

# 1

# Computer Awareness

## Computer Fundamentals

### Introduction

The word 'Computer' comes from the Latin word '*Computerae*' meaning to *compute*. Computer is defined as  
**"An automatic electronic apparatus for making calculations or controlling operations that are expressible in numerical or logical terms".**

### Some Important Terms Related to Computer

**Data** The word data has been derived from Latin word 'datum' (Means facts). It is a collection of facts and figures which are not in directly usable form.

**Processing** The act of performing some actions to convert into useful form.

**Information** It is processed data or final result which is in directly usable form and conveys some meaningful results.

**Instruction** It is type of action to be taken on data.

**Basic Operations** Input, Storing, Processing, Output, Control.

### Components of a Computer

#### Input Unit

- It accepts data and instructions from the user.
- It converts the accepted instructions into the machine language.
- It gives converted instructions to CPU for processing.

eg, Keyboard, Mouse, Light Pen, Joystick, Magnetic Ball, OCR (Optical Character Reader), Floppy Disk Drive, Magnetic Disk Drive, Bar Code Reader, Smart Card Reader, Biometric Sensor, Touch Screen, Punched Card Reader, Stylus and Tablet, Puck or Microphone, Digital Camera, Scanner, etc.

#### Central Processing Unit (CPU)

- All processing work of computer is performed by it.
- It is also termed as brain of computer.
- It controls all the parts of computer system.

It is further classified into three components

- (a) **Arithmetic and Logic Unit** It performs all arithmetic and logic operations. It consists of number of small locations, termed as registers. It has two parts

- (i) **Arithmetic Section** All complex arithmetic expressions are performed by repetitive combination of these operations.
- (ii) **Logic Section** It performs all logic operations like comparing, selecting and merging of data.
- (b) **Control Unit** It gives command to transfer data from the input devices to memory and from memory to arithmetic logic unit. It transfers the results from memory to output unit.
- (c) **Memory** It temporarily (Primary) / permanently (Secondary) holds the data received from input device. It holds the data being processed and intermediate results being generated. It holds the system software and the application software in use.

It can be classified into two types

**RAM (Random Access Memory)** RAM is where all active programs and data are stored so that they are readily available and easily accessed by the CPU.

**ROM (Read Only Memory)** It is logical then that data stored on ROM cannot be changed. It is nonvolatile which means that it can keep its contents even without a power source.

- PROM (Programmable Read Only Memory)
- EPROM (Erasable Programmable Read Only Memory)
- EEPROM (Electrically Erasable Programmable Read Only Memory)

## Output Unit

It accepts processed data (results) from CPU.

It converts results from machine language into some simple language.

It displays results to user.

*eg*, Visual Display Unit (VDU), Printer, Plotter, Floppy Disk Drive, Magnetic Disk Drive, Speaker, Pen Drive, etc.

**Software** It is a set of instructions that directs the computer to process information. It can be classified into three types

- (i) **System Software** It coordinates the operation of the various hardware components of the computer. *eg*, MS DOS, Windows 95/98/2000/XP/Vista, Linux and UNIX.
- (ii) **Application Software** It is a set of program designed for specific uses or applications *eg*, MS Word, MS Excel etc.
- (iii) **Utilities Software** Utility programs are those that are very often requested by many application programs. It is used to debug the software errors, correct the data through the editor, sort data, etc. *eg*, Pkzip, Anti Virus Software, etc.

### Bits, Bytes and Words

Unit	Size	Description
Bit	One binary digit	Stores either a binary 0 or 1
Byte	Eight bits	One character
Word	16 to 64 bits	One character
Kilobyte (KB)	1 thousand bytes	About one page of double-spaced text
Megabyte (MB)	1 million bytes	About the size of a short book
Gigabyte (GB)	1 billion bytes	1000 short books
Terabyte (TB)	1 trillion bytes	An entire library
Petabyte (PB)	1 quadrillion bytes	Just about all the libraries in the US

### Computer Generations

Generation	Year	Switching Device	Storage Device	Speed	Operating System	Language	Application
First	1949-54	Vacuum Tubes/Electronic Valves	Acoustic delay lines and later magnetic drum. 1 KB memory	333 micro seconds	Mainly Batch	Machine and assembly languages. Simple monitors	Mostly scientific later simple business systems
Second	1954-64	Transistors	Magnetic core, main memory, tape and disk peripheral memory. 100 KB main memory	10 micro seconds	Multi-Bag remaining, time sharing	High level languages, Fortran, Cobol, Algol, Batch operating systems.	Extensive business applications. Engineering design optimization scientific research
Third	1964-80	Integrated circuits	High speed magnetic cores. Large disks 100 MB. 1 MB main memory	100 nano seconds	Real time, Time sharing	Fortran IV, Cobol 68 PI/I. Time sharing operating system.	Data base management systems, On line systems.
Fourth	1980-till now	Large scale integrated circuits. Micro-processors (LSI)	Semiconductor memory, Winchester disk. 10 MB main memory. 1000 MB disks	300 nano seconds	Time Sharing, networks.	Fortran 77, Pascal, ADA, Cobol-74	Personal computers, Distributed systems. Integrated CAD/CAM Real time control. Graphics oriented systems.

# Operating System (OS)

## Introduction

An operating system consists of a set of programs, which controls, coordinates and supervises the activities of the various components of a computer system. Its functions is to link between the computer hardware and the user.

**“An operating system is a software, or a series of programs, which performs various types of functions in order to manage and organize files.”**

Some of the most commonly used operating systems are MS DOS, WINDOWS, LINUX, SOLARIES, CP/M etc.

## Functions of Operating System

It is responsible for managing all the resources attached to a computer system. These resources are the processor and various input and output devices.

- Processing the commands.
- Controlling the execution of various programs.
- Managing devices (like storage and retrieval of files on the disks).

The functions involved in the management of resources are classified as follows

- Process Management
- Memory Management
- Input/Output Management
- Information Management
- User Interface

## MS DOS

- The term DOS stands for Disk Operating System.
- It is the Microsoft Disk Operating System, developed by Microsoft for micro computers.
- It is the only OS, which can be loaded in the main memory of the computer, using a single disk.
- It is a single user operating system, which allows only one user to work on one CPU at one time.
- It is a powerful operating system that is easy to use, and handles errors effortlessly.
- It has a Character User Interface (CUI) *ie*, communication between a computer and the user is through characters (a, b, c, 1, 2, 3 etc).
- MS DOS provides all the commands for file handling such as creating, deleting, copying, viewing the contents of files, etc.
- In DOS, one has to key in the commands on the prompt.
- Prompt is a place where commands are issued. It may look like

C:\>

or

C:\WINDOWS\>

- The mark (-) is the cursor which indicates that the command can be typed over here. This cursor keeps on blinking on the screen.

## System Files

- DOS software consists of many files, which are loaded into the main memory from the secondary storage devices so as to load the OS in the computer.
- It involves of loading of three essential files of DOS, ie, MSIO.SYS, MSDOS.SYS and COMMAND.COM in the main memory of the computer.
- Loading these files into the main memory is called booting up (means that the computer is ready to function).
- Booting up is a step-by-step process that undergoes many steps to load the files.
- Once all the files are loaded, the DOS prompt (C:\>) is displayed on the screen, which indicates that the operating system has created the shell around the hardware and the user interface is ready, and you can type DOS commands and get them executed by your computer.

## File Naming Convention in DOS

- In computer, information is stored in the form of files in the computer's secondary storage.

**“A file is a collection of logically related information.”**

- There is a definite way of writing the file name in DOS. It is divided into two parts
  - **Primary name** It may be one to eight (1–8) characters in length.
  - **Secondary name (extension name)** It may be zero to three (0–3) characters. Extensions are optional, as they are meant for describing the contents of a file.
- The primary file name and file extensions are separated by a dot (.)
- The file name can have characters as 0–9, a–z, hyphen, underscore. Space characters is supported, but should be avoided.

Extensions	Meaning
.EXE	Executable File
.COM	Command File
.BAT	Batch File
.DOC	Document File
.TXT	Text File
.PRG	Program File
.OVR	Overlays
.SYS	System Files

## Features of DOS

- It is not case sensitive, ie, DIR and dir are treated as the same.
- While typing a command, if you get “Bad command or file name” comment, it indicates that DOS did not find any file name matching your request. So, correct your command and enter it again.
- The file names are restricted to 8 characters only.
- It does not support space entries in the file name.

# MS Word

## Introduction

- Word processor is a computer program for processing of words.
- It is a package that processes textual matter and creates organized and fallows documents.
- Word processor software provides a general set of tools for entering, editing and formatting text.
- A word processor has everything that a convectional typewriter has. It provides various useful features that cannot be done on typewriter.

## Features of Word Processor

**Fast** Typing text in a word processor becomes speedy as there is no mechanical carriage movement associated.

**Editing Features** Any type of correction (insertion, deletions, modifications etc) can be made easily as and when required.

**Permanent Storage** Documents can be saved as long as desired. The saved document can be retrieved whenever desired.

**Formatting Features** The typed text can be made in any form or style (bold, italic, underline, different fonts etc).

**Graphics** It provides the facility of incorporating drawings in the documents which enhances their usefulness.

**OLE (Object Linking and Embedding)** OLE is a program integration technology that is used to share information between programs through objects. Objects are saved entities like charts, equations, video clips, audio clips, pictures etc.

**Alignment** You can set your text in any alignment eg, Left, Right or Centre. You can even do box setting, ie, aligned from both sides.

**Deleting Mistakes** You can delete word, line, paragraph in a stroke and the rest of the matter will get adjusted automatically.

**Line Spacing** You can set line spacing according to your liking from one to nine.

**Moving Cursor** You can move the cursor from word to word or from paragraph to paragraph, if needed.

**Naming a Document** You can name a document and recall it anytime from hard disk for editing, updating, correcting and even printing.

**Page Breaks** You can set a page break at any place within the text so that while printing it will jump to next page.

**Find and Replace** You can find for a particular word in the whole document and replace it with another one.

**Thesaurus** By using thesaurus you can change a word with any of its synonyms. In this way you can prevent repetition of a single word in a document and bring beauty to the language.

**Indentation** It refers to the distance between text boundaries and page margins. There are three types of indents—Positive Indent, Negative Indent and Hanging Indent.

**Header and Footer** A header or footer is text or graphics such as a page number, the date, or a company logo that is usually printed at the top or bottom of each page in a document.

**Page Orientation** It refers to whether the text is to printed length-wise or width-wise. Length-wise printed page is called PORTRAIT and width-wise printed page is called LANDSCAPE.

**Spell Check** It is not only capable of checking spelling mistakes but also can suggest possible alternatives for incorrectly spelt words.

**Mail Merge** It is a facility which enables to print a large number of letters/documents with more or less similar text. Under it same invitation letter has to be sent to invitees, only the names and address are to be changed.

## Word Window

**Title Bar** It shows the name of the file on which you are working. It also consist of three buttons, eg,

- Minimize button reduces the window to an icon but word still remains active.
- Restore button again brings word window to the maximum original size.
- Close button brings us out of word.

**Menu Bar** It consists of various commands which can be accessed by clicking at the menu options under these menu heads.

**Standard Tool Bar** It displays the symbols for the common operation like open, print, save etc which can be performed by clicking on the appropriate tool.

**Formatting Tool Bar** It displays the options which can be used to format our document like font type, size of the font, bold, underline, bullets, alignment etc.

**Ruler** It shows the width of the document. It can be increased or decreased. You can see how much of the lines you have consumed by typing.

**Workspace** It is the area where the text can be entered.

**Vertical Scroll Bar** For a larger text in the document, you can scroll the vertical bar to see the text at various position.

**Horizontal Scroll Bar** It is used to move from left side to right side in the document and vice-versa in case the document is too wide to fit in the screen.

**Select Browse Object Button** It helps us in selecting one of the several tools used for finding something in a document.

**Normal View Button** It helps us in viewing the document very close to the form in which it will be printed. It arranges the text in such a way that no document remains hidden on the screen.

**Print Layout View** This option allows us to view how actually the document will be printed. All the headers and footers and comments will be displayed.

**Drawing Toolbar** One of the various toolbars which can be made available on the screen. This particular one is used for making drawings in the document.

**Status Bar** This bar will always show you your current position as far the text goes. It will tell you your current position with respect to page number, line number, etc.

# MS PowerPoint

## Introduction

- PowerPoint is the presentation graphics part of MS Office suite.
- PowerPoint can create various presentation materials like; charts, graphics, slides, handouts, overheads etc.
- PowerPoint even creates slide shows, which are electronic presentations that you can run on your computer screen or a projection device.

## Graphics Representation

- The best form of visual images are graphics and picture.
- A graphic object is any written or diagrammatic representation, like graphs, figures and diagrams.
- The application software that manipulates images is known as Graphics Software.
- Presentation graphics is specialised type of graphics software. These programs are used to create professional looking visual aids for an audience.
- The visual aids can be computer images, paper printouts or photographic transparencies.
- Most popular graphics, multimedia and presentation packages are Corel Draw, Macromedia Director, flash, PowerPoint etc.

**The application software that can create professional looking visual aids is called Presentation Graphics Software.**

## Operation

- PowerPoint presentations consist of a number of individual pages or “slides”.
- The “slide” analogy is a reference to the slide projector, a device that has become obsolete due to the use of PowerPoint and other presentation software.
- Slides may contain text, graphics, movies, and other objects, which may be arranged freely on the slide.

- PowerPoint, however, facilitates the use of a consistent style in a presentation using a template or “Slide Master”.
- The presentation can be printed or displayed live on a computer and navigated through at the command of the presenter.
- For larger audiences the computer display is often projected using a video projector.
- Slides can also form the basis of webcasts.
- Presentations can be saved and run in any of the file formats : the 2003 default .ppt (presentation), .pps (PowerPoint Show) or .pot (template). In PowerPoint 2007 and Mac OS X 2008 versions, the XML-based file formats .pptx, .ppsx and .potx have been introduced, along with the macro-enabled file formats .pptm, .potm, .ppsm.

PowerPoint provides three types of movements

1. Entrance, emphasis, and exit of elements on a slide itself are controlled by what PowerPoint calls Custom Animations.
2. Transitions, on the other hand are movements between slides. These can be animated in a variety of ways.
3. Custom animation can be used to create small storyboards by animating pictures to enter, exit or move.

## Presentation Tips

- Knowing the level of knowledge of the audience towards the concept of presentation.
- To persuade the audience successfully, user must not display more or less information than required.
- Using white spaces efficiently to set the things off.
- Not to including too much information on a slide or graphic.
- Using of text on a slide should be judiciously or self explanatory.
- Avoiding the colours that clash with each other.

## Components of a Slide

**Title** A descriptive heading identifying a slide.

**Subtitle** A descriptive message or brief description of the slide data. It emphasises the slide’s central idea.

**Drawing Objects** It includes autoshape (group of readymade shapes), curves, lines, word art etc.

**Clip Art and Pictures** Pictures and graphics available in the MS-Office suite.

## Slide Components Used for Reference

**Handouts** They are the compressed version of the slides of your presentation.

**Speaker Notes** It is a set of notes which is required to aid the presenter.

**Outlines** They are summarised version of slides that display only titles and main text.

## PowerPoint Creations

**On Screen Presentations** By using slide transactions, timings, movies, sound, animation and hyperlink, makes a presentation exciting.

**Web-pages for Web Use** Broadcasting a presentation for a company meeting, presenting to remote groups or holding a team meeting, over the web.

**Overhead Transparencies** Creating presentation that users on overhead transparencies by printing the slides.

## Colour and B & W Printouts

**35 mm Slides** A service bureau can transform the electric slides into 35 mm slides which can be used for interesting purpose.

**Notes, Handouts, Outlines** To support the presentation, you can give the audience handouts—smaller version of slides that are printed to a page.

## Creating New Presentation

**Auto Content Wizard** It is easy to use wizard that helps to create a presentation by leading through some basic questions.

**Design Templates** It is a set of predefined formats or text or color schemes applicable to a presentation.

**Sample Presentation** It is a set of sample slides with some text and outlines that give you suggestions about the context of your presentation.

**Blank Presentation** If you are sure of the layout and contents of your presentation, then you create a new presentation from scratch.

## PowerPoint Views

**Normal** It displays three panes that show the outline, the slide and an area into which you can enter speaker's notes.

**Outline** It displays only the text of the presentation in outline form, allowing you to work easily with the context.

**Slide** It shows the slide and its contents.

**Slide Sorter** It displays the entire set of slides on screen, so that you can check the order and completeness of the presentation.

**Slide Show** It display the presentation on slide at a time in sequence as an automatic slide show.

**Notes Pages** It available from view menu. It enter and edit speaker's notes for the presenter.

## Facilities Provides by PowerPoint

- Create presentation slides.
- Graphical objects can be included in the slides.
- It can be used for preparing quality overhead transparencies to view on the screen.
- Sound effect can be added in the slides.
- Art gallery can be included.
- Variety of fonts is available to make the presentation more effective.
- Timings can be rehearsed for slide show for each slide.
- It can create handouts, notes and outlines.

## Various Effects in Slide Shows

- **Animations and Transitions**

Transitions are special effects that introduce a slide in a slide show.

Animations are special sound or visual effects that can add to text or other objects, such as a chart.

- **Music, Sound and Video**

An occasional burst of music or sound during a transition or animation can focus the audience on the slide.

You can also play videos that emphasise on your presentation objective.

# MS Excel

## Introduction

- **Microsoft Excel** (full name **Microsoft Office Excel**) is a spreadsheet-application written and distributed by Microsoft for Microsoft Windows and Mac OS X.
- It features calculation, graphing tools, pivot tables and a macro programming language called VBA (Visual Basic for Applications).
- It has been the most widely used spreadsheet application available for these platforms since version 5 in 1993.
- Excel is included as part of Microsoft Office.

A spreadsheet is a software tool that lets one enter, calculate, manipulate and analyse set of numbers.

**Worksheet** It is a grid of cells made up of horizontal rows and vertical columns. Worksheet contains 65,536 rows and 256 columns.

**Row Number** Each row is given a number that identifies it, starts from 1, 2, 3, 4, ... so on.

**Column Letter** Each column is given a letter that identifies it, starts from A ... Z, AA ... AZ, BA ... BZ, ... IA – IV.

**Cell** It is a basic unit of worksheet where numbers, text, formulas etc, can be placed.

**Cell Pointer** It is a cell-boundary that specifies which cell is active at that moment.

**Current Cell** It is a cell which is active.

**Range of Cell** It is a group of contiguous cells that forms a rectangular area in shape.

**Work Book** A worksheet is a grid of cells made up of rows and columns. Multiple worksheets can be combined under a file know as work book.

**Data in Worksheet** Three types of data can be entered, numbers/characters (012345678 + – (), 1 \$; %, E, e), text and formulas.

**Formula** It is a sequence of values, cell address, names functions or operators in a cell that produces a new value from existing values.

**Cell Referencing** Each cell in worksheet has a unique address, when cell address is referred in formulas, it is called cell referencing.

**Relative Referencing** Cell referencing in which the cells are referred by their relative position in the worksheet relative to a particular cell.

**Absolute Referencing** Cell referencing in which the cells are referred by their fixed position (absolute position) in the worksheet.

**Mixed Referencing** Combination of relative and absolute referencing is called mixed referencing.

**Functions** Functions are predefined formulas that perform calculations by using specific values, called arguments.

**Arguments** Arguments are the values passed to the functions, using which the function carries out some task.

It can be numbers, text, logical values, constants, formulas or other functions.

**Structure** The structure of a function begins with the function name, followed by an opening parenthesis, the arguments for the function separated by commas and a closing parenthesis.

**Charts** Charts/Graphs are the pictorial representation of worksheet data.

**Area Chart** An area chart emphasizes the magnitude of change over time.

**Column Chart** A column chart shows data-changes over a period of time or illustrates comparisons among item.

**Bar Chart** It illustrates comparisons among individual items. Categories are organized vertically and values horizontally.

**Line Chart** It shows trends in data at equal intervals. It is useful for depicting the change in a value over a period of time.

**Pie Chart** It shows the proportional size of items that make up a data series to the sum of the items.

**XY (Scatter) Chart** It shows the relationships among the numeric values in several data series or plots two groups of numbers as series of XY coordinates.

## Components of a Chart

**X-axis** This is a horizontal axis known as category axis.

**Y-axis** This is a vertical axis known as values axis.

**Data series** This is the set of values you want to plot in the chart.

**Chart area** This is the total region surrounding the chart.

**Plot area** The area where data is plotted. The plot area is bounded by axes in a 2D-chart whereas in 3D-chart it is bounded by walls and floor.

**Chart title** The descriptive text aimed at helping user identify the chart.

**Axis title** These are the titles given to three axis ie, X, Y, Z.

**Legend** The legend helps to identify various plotted data series.

**Gridlines** These are horizontal and vertical lines which inserted in the chart to enhance its readability.

**Data Label** It provides additional information about a data marker.

### New Excel 2007 Formats

Format	Extension	Description
Excel Workbook	.xlsx	The default Excel 2007 workbook format. In reality a ZIP compressed archive with a directory structure of XML text documents. Functions as the primary replacement for the former binary .xls format, although it does not support Excel macros for security reasons.
Excel Macro-enabled Workbook	.xlsm	As Excel Workbook, but with macro support.
Excel Binary Workbook	.xlsb	As Excel Macro-enabled Workbook, but storing information in binary form rather than XML documents for opening and saving documents more quickly and efficiently. Intended especially for very large documents with tens of thousands of rows, and/or several hundreds of columns.
Excel Macro-enabled Template	.xltm	A template document that forms a basis for actual workbooks, with macro support. The replacement for the old .xlt format.
Excel Add-in	.xlam	Excel add-in to add extra functionality and tools. Inherent macro support due to the file purpose.

## MS Access

### Introduction

- **Microsoft Office Access**, previously known as **Microsoft Access**, is a relational database management system from Microsoft that combines the relational Microsoft Jet Database Engine with a graphical user interface and software development tools.
- It is a member of the Microsoft Office suite of applications and is included in the professional and higher versions for Windows and also sold separately.
- There is no version for MacOS or for Microsoft Office Mobile.
- Access stores data in its own format based on the Access Jet Database Engine.
- It can also import or link directly to data stored in other Access databases, Excel, SharePoint lists, text, XML, Outlook, HTML, dBase, Paradox, Lotus 1-2-3, or any ODBC-compliant data container including Microsoft SQL Server, Oracle, MySQL and PostgreSQL. Software developers and data architects can use it to develop application software and non-programmer “power users” can use it to build simple applications.

- It supports some object-oriented techniques but falls short of being a fully object-oriented development tool.
- Microsoft Access is an RDBMS that enable to manage relational database in a windows environment.
- Access enables you to
  - create tables to organise data into manageable related units
  - enter, retrieve and modify data
  - extract information based on specific criteria
  - create forms to enter data
  - create reports

## Database Management System (DBMS)

- A database is a collection of data of a particular type.
- It is an organised collection of data viewed as a whole, instead of a group of separate unrelated files.
- Data in a database is stored in the form of tables.
- A table is a row and column arrangement of information.
- A DBMS is a collection of interrelated data and a set of programs to retrieve data from a database.

## Relational Database Management System (RDBMS)

- A RDBMS is a multi-table database where the tables in the database have to be related for storing or retrieving data.
- A RDBMS is used to create and maintain relational databases.

## Components of a Table

- Each table in a database has a unique name that identifies the contents of that table.
- A table is also called a relation.
- The table contains data organised under specific categories.
- Each such category is arranged vertically in a table and is called a column.
- Every column in a table has a unique name.
- A column can also be referred to as a field.
- Data organised horizontally is termed as a row.

## Types of Database Objects

TABLES	They store data in a row and column format similar to spreadsheets.
QUERIES	They enable you to view data from a table based on a specified criterion.
FORMS	They enable you to enter, view and modify in a table.
REPORTS	They enable you to generate reports based on tables and query results.
DATA ACCESS PAGES	They are web pages that enables you to view data from the Internet where the data is stored in an Access database.
MACROS	They are a series of commands and functions that can be executed whenever you need to perform a task.
MODULES	They are a set Visual Basic procedures and declarations stored as one unit.

## Data Type

A data type is used to store different types of values in a column in a table.

TEXT	It stores text or a combination of text and numbers.
MEMO	It stores large number of text and numeric characters.
NUMBER	It stores numeric data that is used for mathematical calculations.
DATE TIME	It stores date and time values.
CURRENCY	It stores currency values.
AUTO NUMBER	It enables the user to automatically insert numbers in a sequential or a random number.
YES/NO	It is used for fields that can contain YES/NO, TRUE/ FALSE and ON/OFF values.
OLE OBJECT	It enables to store object, like word documents, Excel spreadsheets, pictures or sounds.
HYPERLINK	It enables to store a hyperlink, like an e-mail address or a web site address.
LOOK UP WIZARD	It enables to select a field from another table.

# Internet and Networking

## Internet

- The Internet is a global network of interconnected network, enabling users to share information along multiple channels.
- 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.
- A majority of widely accessible information on the Internet consists of inter-linked hypertext documents and other resources of the World Wide Web (WWW).
- Computer users typically manage sent and received information with web browsers; other software for users' interface with computer networks includes specialised programs for electronic mail, online chat, file transfer and file sharing.
- The movement of information in the Internet is achieved via a system of interconnected computer networks that share data by packet switching using the standardised Internet Protocol Suite (TCP/IP).
- It is a "network of networks" that consists of millions of private and public, academic, business, and government networks of local to global scope that are linked by copper wires, fiber-optic cables, wireless connections, and other technologies.
- It is really a way for computers to communicate and share informations.
- It is a fast developing net and is of outmost importance for public sector undertakings, educational institutions, research organisations etc.

## Services of Internet

### E-mail

- The internet enables user to exchange data/information and communicate via electronic media.
- E-mail messages are usually encoded in American Standard Code for Information Interchange (ASCII) text.
- A popular protocol for sending e-mail is Simple Mail Transfer Protocol (SMTP) and for receiving it is POP3.

### Chat

- It is the exchange of typed message by netizens.
- It enables netizens to 'talk not vocal' by typing and sending the messages back and forth.
- It has two modes—computer to telephone and computer to computer.
- Internet Relay Chart (IRC) developed by Jarkko Oikarinen in 1998.

## Video Conferencing

- A service that allows a group of users to exchange video information over the internet.
- It include an audio teleconference facility.
- Each participant's computer must have a camera, microphone and earphones (or speaker).

## Important Terms of Internet

### TCP/IP (Transmission Control Protocol/Internet Protocol)

- This account is very useful in the sense that the members can have unlimited access.
- For membership of this account, UNIX operating system is needed which is loaded with TCP/IP software.
- In this account graphs, figures, games, movies are available.

### PPP (Point to Point Protocol)

- It is a dial account which puts your computer directly on the internet.
- The computer will have its own host name and IP address.
- A modem is required for such connection which transmit the data 9600 bits per second.

### WWW (World Wide Web)

- It described as Wide Area Hypermedia Information initiative which aims to provide universal access to a large universe of documents.
- Mosaic programs is used to search the web.
- The operations of the web makes use of hypertext.
- It provides an integrated view of the internet used by clients and servers.

### CNEB

- It is one of the services communicated via the Internet.
- It is a collection of inter connected documents and other resources, linked by hyperlinks and URLs.

### Gopher

- All the available resources on the internet are shown by the Gopher in the form of menus.
- The concept of Gopher is based on the clients and servers.

### WAIS

- It is known as Wide Area Information Server.
- It maintains separate index for the contents of some selected documents.
- By pressing the name, WAIS provides a list of documents available in that index with similar keywords.

### Mosaic

- It is a program to cruise the internet.
- It can eliminate the needs of separate internet programs.
- It make the Internet available for everyone.

### Archie

- It is a program which helps in looking for an information on the internet.
- It searches its database and informs about the files.
- It can be termed as global librarian which automatically reaches to whole of the internet services.

### Hypertext

- It is like a simple or regular text which can be written, edited and modified.
- Hypermedia is an advanced version of hypertext.
- It contains several links to text, sounds, images etc.

**Web Addresses (URLs)**

- URL stands for Uniform Resource Locator.
- A web address start with the name of a protocol, which is called a HTTP (Hypertext Transfer Protocol).
- HTTP means that the resource in question will be found on a web server.

**Networking**

- Network is wade of communication with computers.
- A network means a small group of ten-twelve personal computer or it may also 64000 different types of networks linked over INTERNET.
- The network of computers classify into LAN, MAN and WAN.

**Firewall**

- A firewall is a system or group of systems that enforces an access control policy between two networks.

**Local Area Network (LAN)**

- It is a system in which computers are inter-connected and the geographical spread may be within a building to 1 kilometre.
- A number of terminals can be used in the whole building at various places with sharing means.
- All the terminals are connected to a main computer called server.

**Types of LAN****Star LAN**

- A number of stations are connected to control station.
- The station passes information to the central station and then proceed it to the destination station.
- If one node of the network fails, it does not affect the connectivity.

**Ring LAN**

- Stations are connected by cables using point-to-point link.
- Network access is not under control of central station. Each station can pass data to its adjacent node.
- Data travels through each node so failure in a single node cause failure of network.

**Bus LAN**

- There is no repeater.
- Stations are common and single communication line.
- Data is sent in packets and related station picked up by it.
- Any fault diagnosis is difficult.

**Wide Area Network (WAN)**

- Network spread across countries.
- The network that brought the world on single platform.
- Usually use mainframe oriented systems.
- Use transmission channels such as co-axial cable or microwave.

## Types of WAN

### Public Networks

- These networks are owned and run by Telecommunication Authorities.
- These are made available to an individual subscriber or an organisation, *ie*, PSTN, PSDN, VAN, ISDN.

### Public Switched Telephone Networks (PSTN)

- It is designed for telephone, which requires modem for data communication.
- It is used for FAX machine also.
- Its features—low speed transmission, analog transmission, less bond width, easy access, cover almost every place.

### Public Service Digital Network (PSDN)

- It is popular mode for connecting public and private mail system to have electronic mail services with other firms.
- Its features—high reliable, high quality communication, cost effective usage.

### Value Added Network (VAN)

- It provides Electronic Data Interchange (EDI) facility.
- The owner rent out the network to subscribers.
- Exchange of information like invoices, sale-purchase order, etc, is done.

### Integrated Services Digital Network (ISDN)

- It is used for voice, video and data services.
- It uses digital transmission.
- It combines both circuit and packet switching.

### Private Network

- It provides services at various locations using private or leased circuits by using technology of its choice.
- It is mostly used to carry large volume of data at very high speed transmission.
- It uses Modem's multiplexes and other communication devices.

## Metropolitan Area Network (MAN)

- This type of network is spread over a city.
- Its main purpose is to share hardware and software resources by the various users.
- Its example is cable TV network.