastructure.
- Hacking as a Service
- Spam
- Phishing

Network security

Network security is any activity designed to protect the usability and integrity of your network and data. It includes both hardware and software technologies. Effective network security



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manages access to the network. It targets a variety of threats and stops them from entering or spreading on your network.

How does network security work?

Network security combines multiple layers of defenses at the edge and in the network. Each network security layer implements policies and controls. Authorized users gain access to network resources, but malicious actors is blocked from carrying out exploits and threats.

Types of network security

- Access control
- Antivirus and antimalware software
- Application security
- Behavioral analytics
- Data loss prevention
- Email security
- Firewalls
- Intrusion prevention systems

Passwords

Passwords are the first line of defense against cyber criminals. Hackers have many different ways of attempting to gain access to accounts, but your ability to avoid an attack is highly dependent on the strength of your password. Password contains lowercase and uppercase alphabetic characters, numbers and symbols also if permitted. the strength of a password is a function of length, complexity, and unpredictability.

Cryptography

Cryptography is a cornerstone of the modern electronic security technologies used today to protect valuable information resources on intranets, extranets, and the Internet.

Digital signature

A digital signature (not to be confused with a digital certificate) is a mathematical technique used to validate the authenticity and integrity of a message, software or digital document.

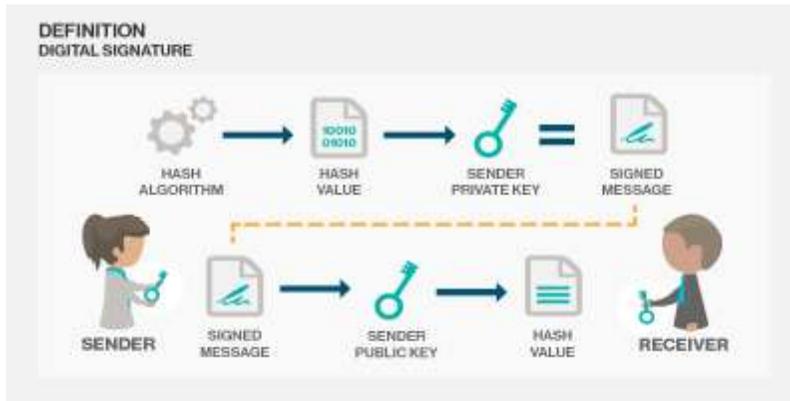
The digital equivalent of a handwritten signature or stamped seal, but offering far more inherent security, a digital signature is intended to solve the problem of tampering and impersonation in digital communications. Digital signatures can provide the added assurances of evidence to



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origin, identity and status of an electronic document, transaction or message, as well as acknowledging informed consent by the signer.



Digital certificate

A digital certificate is an electronic "passport" that allows a person, computer or organization to exchange information securely over the Internet using the public key infrastructure (PKI). A digital certificate may also be referred to as a public key certificate.

An attachment to an electronic message used for security purposes. The most common use of a digital certificate is to verify that a user sending a message is who he or she claims to be, and to provide the receiver with the means to encode a reply.

Just like a passport, a digital certificate provides identifying information is forgery resistant and can be verified because it was issued by an official, trusted agency. The certificate contains the name of the certificate holder, a serial number, expiration dates, a copy of the certificate holder's public key (used for encrypting messages and digital signatures) and the digital signature of the certificate-issuing authority (CA) so that a recipient can verify that the certificate is real.

Biometric security

The term biometrics is derived from the Greek words bio meaning life and metric meaning to measure. It is a security mechanism used to authenticate and provide access to a facility or system based on the automatic and instant verification of an individual's physical and behavioral characteristics. The technology is mainly used for identification and access control, or for identifying individuals who are under surveillance.



The two main types of biometric identifiers depend on either **physiological** characteristics or **behavioral** characteristics.

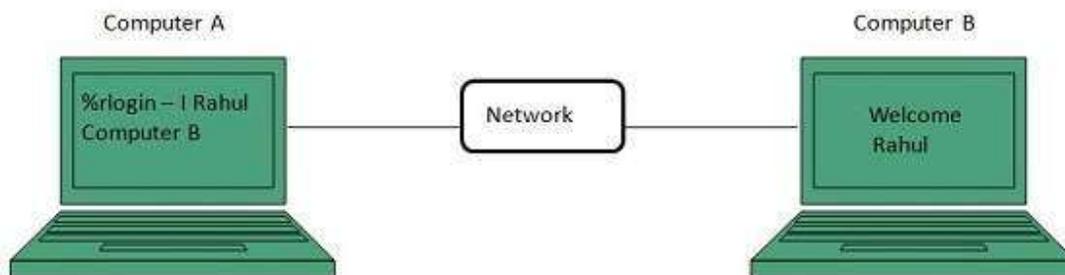
Physiological identifiers relate to the composition of the user being authenticated and include facial recognition, fingerprints, finger geometry (the size and position of fingers), iris recognition, vein recognition, retina scanning, voice recognition and DNA matching.

Behavioral identifiers include the unique ways in which individuals act, including recognition of typing patterns, walking gait and other gestures. Some of these behavioral identifiers can be used to provide continuous authentication instead of a single one-off authentication check.

An individual's body characteristics are pre-stored in a biometric security system or scanner, which may be accessed by authorized personnel. When an individual walks into a facility or tries to gain access to a system, the biometric scanner evaluates his/her physical characteristics, which are matched with stored records. If a match is located, the individual is granted access

Telnet

Telnet is a protocol used to log in to remote computer on the internet. There are a number of Telnet clients having user friendly user interface. The following diagram shows a person is logged in to computer A, and from there, he remote logged into computer B.



Intranet

An intranet is a private network that is contained within an enterprise. It may consist of many interlinked local area networks and also use leased lines in the wide area network. Typically, an intranet includes connections through one or more gateway computers to the outside Internet. The main purpose of an intranet is

- to share company information and computing resources among employees.
- An intranet can also be used to facilitate working in groups and for teleconferences.



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- companies can send private messages through the public network

Extranet

An extranet is a private network that uses Internet technology and the public telecommunication system to securely share part of a business's information or operations with suppliers, vendors, partners, customers, or other businesses. An extranet can be viewed as part of a company's intranet that is extended to users outside the company. It has also been described as a "state of mind" in which the Internet is perceived as a way to do business with other companies as well as to sell products to customers.

Companies can use an extranet to:

- Exchange large volumes of data using Electronic Data Interchange (EDI)
- Share product catalogs exclusively with wholesalers or those "in the trade"
- Collaborate with other companies on joint development efforts
- Jointly develop and use training programs with other companies
- Provide or access services provided by one company to a group of other companies, such as an online banking application managed by one company on behalf of affiliated banks
- Share news of common interest exclusively with partner companies

E-ticket (electronic ticket)

An e-ticket (electronic ticket) is a paperless electronic document used for ticketing passengers, particularly in the different commercial industries. Virtually all major industries (like movies, railways and airlines etc.) now use this method of e-ticketing.

Example:. When a customer books a flight by telephone or using the Web, the details of the reservation are stored in a computer. The customer can request that a hardcopy confirmation be sent by postal mail, but it is not needed at the check-in desk. A confirmation number is assigned to the passenger, along with the flight number(s), date(s), departure location(s), and destination location(s). When checking in at the airport, the passenger simply presents positive identification. Then necessary boarding passes are issued, and the passenger can check luggage and proceed through security to the gate area.

The principal advantage of e-ticketing is the fact that

- It reduces booking expense by eliminating the need for printing and mailing paper documents.



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- Another advantage is that it eliminates the possibility of critical documents getting lost in the mail or being sent to the wrong address.

Chatting

Chat refers to the process of communicating, interacting and/or exchanging messages over the Internet. It involves two or more individuals that communicate through a chat-enabled service or software. It is a text-based communication that is live or in real-time.

Chat is also known as chatting, online chat or Internet chat.

Chat may be delivered through text, verbal, audio, visual or audio-visual (A/V) communication via the Internet. If conducted through a desktop, chat requires software that supports Internet Relay Chat (IRC) or an instant messenger application, where a central server manages chat communication between different end user clients.

There are also online chat services that require users to sign up with a valid email address. After signing up, a user may join a group chat room or send a private message to another individual. Online chat services have purpose-built chat interfaces that manage the entire communication processes

E-banking

E-banking, includes any transaction is performed using the Internet or a mobile device. Making electronic payments, paying bills and transferring money between accounts are all elements of e-banking, which can be done from your cell phone or computer. Despite potential risks of identity theft and account hacking and less personal contact with the bank, e-banking presents a number of advantages to customers as well as to banks also..

- Convenience
- Saves time
- Portability
- Cost Savings
- Track Spending
- Industry Benefits
- No paper bills and pile of papers
- Efficiency

Various Forms Of E-Banking:

- Internet Banking:
- Automated Teller Machines (ATM): ...



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- Mobile Banking: ...
- Credit cards
- Debit cards
- Smart cards
- Electronic fund Transfer

Smart Cards & Electronic Payment Systems

A smart card usually contains an embedded 8-bit microprocessor (a kind of computer chip). The microprocessor is under a contact pad on one side of the card. Think of the microprocessor as replacing the usual magnetic stripe present on a credit card or debit card. The microprocessor on the smart card is there for security. The host computer and card reader actually "talk" to the microprocessor. The microprocessor enforces access to the data on the card. The chips in these cards are capable of many kinds of transactions.

Smart cards have been in existence since the early 1980s and hold promise for secure transactions using existing infrastructure.

- Smart cards are credit and debit cards and other card products enhanced with microprocessors capable of holding more information than the traditional magnetic stripe.
- The smart card technology is widely used in countries such as France, Germany, Japan, and Singapore to pay for public phone calls, transportation, and shopper loyalty programs.

Smart cards are basically two types:

- Relationship-Based Smart Credit Cards
- Electronic Purses, which replace money, are also known as debit cards and electronic money.

Relationship-Based Smart Credit Cards

- It is an enhancement of existing cards services &/ or the addition of new services that a financial institution delivers to its customers via a chip-based card or other device
- These services include access to multiple financial accounts, value-added marketing programs, or other information card holders may want to store on their



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card

- It includes access to multiple accounts, such as debit, credit, cash access, bill payment & multiple access options at multiple locations

Advantages:

- Payment cards provide fraud protection.
- They have worldwide acceptance (nearly!).
- They are good for online transactions.

Disadvantages:

- Payment card service companies charge merchants per-transaction fees and monthly processing fees.

Debit Card:

Debit cards are also known as check cards. Debit cards look like credit cards or ATM (automated teller machine) cards, but operate like cash or a personal check. Debit cards are different from credit cards. While a credit card is a way to "pay later," a debit card is a way to "pay now." When you use a debit card, your money is quickly deducted from your checking or savings account..

Concerns about electronic payment methods include:

- Privacy
- Security
- Independence
- Portability
- Convenience

E-Cash or Electronic cash

E-Cash or Electronic Cash is a new concept to execute cash payment using computers connected with network. E-cash is an electronic medium for making payments. The primary function of e-cash is to facilitate transactions on the Internet. Many of these transactions may be small in size and would not be cost efficient

Electronic money [also known as e-currency, e-money, electronic cash, electronic currency, digital money, digital cash or digital currency] refers to money or scrip which is exchanged only electronically. Typically, this involves the use of computer networks, the internet and digital



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stored value systems. Electronic Fund Transfer and direct Deposit are all examples of electronic money.

E-cash is a system of purchasing cash credits in relatively small amounts, storing the credits in our computer, and then spending them when making electronic purchases over the Internet. The e-cash is the creation of electronic money or tokens, usually by a bank, which buyers and sellers trade for goods and services. It consists of a token, which may be authenticated independently of the issuer. This is commonly achieved through the use of self-authenticating tokens or tamper proof hardware. It includes credit cards, smart cards, debit cards, electronic fund transfer etc.

E-cash can be used for making or receiving payments between buyer and seller. The bank's server computer sends a secure e-cash packet to the customer effect the network currency server of the bank is issuing a bank note with a serial number for a specified amount. The bank uses its private key to digitally sign such a bank note.

Electronic cash is a general term that describes the attempts of several companies to create value storage and exchange system that operates online in much the same way that government-issued currency operates in the physical world.

Properties of Electronic Cash:

E-cash must have the following four properties:

1. Monetary value
2. Interoperability
3. Retrievability
4. Security

Electronic Cash Issues

- Credit card transaction fees make small purchases unprofitable
- Facilitates Micropayments
- Must be anonymous, just like regular currency
- Safeguards must be in place to prevent counterfeiting
- Must be independent and freely transferable regardless of nationality or storage mechanism

Electronic Cash Storage methods

- On-line
- Off-line



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Electronic Cash in Action

- Electronic Cash is based on cryptographic systems called “digital signatures”.
- This method involves a pair of numeric keys: one for locking (encoding) and the other for unlocking (decoding). (Through public key and private key).

Purchasing E-cash from Currency Servers

The purchase of e-cash from an on-line currency server (or bank) involves two steps:

- Establishment of an account and maintaining enough money in the account to bank the purchase.
- Some customers might prefer to purchase e-cash with paper currency, either to maintain anonymity or because they don't have a bank account.

Online Financial Services

- Banking
- Insurance
- Mutual Funds
- Tax Consultants and audit firms
- Wealth Management
- Stock Market

E-brokerage

An **e-brokerage** is a brokerage house that allows you to buy and sell stocks and obtain investment information from its Web site. Some e-brokerages are provided by traditional and well-established "offline" brokerage houses and a few are exclusively online only. Almost all e-brokerage houses have simple sign-up and provide users the ability to make them their own financial manager. E-brokerage industry enables investors to use the Internet to conduct secure trading.

Two factors are contributing to the enormous growth of online investing.

- First, the Internet gives ready access to raw data.
- Second, investment houses can offer transactions at lower prices than traditional methods by eliminating the need for brokers or financial advisers.

E-brokerage has many benefits for its users.



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- Users can have more flexibility as well as control over their portfolios and transactions.
- One can access their brokerage account at any time, even if trading hours are over.
- The commission cost is significantly lower than in case of services of a professional broker.
- Trades are processed quickly in e-brokerage and there are no delays, unlike traditional brokerage methods.

Disadvantages of E-brokerage

- Unlike traditional brokerage, the mentoring relationship between the account holder and professional broker is not there.
- All financial choices must be made by the user.
- The level of service is less than with traditional brokerages.

E-Commerce Models

E-Commerce is a much wider subject than selling online. It is of the view that e-commerce covers any form of transaction where technology has played a part. There are also many different types of e-commerce, with differing relationships existing with each.

Some of the important models of e-commerce are as follows:-

1. **Business to Business [B2B]** B2B (business – to- business) is the major and valuable model of e-commerce. B2B (business – to- business) e-commerce is conducted between two separate businesses and has been in effect for many years. E-commerce plays an important role in enhancing and transforming relationships between and among business. B2B (business – to- business) is also known as e-biz, is the exchange of products, services, or information between businesses rather than between businesses and consumers. Although early interest centered on the growth of retailing on the Internet (sometimes called e-tailing), forecasts are that B2B revenue will far exceed business to consumers [B2C] revenue in the near future. B2B (business – to- business) is a kind of e-commerce, which refers to a company selling or buying from other companies. One company communicates with other companies through electronic Medias. Some of these transactions include sending and receiving orders, invoice and shopping orders. It was an attractive alternative to the current process of printing, mailing various business documents.

Some B2B applications are the following:-

1. Supplier Management
2. Inventory Management



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3. Distribution Management
4. Channel Management
5. Payment Management

Business – to Consumer [B2C]

Business – to Consumer [B2C] e-commerce consists of the sale of products or services from a business to the general public. Products can be anything from clothing to flowers and the products can also be intangible products such as online banking, stock trading, and airline reservations. Sellers that use B2C business model can increase their benefits by eliminating the middlemen. This is called disintermediation because businesses sell products directly to consumers without using traditional retail channels. Business – to Consumer [B2C] is basically a concept of online marketing and distributing of products and services over the internet. It is a natural progression for many retailers or marketer who sells directly to the consumer. The general idea is, if you could reach more customers, service them better, make more sales while spending less to do it that would be the formula of success for implementing a B2C e-commerce infrastructure.

Business – to –Government [B2G] e-commerce

B2G refers to the supply of goods and services for online government procurement. This is a huge market which mainly covers everything from office supplies to military equipment. B2G websites offer lower costs and greater choice to the administration, and make government tendered offers more accessible to companies. B2G is a derivative of B2B marketing and often referred to as a market definition of public sector marketing which encompasses marketing products and services to various government levels including-federal, state and local- through integrated marketing communications techniques using as strategic public relations, branding, , advertising, and web based communications.

Business- to- employee [B2E]

Business- to- employee [B2E] uses an intra-business network which allows companies to provide products and/ or services to their employees. It is the use of intranet technologies to handle activities that take place within a business. An intranet is an internal network that used Internet technologies. Business- to- employee [B2E] is different from other type since it is not a revenue form of business. Otherwise, it increases profits by reducing expenses within a company. Instead of having to look everything up manually they can collaborate with each other and exchange data and other information. Many companies have found that B2E technologies have dramatically



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reduced the administrative burdens with the human resources department. Admittedly, maintaining employee information has little to do with commerce, but this term has grown to encapsulate this activity into the B2E definition. Examples of B2E applications include

- Online insurance policy management
- Corporate announcement dissemination
- Online supply requests
- Special employee offers
- Employee benefits reporting

Consumer to Consumer (C2C) (Information Service Model)

Consumer to consumer (C2C) or citizen-to-citizen electronic commerce involves the electronically facilitated transactions between consumers through some third party. A common example is the online auction, in which a consumer posts an item for sale and other consumers bid to purchase it; the third party generally charges a flat fee or commission.

The sites are only intermediaries, just there to match consumers. They do not have to check quality of the products being offered.

The C2C model facilitates online transactions of goods and services between the individual net users. But in this both the web users and both the parties cannot carry out any transaction without the platform that is provided by an online market maker such as the eBay.

There is also the Customer to Business (C2B) model which is relatively less common. It's a complete reversal of the traditional sense of transaction, but could be found in crowdsourcing based projects.

A **business model** describes the rationale of how an organization creates, delivers, and captures value in economic, social, cultural or other contexts. A business model is an "abstract representation of a business, be it conceptual, textual, and/or graphical, of all core interrelated architectural, co-operational, and financial arrangements designed and developed by an organization presently and in the future, as well as all core products and/or services the organization offers, or will offer, based on these arrangements that are needed to achieve its strategic goals and objectives

Do it yourself (DIY) is the method of building, modifying, or repairing things without the direct aid of experts or professionals. Academic research describes DIY as behaviors where "individuals engage raw and semi-raw materials and component parts to produce, transform, or



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reconstruct material possessions, including those drawn from the natural environment (e.g. landscaping)". DIY behavior can be triggered by various motivations previously categorized as marketplace motivations (economic benefits, lack of product availability, lack of product quality, need for customization), and identity enhancement (craftsmanship, empowerment, community seeking, uniqueness)

Made to order (MTO) and sometimes referred to as make to order or Build to order (BTO), is a production approach where products are not built until a confirmed order for products is received. BTO is the oldest style of order fulfillment and is the most appropriate approach used for highly customized or low volume products. "Made to order" products are common in the food service industry, such as at restaurants. This approach is considered good for highly configured products, e.g. automobiles bicycles, computer servers, or for products where holding inventories is very expensive, e.g. aircraft