

**STUDY MATERIAL**

**FOR**

**COMPUTER**

**APPLICATION**

**(PAPER - 2)**

### **INTRODUCTION**

A computer is a programmable machine that receives input, stores and automatically manipulates data, and provides output in a useful format. The first electronic computers were developed in the mid-20th century (1940–1945). Originally, they were the size of a large room, consuming as much power as several hundred modern personal computers (PCs). Technically, a computer is a programmable machine. This means it can execute a programmed list of instructions and respond to new instructions that it is given. Classification of computers:

Computers are classified according to their data processing speed, amount of data that they can hold and price. Depending upon their speed and memory size, computers are classified into following four main groups.

1. Supercomputer.
2. Mainframe computer.
3. Minicomputer.
4. Microcomputer.

#### **1. Supercomputer**

Supercomputer is the most powerful and fastest, and also very expensive. It was developed in 1980s. It can process trillions of instructions in seconds. Governments specially use this type of computer for their different calculations and heavy jobs. Different industries also use this huge computer for designing their products.

#### **2. Mainframe Computers**

Mainframe computers are also large-scale computers but supercomputers are larger than mainframe. These are also very expensive. The mainframe computer specially requires a very large clean room with air-conditioner. This makes it very expensive to buy and operate.

#### **3. Minicomputers**

These are smaller in size, have lower processing speed and also have lower cost than mainframe. These computers are known as minicomputers because of their small size as compared to other computers at that time. The capabilities of a minicomputer are between mainframe and personal computer. These computers are also known as midrange computers.

#### **4. Microcomputer**

The microcomputers are also known as personal computers or simply PCs. Microprocessor is used in this type of computer. These are very small in size and cost. The IBM's first microcomputer was designed in 1981 and was named as IBM-PC. After this many computer hardware companies copied the design of IBM-PC. The term "PC-compatible" refers any personal computer based on the original IBM personal computer design.

#### **Computer memory:**

Computer memory refers to the physical devices used to store data or programs (sequences of instructions) on a temporary or permanent basis for use in an electronic digital computer.

### **Types of memory:**

- 1) Primary memory
- 2) Secondary memory

1) Primary memory: It is directly accessible by the CPU. The primary memory is of two types such as

- a) ROM memory
- b) Read /Write memory

2) Secondary memory: The maximum capacity of primary memory is limited. So to handle more data than allowed by primary memory, secondary memory is used. And it is non-volatile i.e. data is not lost due to current failure. Magnetic tape, Floppy disk and Hard disk are some examples of secondary memory.

### **Software:**

A set of instructions (in machine code) given to the computer to solve user problems and to control different operations of the computer is known as computer software. The software is developed in programming languages. The Computer software is classified into two main categories:

1. Application software.
2. System software.

#### **1. Application Software**

A set of programs used to solve particular problems of user through computer is called Application software. It is also known as application package. Some of application packages are:

- Word processing software.
- Spreadsheet software.
- Database Management System software.
- Graphics software.
- Communication software.

#### **2. System Software**

System software is a set of programs that control the operations of a computer and devices attached with the computer. It creates links between user and computer as well as controls the execution of application programs. The examples of system software are:

- Operating systems.
- Utility programs.
- Device Drivers.
- Language Processors.

### **Operating system:**

An operating system (OS) is software, consisting of programs and data that runs on computers and manages computer hardware resources and provides common services for efficient execution of various application software.

### **Types of operating systems:**

**Real-time Operating System:** It is a multitasking operating system that aims at executing real-time applications. The main object of real-time operating systems is their quick and predictable response to events.

**Multi-user and Single-user Operating Systems:** The operating systems of this type allow a multiple users to access a computer system concurrently. Time-sharing system can be classified as multi-user systems as they enable a multiple user access to a computer through the sharing of time. Single-user operating systems, as opposed to a multi-user operating system, are usable by a single user at a time.

**Multi-tasking and Single-tasking Operating Systems:** When a single program is allowed to run at a time, the system is grouped under a single-tasking system, while in case the operating system allows the execution of multiple tasks at one time, it is classified as a multi-tasking operating system.

**Distributed Operating System:** An operating system that manages a group of independent computers and makes them appear to be a single computer is known as a distributed operating system. The development of networked computers that could be linked and communicate with each other, gave rise to distributed computing.

**Embedded System:** The operating systems designed for being used in embedded computer systems are known as embedded operating systems. They are designed to operate on small machines like PDAs with less autonomy.

### **Application of computer for business and research**

Computers can be used in business from the stage of manufacturing till the stage of its sale. We can't think of a business without a computer. Business is all around of computers. A manager's work is depends on computer scheduling controlling communication managing data and all the information about company and competitors.

With the development of science and technology, the demands on the performance of mechanical products are higher and the machines are more complex than ever. The computer plays an important role in the research and development of these complex mechanical systems. Modeling, analysis, design, simulation and control are all related to computer applications. At present, the computer has been widely used in all kinds of fields, from machinery, vehicles, aviation, astronautics, and the military to textiles, medical devices, etc.

### **Data communication and networks**

#### **Data communication concepts:**

Data Communications is the transfer of data or information between a source and a receiver. The source transmits the data and the receiver receives it. The actual generation of the information is not part of Data Communications nor is the resulting action of the information at the receiver. Data Communication is interested in the transfer of data, the method of transfer and the preservation of the data during the transfer process.

The purpose of Data Communications is to provide the rules and regulations that allow computers with different disk operating systems, languages, cabling and locations to share resources. The rules and regulations are called protocols and standards in Data Communications.

#### **Local area network:**

A local area network (LAN) supplies networking capability to a group of computers in close proximity to each other such as in an office building, a school, or a home. A LAN is useful for sharing resources like files, printers, games or other applications. A LAN in turn often connects to other LANs, and to the Internet or other WAN. Major local area network technologies are:

Ethernet

Token Ring FDDI

#### **Examples:**

The most common type of local area network is an Ethernet LAN. The smallest home LAN can have exactly two computers; a large LAN can accommodate many thousands of computers. Many LANs are divided into logical groups called subnets. An Internet Protocol (IP) "Class A" LAN can in theory accommodate more than 16 million devices organized into subnets.

#### **Wide area network:**

A WAN spans a large geographic area, such as a state, province or country. WANs often connect multiple smaller networks, such as local area networks (LANs) or metro area networks (MANs). The world's most popular WAN is the Internet. Some segments of the Internet, like VPN-based extranets, are also WANs in themselves. Finally, many WANs are corporate or research networks that utilize leased lines. WANs generally utilize different and much more expensive networking equipment than do LANs. Key technologies often found in WANs include SONET, Frame Relay, and ATM.

#### **Internet:**

The Internet is a global system of interconnected computer networks that use the standard Internet Protocol Suite (TCP/IP) to serve billions of users worldwide. It is a network of networks that consists of millions of private, public, academic, business, and government networks, of local to global scope, that are linked by a broad array of electronic, wireless and optical networking technologies. The Internet carries a vast range of information resources and services, such as the inter-linked hypertext documents of the World Wide Web (WWW) and the

infrastructure to support electronic mail. The terms Internet and World Wide Web are often used in everyday speech without much distinction. However, the Internet and the World Wide Web are not one and the same. The Internet is a global data communications system. It is a hardware and software infrastructure that provides connectivity between computers. In contrast, the Web is one of the services communicated via the Internet. It is a collection of interconnected documents and other resources, linked by hyperlinks and URLs.

### **History of Internet:**

The History of the Internet has precursors that date back to the 19th century, especially the telegraph system, more than a century before the digital Internet became widely used in the second half of the 1990s. The concept of data communication - transmitting data between two different places, connected via some kind of electromagnetic medium, such as radio or an electrical wire –actually predates the introduction of first computers. Such communication systems were typically limited to point to point communication between two end devices. Telegraph systems and telex machines can be considered early precursors of this kind of communication. The earlier computers used the technology available at the time to allow communication between the central processing unit and remote terminals. As the technology evolved new systems were devised to allow communication over longer distances (for terminals) or with higher speed (for interconnection of local devices) that were necessary for the mainframe computer model. Using these technologies it was possible to exchange data (such as files) between remote computers. However, the point to point communication model was limited, as it did not allow for direct communication between any two arbitrary systems; a physical link was necessary. The technology was also deemed as inherently unsafe for strategic and military use, because there were no alternative paths for the communication in case of an enemy attack.

### **Intranet:**

An intranet is a private computer network that uses Internet Protocol technology to securely share any part of an organization's information or network operating system within that organization. The term is used in contrast to internet, a network between organizations, and instead refers to a network within an organization. Sometimes the term refers only to the organization's internal website, but may be a more extensive part of the organization's information technology infrastructure. It may host multiple private websites and constitute an important component and focal point of internal communication and collaboration.

### **Characteristics:**

An intranet is built from the same concepts and technology used for the Internet, such as client-server computing and the Internet Protocol Suite (TCP/IP). Any of the well-known Internet protocols may be found in an intranet, such as HTTP (web services), SMTP (e-mail), and FTP (file transfer protocol). Internet technologies are often deployed to provide modern interfaces to legacy information systems hosting corporate data.

An intranet can be understood as a private analog of the Internet, or as a private extension of the Internet confined to an organization. The first intranet websites and home pages began to appear in organizations in 1996-1997. Although not officially noted, the term intranet first became common-place among early adopters, such as universities and technology corporations, in 1992.

### **Benefits:**

**Workforce productivity:** Intranets can help users to locate and view information faster and use applications relevant to their roles and responsibilities. With the help of a web browser interface, users can access data held in any database the organization wants to make available, anytime and - subject to security provisions - from anywhere within the company workstations, increasing employees' ability to perform their jobs faster, more accurately, and with confidence that they have the right information. It also helps to improve the services provided to the users.

**Time:** Intranets allow organizations to distribute information to employees on an as-needed basis; Employees may link to relevant information at their convenience, rather than being distracted indiscriminately by electronic mail.

**Communication:** Intranets can serve as powerful tools for communication within an organization, vertically and horizontally. From a communications standpoint, intranets are useful to communicate strategic initiatives that have a global reach throughout the organization. The type of information that can easily be conveyed is the purpose of the initiative and what the initiative is aiming to achieve, who is driving the initiative, results achieved to date, and who to speak to for more information. By providing this information on the intranet, staff has the opportunity to keep up-to-date with the strategic focus of the organization. Some examples of communication would be chat, email, and or blogs. A great real world example of where an intranet helped a company communicate is when Nestle had a number of food processing plants in Scandinavia.

**Web publishing** allows cumbersome corporate knowledge to be maintained and easily accessed throughout the company using hypermedia and Web technologies. Examples include: employee manuals, benefits documents, company policies, business standards, newsfeeds, and even training, can be accessed using common Internet standards (Acrobat files, Flash files, CGI applications). Because each business unit can update the online copy of a document, the most recent version is usually available to employees using the intranet.

**Business operations and management:** Intranets are also being used as a platform for developing and deploying applications to support business operations and decisions across the internetworked enterprise.

**Cost-effective:** Users can view information and data via web-browser rather than maintaining physical documents such as procedure manuals, internal phone list and requisition forms. This can potentially save the business money on printing, duplicating documents, and the environment as well as document maintenance overhead.

**Enhance collaboration:** Information is easily accessible by all authorized users, which enables teamwork.

Cross-platform capability: Standards-compliant web browsers are available for Windows, Mac, and UNIX.

**Built for one audience:** Many companies dictate computer specifications which, in turn, may allow Intranet developers to write applications that only have to work on one browser (no cross-browser compatibility issues). Being able to specifically address your "viewer" is a great advantage. Since Intranets are user-specific (requiring database/network authentication prior to access), you know exactly who you are interfacing with and can personalize your Intranet based on role (job title, department) or individual ("Congratulations Jane, on your 3rd year with our company!").

Promote common corporate culture: Every user has the ability to view the same information within the Intranet.

Immediate updates: When dealing with the public in any capacity, laws, specifications, and parameters can change. Intranets make it possible to provide your audience with "live" changes so they are kept up-to-date, which can limit a company's liability.

Supports a distributed computing architecture: The intranet can also be linked to a company's management information system, for example a time keeping system.

### **Extranet:**

An extranet is a computer network that allows controlled access from the outside, for specific business or educational purposes. An extranet can be viewed as an extension of a company's intranet that is extended to users outside the company, usually partners, vendors, and suppliers. It has also been described as a "state of mind" in which the Internet is perceived as a way to do business with a selected set of other companies (business-to-business, B2B), in isolation from all other Internet users. In contrast, business-to-consumer (B2C) models involve known servers of one or more companies, communicating with previously unknown consumer users. An extranet is like a DMZ in that it provides access to needed services for channel partners, without granting access to an organization's entire network.

### **Advantages:**

Exchange large volumes of data using Electronic data Interchange (EDI) Share product catalogs exclusively with trade partners 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

### **Disadvantages:**

Extranets can be expensive to implement and maintain within an organization (e.g., hardware, software, employee training costs), if hosted internally rather than by an application service provider.

Security of extranets can be a concern when hosting valuable or proprietary information.

### **Website:**

A website (also written Web site or simply site) is a collection of related web pages containing images, videos or other digital assets. A website is hosted on at least one web server, accessible via a network such as the Internet or a private local area network through an Internet address also called URL. A web page is a document, typically written in plain text interspersed with formatting instructions of Hypertext Markup Language (HTML, XHTML). A web page may incorporate elements from other websites with suitable markup anchors. Web pages are accessed and transported with the Hypertext Transfer Protocol (HTTP), which may optionally employ encryption (HTTP Secure, HTTPS) to provide security and privacy for the user of the web page content. The user's application, often a web browser, renders the page content according to its HTML markup instructions onto a display terminal.

All publicly accessible websites collectively constitute the World Wide Web. The pages of a website can usually be accessed from a simple Uniform Resource Locator (URL) called the homepage. The URLs of the pages organize them into a hierarchy, although hyper linking between them conveys the reader's perceived site structure and guides the reader's navigation of the site. Some websites require a subscription to access some or all of their content. Examples of subscription websites include many business sites, parts of news websites, academic journal websites, gaming websites, message boards, web-based e-mail, social networking websites, websites providing real-time stock market data, and websites providing various other services (e.g. websites offering storing and/or sharing of images, files and so forth).

### **History:**

The World Wide Web (WWW) was created in 1989 by CERN physicist Tim Berners-Lee on 30 April 1993, CERN announced that the World Wide Web would be free to use for anyone.[4] Before the introduction of HTML and HTTP, other protocols such as file transfer protocol and the gopher protocol were used to retrieve individual files from a server. These protocols offer a simple directory structure which the user navigates and chooses files to download. Documents were most often presented as plain text files without formatting, or were encoded in word processor formats.

### **Static Website**

A static website is one that has web pages stored on the server in the format that is sent to a client web browser. It is primarily coded in Hypertext markup language (HTML).

Simple forms or marketing examples of websites, such as classic website, a five-page website or a brochure website are often static websites, because they present pre-defined, static information to the user. This may include information about a company and its products and services via text, photos, animations, audio/video and interactive menus and navigation.

### **Dynamic website:**

A dynamic website is one that changes or customizes itself frequently and automatically, based on certain criteria. Dynamic websites can have two types of dynamic activity: Code and Content. Dynamic code is invisible or behind the scenes and dynamic content is visible or fully displayed.

### **Email:**

Electronic mail, commonly called email, e-mail, is a method of exchanging digital messages from an author to one or more recipients. Modern email operates across the Internet or other computer networks. Some early email systems required that the author and the recipient both be online at the same time, is called instant messaging. Today's email systems are based on a store and forward model. Email servers accept, forward, deliver and store messages. Neither the users nor their computers are required to be online simultaneously; they need connect only briefly, typically to an email server, for as long as it takes to send or receive messages.

An email message consists of three components, the message envelope, the message header, and the message body. The message header contains control information, including, minimally, an originator's email address and one or more recipient addresses. Usually descriptive information is also added, such as a subject header field and a message submission date/time stamp.

### **Web Search Engine:**

A web search engine is designed to search for information on the World Wide Web and FTP servers. The search results are generally presented in a list of results and are often called *hits*. The information may consist of Web pages, images, information and other types of files. Some search engines also mine data available in databases or open directories. Unlike web directories, which are maintained by human editors, search engines operate algorithmically or are a mixture of algorithmic and human input.

A search engine operates, in the following order

- Web crawling
- Indexing
- Searching

Web search engines work by storing information about many web pages, which they retrieve from the html itself. These pages are retrieved by a Web Crawler (sometimes also known as a spider) — an automated Web browser which follows every link on the site. Exclusions can be made by the use of robots.txt. The contents of each page are then analyzed to determine how it should be indexed (for example, words are extracted from the titles, headings, or special fields called meta tags). Data about web pages are stored in an index database for use in later queries. A query can be a single word. The purpose of an index is to allow information to be found as quickly as possible. Some search engines, such as Google, store all or part of the source page (referred to as a cache) as well as information about the web pages, whereas others, such as AltaVista, store every word of every page they find. This cached page always holds the actual search text since it is the one that was actually indexed, so it can be very useful when the content of the current page has been updated and the search terms are no longer in it. This problem might be considered to be a mild form of link rot, and Google's handling of it increases usability by satisfying user expectations that the search terms will be on the returned webpage. This satisfies the principle of least astonishment since the user normally expects the search terms to be on the

returned pages. Increased search relevance makes these cached pages very useful, even beyond the fact that they may contain data that may no longer be available elsewhere.

When a user enters a query into a search engine (typically by using key words), the engine examines its index and provides a listing of best-matching web pages according to its criteria, usually with a short summary containing the document's title and sometimes parts of the text. The index is built from the information stored with the data and the method by which the information is indexed. Unfortunately, there are currently no known public search engines that allow documents to be searched by date. Most search engines support the use of the Boolean operators AND, OR and NOT to further specify the search query. Boolean operators are for literal searches that allow the user to refine and extend the terms of the search. The engine looks for the words or phrases exactly as entered. Some search engines provide an advanced feature called proximity search which allows users to define the distance between keywords. There is also concept-based searching where the research involves using statistical analysis on pages containing the words or phrases you search for. As well, natural language queries allow the user to type a question in the same form one would ask it to a human. A site like this would be ask.com.

### **General Search Engine**

Google  
Yahoo  
Bing (formerly MSN Search and Live Search)  
Blekko  
Duck Duck Go  
Kosmix  
Yebol

### **E-communication:**

Electronic communications adds a powerful new channel that not only will change how you use this mix of options, but it will create entirely new ways to interact. For example: Electronic communications lets you combine numerous media - text, graphics sound, video, etc. - into a single message. That can result in far more meaningful communications tailored to the nature of your particular audience. In contrast to broadcasting, narrowcasting reflects the ability to develop numerous communications for subsets of your market or constituencies.

Electronic communications is interactive. It engages audiences in active, two-way communications. That requires a new way of thinking about advertising copy and the handling of public relations. The pay-off, however, is a self-selected audience, engaged and actively participating in the communications process.

Two-way communication is nothing new. But electronic communications creates a new form of many-to-many communications that lets geographically distributed groups communicate interactively and simultaneously through text, sound and video. You can hold inexpensive video conferences or press conferences from your desk, or conference with people at several desks

located across the world. One of the burgeoning phenomena of the Internet is businesses and organizations sponsoring, supporting and moderating discussion groups about issues, products, strategies - anything of interest to the organization and its constituents. Sponsorships are also solicited for popular resources, such as indexes and other Internet search tools, and these provide a further communications and marketing opportunity.

Many organizations are using electronic communications facilities, such as the World Wide Web, as internal communications tools to enhance team work. Many individuals at different locations can work on the same documents, hold meetings and integrate research findings.

Electronic communications removes the power of communications gatekeepers to both positive and negative effects. Most organizations are used to controlling the messages that go out to its constituents through managers, spokespeople and others. But with the Internet, constituents begin to talk among themselves, requiring new approaches and a new emphasis on listening and reacting, not just talking.

With the Internet you have the ability to transmit and receive large amounts of information quickly to and from individuals and workgroups around the world. These changes the way activists, for example, can galvanize communities, inform legislators and change public opinion. It changes the sources and depth of your constituents' knowledge levels. It also lets those constituents reach you with new kinds of communications they may never have attempted before.

### **E-Collaboration:**

#### **Definition:**

working together using electronic means: collaboration among people or organizations made possible by means of electronic technologies such as the Internet, video conferencing, and wireless devices

E-collaboration goes beyond ordinary buying and selling activities. It includes information sharing and integration, decision-making, as well as process and resource allocation among people and organizations via the Internet, e-mail, web, video, and wireless devices to achieve optimal productivity and high performance. It promotes international commerce, expands trade, and facilitates financial transactions through electronic media. Even though paper transactions are now a thing of the past, most legal documents, attestations, and affidavits are still done in paper form. This paper summarizes issues involved in e-collaboration with regard to trade such as time, currency, e-transactions, tracking, security, fault tolerance, and process models. Finding effective solutions for these problems as well as identifying opportunities and challenges provides a pivotal task in facilitating, promoting, and expanding international and local trade as this summary entails.

### **Ms-Office and its application:**

#### **FILE HANDLING**

Windows being a GUI, gives better flexibility and easier to use for file management. Using the File Manager feature of Windows, one can easily copy, move, delete, rename files and also create and remove directory. This avoids the painful task of remembering all the file management DOS commands.

Windows can run two types of applications, standard DOS based applications and Windows based applications. DOS based applications are standard DOS programs such as WordStar, dBase etc. developed to run in DOS environment, and not specifically meant for windows. Whereas a windows application is specifically developed to run under Windows environment which support GUI.

#### **OBJECTIVES**

At the end of this lesson you would be able to appreciate the GUI feature of windows understand the file and directory handling in windows use file manager for file handling in windows sort file using file size, name, type search and locate file(s) do file copy, move from floppy disk to hard disk drive and vice versa.

### **Microsoft Office:**

#### **Microsoft Windows versions**

The Microsoft Office for Windows started in October 1990 as a bundle of three applications designed for Microsoft Windows 3.0: Microsoft Word for Windows 1.1, Microsoft Excel for Windows 2.0, and Microsoft PowerPoint for Windows 2.0. The Microsoft Office for Windows 1.5 updated the suite with Microsoft Excel 3.0.

The Microsoft Office for Windows 1.6 added Microsoft Mail for PC Networks 2.1 to the bundle. The Microsoft Office for Windows 3.0 released in August 1992, contained Word 2.0, Excel 4.0, PowerPoint 3.0 and Mail 3.0. It was the first version of Office to be also released on CD-ROM. In 1993, The Microsoft Office Professional was released, which added Microsoft Access 1.1. In 1994, Microsoft Office 4.0 was released containing Word 6.0, Excel 4.0, PowerPoint 3.0 and Mail. Word was called Word 6.0 as there were already Macintosh versions of Word 3, 4 and 5 (Excel and PowerPoint were already numbered the same as the Macintosh versions).

Microsoft Office 4.2 for Windows NT was released in 1994 for i386, Alpha, MIPS and PowerPC architectures, containing Word 6.0 and Excel 5.0 (both 32-bit PowerPoint 4.0 (16-bit), and Microsoft Office Manager 4.2 (the precursor to the Office Shortcut Bar).

Microsoft Office 4.3 was released as the last 16-bit version, containing Word 6.0, Excel 5.0, and PowerPoint 4.0. Office 4.3 (plus Access 2.0 in the Pro version) is the last version to support Windows 3.x, Windows NT 3.1 and Windows NT 3.5. Windows NT 3.51 was supported up to and including Office 97.

Microsoft Office 95 was released in August 1995. Again, the version numbers were altered to create parity across the suite — every program was called version 7.0 meaning all but Word missed out versions. It was designed as a fully 32-bit version to match Windows 95. Office 95 was available in two versions, Office 95 Standard and Office 95 Professional. The standard version consisted of Word 7.0, Excel 7.0, PowerPoint 7.0, and Schedule+ 7.0. The professional edition contained all of the items in the standard version plus Access 7.0. If the professional version was purchased in CD-ROM form, it also included Bookshelf.

Microsoft Office 97 (Office 8.0), a major milestone release which included hundreds of new features and improvements, introduced command bars, a paradigm in which menus and toolbars were made more similar in capability and visual design. Office 97 also featured Natural Language Systems and grammar checking. Office 97 was the first version of Office to include the Office Assistant.

Microsoft Office 2000 (Office 9.0) introduced adaptive menus, where little-used options were hidden from the user. It also introduced a new security feature, built around digital signatures, to diminish the threat of macro viruses. Office 2000 automatically trusts macros (written in VBA 6) that were digitally signed from authors who have been previously designated as trusted. Office 2000 is the last version to support Windows 95.

Microsoft Office XP (Office 10.0 or Office 2002) was released in conjunction with Windows XP, and was a major upgrade with numerous enhancements and changes over Office 2000. Office XP introduced the Safe Mode feature, which allows applications such as Outlook to boot when it might otherwise fail. Safe Mode enables Office to detect and either repair or bypass the source of the problem, such as a corrupted registry or a faulty add-in. Smart tag is a technology introduced with Office XP. Some smart tags operate based on user activity, such as helping with typing errors. These smart tags are supplied with the products, and are not programmable. For developers, though, there is the ability to create custom smart tags. In Office XP, custom smart tags could work only in Word and Excel. Microsoft Office XP includes integrated voice command and text dictation capabilities, as well as handwriting recognition. Office XP is the last version to support Windows 98, ME and NT 4.0. It was the first version to require Product Activation as an anti-piracy measure, which attracted widespread controversy.

Microsoft Office 2003 (Office 11.0) was released in 2003. It featured a new logo. Two new applications made their debut in Office 2003: Microsoft InfoPath and OneNote. It is the first version to use Windows XP style icons. Outlook 2003 provides improved functionality in many areas, including Kerberos authentication, RPC over HTTP, Cached Exchange Mode, and an improved junk mail filter. 2003 is the last Office version to support Windows 2000.

Microsoft Office 2007 (Office 12.0) was released in 2007. Office 2007's new features include a new graphical user interface called the Fluent User Interface, replacing the menus and toolbars that have been the cornerstone of Office since its inception with a tabbed toolbar, known as the Ribbon; new XML-based file formats called Office Open XML; and the inclusion of Groove, a collaborative software application.

Microsoft Office 2010 (Office 14.0) was finalized on April 15, 2010, and was made available to consumers on June 15, 2010. Office 2010 was given the version number 14.0, to avoid the version number 13.0 due to superstition relating to the number thirteen. The main features of Office 2010 include the backstage file menu, new collaboration tools, a customizable ribbon, protected view and a navigation pane. Microsoft Office 2010 also features a new logo, which is similar to the 2007 logo, except in gold, and with a slightly modified shape.

Microsoft Office 15 will be released most likely in 2013.

### **WORD PROCESSING:**

Word processing is the way of producing documents in effective manner. A word processor enables you to create a document, store it electronically on a disk, display it on a screen, modify it by entering commands and characters from the keyboards, and print it on printer.

The great advantage of word processing over a typewriter is that you can make changes without retyping the entire document. If you make a typing mistake, you can simply move back the cursor and correct your mistake. Word processor makes it easy to move sections of text from one place to another within a document or between documents.

A word processor is Application software for Word processing. The various Word processing packages that are being used are Word Perfect, MS Word, and Word Star etc.

### **What is MS-WORD?**

It is a window based Electronic word processing application software. Along with the features common to other word processor, it is equipped with other powerful features such as:-  
Wide-ranging Formatting features.

Facility to insert various types of Graphics.

Document templates.

Web page designing.

On-Line Help.

### **Starting MS-WORD:**

Microsoft word can be started in many ways-

Start → All Programs → Microsoft Office → Microsoft Office Word

Select *RUN* command from Start Button → All Programs → Accessories and type the executable file of word i.e. "winword" and press "ok". Word window opens up with a new, untitled word document.

### **The Contents of Ms-Word Window:**

Microsoft Office Button

Quick Access Toolbar

Title bar

Ribbon

Tabs  
Ruler Bar  
Scroll Bar  
Document Navigator  
Document window  
Status Bar  
View Buttons  
Zoom

### **Formatting:**

The term formatting refers to the changes you make in your document's appearance. Formatting is an important part of the documentation. There are three types of formatting in MS-Word:

Character formatting (Applicable on selected text)  
Paragraph formatting (Applicable on entire paragraph)  
Page formatting (Applicable on entire page)

**Character formatting:** The term character formatting to the attribute that is applicable to individual character in the document. However, it can be applied to anything from single character to the entire document; which includes changing style, size, color and different effects. Most of the character formatting commands are as follows:

### **Change font type face and size:**

A font is a set of letters and symbols that have a particular design and style. Font dialog box can be opened by clicking the Arrow on the Font group of Home tab. Any necessary change can be selected in this dialog box.

### **Font styles and effects:**

Font styles are predefined formatting options that are used to emphasize text. They include: Bold, Italic and Underline.

**Paragraph Formatting:** When you type information into Microsoft Word, each time you press the Enter keyword creates a new paragraph. With Paragraph formatting you can set number of parameters that influences how your paragraph in MS Word look like, E.g.,

Alignment  
Tabs  
Indents  
Line spacing

When you are formatting a paragraph, you do not need to select the entire paragraph. Placing the cursor anywhere in the paragraph enables you to format it. After you format a paragraph, pressing the Enter key creates a new paragraph in the same format.

**Page Formatting:** When you begin a new document, Word uses default setting for Page Size, Orientation, Margins, Page Numbers and other options. We can change these setting as per requirement.

**Mail Merge:** Mail merge is a software function describing the production of multiple (and potentially large numbers of) documents from a single template form and a structured data source.

Mail Merge Step by Step Instructions for the PC

1. Open Microsoft Word 2007.
2. On the Mailings tab, click Start Mail Merge, and then click Step by Step Mail Merge Wizard.

Select document type In the Mail Merge task pane, click Letters. This will allow you to send letters to a group of people and personalize the results of the letter that each person receives.

Click Next: Starting document.

Select the starting document

Click one of the following options:

Use the current document: Use the currently open document as your main document.

Start from a template: Select one of the ready-to-use mail merge templates.

Start from existing document: Open an existing document to use as your mail merge main document. In the Mail Merge task pane, click next: Select recipients. Select recipients when you open or create a data source by using the Mail Merge Wizard, you are telling Word to use a specific set of variable information for your merge. Use one of the following methods to attach the main document to the data source.

**Method 1:** Use an existing data source

To use an existing data source, follow these steps:

In the Mail Merge task pane, click Use an existing list.

In the Use an existing list section, click Browse.

In the Select Data Source dialog box, select the file that contains the variable information that you want to use, and then click Open.

Note If the data source is not listed in the list of files, select the appropriate drive and folder. If necessary, select the appropriate option in the All Data Sources list. Select the file, and then click Open.

Word displays the Mail Merge Recipients dialog box. You can sort and edit your data if you want to.

Click OK to return to the main document.

Save the main document. When you save the main document at this point, you are also saving the data source and attaching the data source to the main document.

Type the name that you want to give to your main document, and then click Save.

**Method 2:** Use names from a Microsoft Outlook Contacts List

To use an Outlook Contact List, follow these steps:

In the Mail Merge task pane, click Next: Select recipients.

Click Select from Outlook contacts.

In the Select from Outlook contacts section, click Choose Contacts Folder.

In the Select Contact List Folder dialog box, select the Outlook contacts folder that you want, and then click OK.

Word displays the Mail Merge Recipients dialog box. You can sort and edit your data if you want.

Click OK to return to the main document.

**Method 3:** Create a database of names and addresses

To create a new database, follow these steps:

In the Mail Merge task pane, click next: Select Recipients.

Click Type a new list.

Click Create.

The New Address List dialog box appears. In this dialog box, enter the address information for each record. If there is no information for a particular field, leave the box blank.

By default, Word skips blank fields. Therefore, the merge is not affected if blank entries are in the data form. The set of information in each form makes up one data record. After you type the information for a record, click New Entry to move to the next record. To delete a record, click Delete Entry. To search for a specific record, click Find Entry. To customize your list, click Customize. In the Customize Address List dialog box, you can add, delete, rename, and reorder the merge fields. In the New Address List dialog box, click OK. In the Save Address List dialog box, type the name that you want to give to your data source in the File name box, and then click Save. In the Mail Merge Recipients dialog box, make any changes that you want, and then click OK. Click Next: Write your letter to finish setting up your letter. Save the main document. When you save the main document at this point, you are also saving the data source and attaching the data source to the main document. Type the name that you want to give to your main document, and then click Save. To proceed to the next step, click next: Write your letter.

Write your letter In this step, you set up your main document.

Type or add any text and graphics that you want to include in your letter.

Add the field codes where you want the variable information to appear. In the Mail Merge task pane, you have four options:

**Address block:** Use this option to insert a formatted address.

**Greeting line:** Use this option to insert a formatted salutation.

**Electronic postage:** Use this option to insert electronic postage.

**Note:** This option requires that you have a postage software program installed on your computer.

**More items:** Use this option to insert individual merge fields. When you click More Items, the Insert Merge Field dialog box appears.

Note make sure that your cursor is where you want to insert the information from your data source before you click More Items.

In the Insert Merge Field dialog box, click the merge field that you want to use, and then click Insert.

Note You can insert all of your fields and then go back and add any spaces or punctuation. Alternatively, you can insert one field at a time, close the Insert Merge Fields dialog box, add any spaces or punctuation that you want, and then repeat this step for each additional merge field that you want to insert. You can also format (apply bold or italic formatting to) the merge fields, just like regular text.

When you finish editing the main document, click Save or Save As on the File menu. Note In Word 2007, click the Microsoft Office Button, and then click Save or Save As. Name the file, and then click Save. To proceed to the next step, click Next: Preview your letters.

### **Preview your letters:**

This step allows you to preview your merged data, one letter at a time. You can also make changes to your recipient list or personalize individual letters.

To proceed to the next step, click next: Complete the merge.

### **Complete the merge:**

This step merges the variable information with the form letter. You can output the merge result by using either of the following options:

**Print:** Select this option to send the merged document directly to the printer. You will not be able to view the document on your screen.

When you click Print, the Merge to Printer dialog box appears. In the Merge to Printer dialog box, you can choose which records to merge. When you click OK, the Print dialog box appears. Click Print to print the merge document.

**Edit individual letters:** Select this option to display the merged document on your screen.

When you click Edit individual letters, the Merge to New Document dialog box appears. In the Merge to New Document dialog box, you can choose which records to merge. When you click OK, the documents are merged to a new Word document.

### **Macros in Ms-Word 2007:**

Macros can be used to automate repetitive tasks to save you time and effort. For example, you may have jumped to the bottom of a document and inserted a picture of your cat before saving the document. If you find that you have several more documents that you want to apply this change to, you may find it a great time saver to create a macro to perform these actions automatically.

Creating a macro involves recording your keystrokes so that they can be played over later again and again. When you're at the point where you can begin recording your actions, go to the View Tab > Macros > Record Macro. You should give the macro a meaningful name so that you can easily identify it later. The two buttons you see in the *Record Macro* window (see Figure 1) allow you to assign the macro to a button on the Quick Access Toolbar or a keyboard shortcut. Clicking the button will take you to the Customize category of Word Options (see Figure 2). Here, you can add the new macro to the Quick Access Toolbar, see which commands are already there, and also change the order in which they appear.

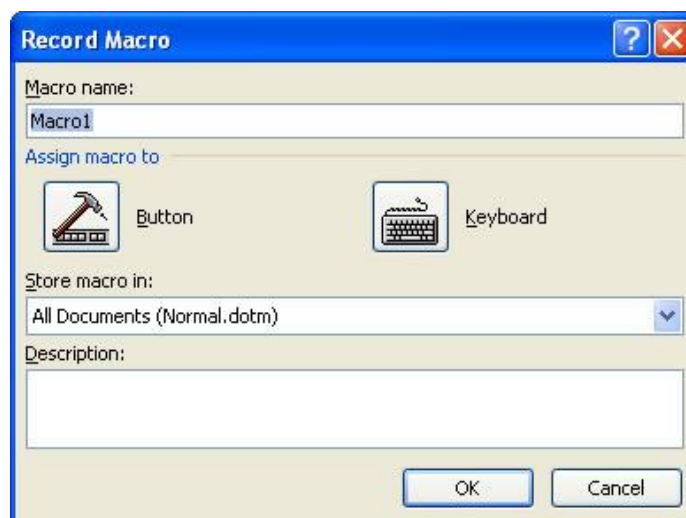
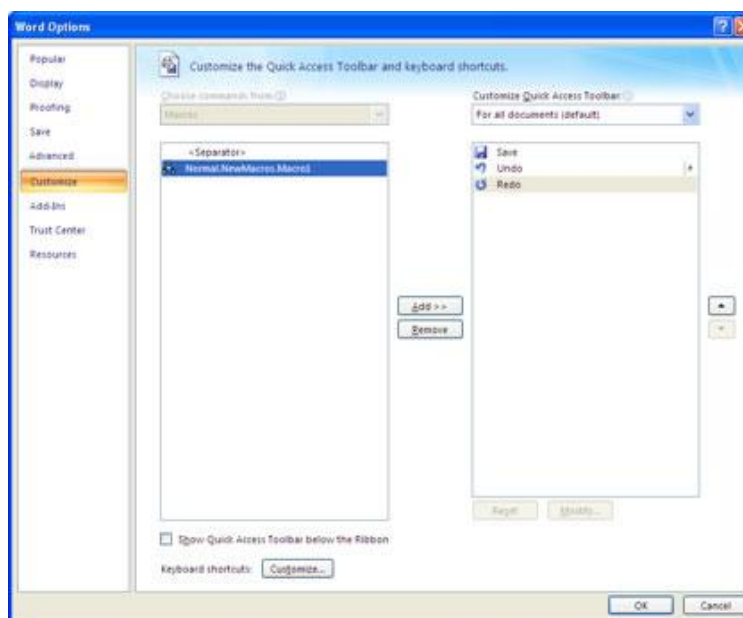


Figure 1

To add the macro, select it in the box on the left and click Add. Don't worry if you didn't select an informative name earlier; you can change that now by making sure it's selected and then clicking Modify. Go on, click Modify.



**Figure 2**

At the bottom of the Modify Button window, give the macro a more meaningful display name. You can also choose an icon to represent the macro, and this icon will appear in the Quick Access Toolbar.



**Figure 3**

When you click OK, you can see the new addition in the Quick Access Toolbar, but the macro doesn't yet exist. Notice that the cursor has changed to a cassette tape, indicating that recording has started. You can now perform the actions you want to record. Once you've completed all the steps you want included in the macro, stop recording by clicking the View Tab > Macros > Stop Recording.

That's the macro created. To run it, come up to the Quick Access Toolbar and click the icon you chose to represent it.

## Microsoft Excel

**Microsoft Excel** is a commercial 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 Visual Basic for Applications. It has been a very widely applied spreadsheet for these platforms, especially since version 5 in 1993. Excel forms part of Microsoft Office. The current versions are 2010 for Windows and 2011 for Mac.

## Starting Excel

**You can start Excel by:**

1. Double-clicking on the Microsoft Excel application icon. This application is usually in a folder called Excel. An alias for this icon appears on the desktop of the computers in the Student



Microcomputer Facility.

2. Double-clicking on the icon of any Excel document. When you double-click an Excel document, Excel opens with the document already loaded.



### **THE CONTENTS OF WORKSHEET:**

Rows-In a single worksheet rows are numbers from top to bottom. (1 to 10,48,576)

Columns- Columns are labeled from left to right (A- XFD) for a total of 16,384 columns.

Cell- Cell is intersection of row and column.

MS office button- Contains the main file functions: new, open, save, save as, print etc.

Quick access toolbar- Contains shortcuts for command which you frequently use.

Ribbon tabs- Each ribbon tab displays a Ribbon that provides a set of tool Groups.

Tool groups- each tool groups have a small arrow in the bottom right hand corner.

Formula bar- Provides a space for typing or editing cell data and formula.

Name box- Displays the address or name of the active cell.

Status bar- It displays valuable information like current mode or option, keyboard status and the result of auto calculate function.

### **Basic operations:**

Microsoft Excel has the basic features of all spreadsheets, using a grid of *cells* arranged in numbered *rows* and letter-named *columns* to organize data manipulations like arithmetic operations. It has a battery of supplied functions to answer statistical, engineering and financial needs. In addition, it can display data as line graphs, histograms and charts, and with a very limited three-dimensional graphical display. It allows sectioning of data to view its dependencies on various factors from different perspectives.

### **Features of MS Excel:**

The most important features of Microsoft Excel are described below.

#### **1. Entering Data into Worksheet**

Data is entered into the cells of the worksheet. Data may include alphabetical characters (or text), numbers or a formula to calculate an expression. When a formula is entered into the cell, it is not shown in the cell but its result is shown. When texts are entered into cell, these are automatically aligned to the left side while the numbers are aligned to the right side of the cell.

Entering Data Series in Excel, you can automatically fill a series of data, into a specified range of cells. To fill a series of data, follow these steps. Select the range of cells that contain starting values for the trend. Drag the fill' handle in the direction in which you want to fill the values. The values are automatically filled into cells.

#### **2. Navigating in a Worksheet**

You can move in the worksheet for entering or editing or viewing data. For example, to enter data into a specific cell of the, worksheet you have to move to that cell. You can move with mouse or keyboard keys or with GOTO command.

You can also switch from one worksheet to another by simply clicking the tab of desired worksheet.

### **3. Editing Workbook**

The process of making changes in the workbook is called Editing. It is the most important feature of Microsoft Excel. Mostly the editing activities are performed on the selected data of cells by selecting commands from the Edit menu or using icons on the toolbar. Some features of editing are explained below.

#### **i) Copy / Move & Paste**

In Excel, you can also copy or move data from one location of worksheet to another location or to another worksheet of different workbook or even to another application program. The data is copied or moved through clipboard. From clipboard, it can be pasted anywhere into the worksheet or any other application program.

The commands that are used for this purpose are:

**Copy** – This command is used to copy the selected data to clipboard.

**Cut** – It is used to move the selected data to the clipboard.

**Paste** – It is used to paste (insert) the text or item from the clipboard into the specified location of worksheet

#### **ii) Deleting in Excel**

You can delete the data of a cell or range of cells and the cells as well. Similarly, the rows or columns or entire worksheet can be deleted from the workbook.

#### **iii) Inserting in Excel**

You can insert new rows, columns, cells and worksheets in Excel. When new row is inserted the contents of the worksheet are moved one row downward. Similarly, when new column is inserted, the contents of the worksheet are moved one column rightward. In case of cells, when a new cell is inserted, the existing cells move in the direction you specify to make room for the new cell.

The commands that are used for this purpose are:

**Copy** – This command is used to copy the selected data to clipboard.

**Cut** – It is used to move the selected data to the clipboard.

**Paste** – It is used to paste (insert) the text or item from the clipboard into the specified location of worksheet

### **4. Formatting Worksheet**

Like Word document, you can also change the appearance of the worksheet. It means that appearance of data stored in worksheet cells can be changed. You can format a single cell, range of cells or whole worksheet. In formatting worksheet, you can change the appearance of data in cells as:

By changing the font, font style and font size.

By aligning data in cells.

By setting numeric format.

By setting border style and border color of cell.

By rotating text in cells.

By setting column width and row height.

In Excel, you can use the formatting toolbar or Format menu for formatting the worksheet.

### **5. Saving & Opening Workbook in Excel**

In Microsoft Excel, data can be stored permanently in a file on the disk for future use. The file or document of Excel is called the workbook. The workbook contains the worksheets. When workbook is saved, Excel gives an extension XLS to the file name.

You can create new copy of the current workbook by using SAVE AS command. The new created workbook becomes the current workbook while the previous workbook is closed.

#### **Protecting Workbook with Password**

In Microsoft Excel, you can protect your workbook by applying password so that unauthorized person cannot display as well as modify your workbook. You can apply passwords of two types:

##### *Password to open the Workbook*

If it is applied then you have to give the correct password to open the workbook. Otherwise you cannot open the workbook.

##### *Password to Modify the Workbook*

If it is applied then you have to give the correct password to modify the workbook. Otherwise your workbook is opened but you cannot modify the workbook. It means that your workbook becomes read-only.

#### **Opening an Existing Workbook**

The workbooks are stored on the disk for future use. You can open the existing workbook for further working on it. After entering new data or editing the existing data, it must be saved again.

### **6. Manipulating Database in Excel**

A database is a collection of related records or is a collection of information of a particular subject. The records are arranged in such a way that these can be accessed very easily. For example, collection of records of students that are arranged properly and stored in a file is an example of database. Each record of database is the collection of different fields.

In Excel, the information in one row represents one record while columns in which individual items of record are stored are known as fields. It means that worksheet can be used as database, in which rows represent records and columns represent fields. The first row has labels for the columns. In a database, you can easily perform different operations such as sorting, filtering, finding, deleting etc.

#### **i) Creating Database**

In Excel, the database is created very easily. To create a database, follow these steps.  
Type the field names in the first row of worksheet.  
Type the data of records under the related fields. For example, type one record per row.

### ii) Sorting Database

The process to arrange data of database or data stored in worksheet in a specific order based on value in columns or fields is known as Sorting. In Excel, you can sort data alphabetically, numerically or by date. Data can be sorted in ascending or descending order.

### iii) Data Form

You can also create Forms in Excel that are used to perform very easily and quickly the following operations on database.

Enter records into database

Display records from database.

Delete records of database

Find records from database etc.

## **7. Applying Formula & Function**

In Excel you can apply formula, and function to perform the arithmetic operations on the numeric data etc.

Functions are predefined formulae used to perform calculations. Excel contains a number of built-in functions used for special purpose, e.g. arithmetic or statistical calculations. The values given to the function are called the parameters or arguments of the function. The function returns the calculated value. Each function is written according to its syntax. The function is written in cell of worksheet as formula is written.

Excel also provides AUTOSUM tool used to find the sum of values. It is a shortcut method used to find the sum of values of a column or row. The AUTOSUM automatically selects the cells above in the column or to the left in the row when this function is applied in the current cell.

## **8. Creating Chart in Excel**

In Excel, you can also create charts for numerical data. The graphical representation of numerical data is known as chart or graph. It makes easy to compare and to understand the numerical data. A chart is created using a range of data stored into the worksheet cells.

## **9. Printing in Excel**

In Excel, worksheet is printed on the printer after adjusting the page setup. If the worksheet is printed on the printer without adjusting the page setup then Excel uses the default page setting. You can change the page size, page margins, printing direction before to print the worksheet on the printer. You can print a selected area of worksheet or an entire worksheet.

Various formulas and functions:

Classification of Functions:

### Mathematical functions:

Function	Returns
ABS( $x$ )	The positive value of a number or formula, regardless of its actual positive or negative value.
INT( $x$ )	The numbers to the left of the decimal place in the value or formula $x$ .
MOD( $x,y$ )	The remainder that results from dividing the value $x$ by the value $y$ a whole number of times.
SUM()	The sum of a list of values or formulas.
ROUND( $x,y$ )	The value of $x$ rounded to the specified number of decimal places $y$ , $x$ can be either a number or the result of a formula.
PRODUCT()	The result of multiplying a list of values. For example, the function { =PRODUCT (1,3,7,9) } returns the value 189.

### Statistical Functions:

Function	Returns
AVERAGE()	The average of a list of values.
COUNT()	The number of items in a list.
MIN()	The smallest value in a list.
MAX()	The largest value in a list.

### Logical functions:

Function	Returns
AND( $x,y$ )	The value 1 if the logical expressions $x$ and $y$ are both true, or the value 0 (zero) if either expression is false.
OR( $x,y$ )	The value 1 (true) if either or both logical expressions $x$ and $y$ are true, or the value 0 (zero) (false) if both expressions are false.
NOT( $x$ )	The value 0 (zero) (false) if the logical expression $x$ is true, or the value 1 (true) if the expression is false.

### Text functions:

Function	Returns
VALUE (text )	Converts a text argument to a number
EXACT(text1, text2 )	Checks to see if two text values are identical
CONCATENATE(text1, text2,...)	Joins several text items into one text item
RIGHT(text, num_char )	Returns the rightmost characters from a text value
LEFT(text, num_char )	Returns the leftmost characters from a text value
TRIM(text)	Removes spaces from text
UPPER (text)	Converts text to uppercase
LOWER (text)	Converts text to lowercase

### Financial Functions:

Function	Returns
PV	Returns the present value of an investment
FV	Returns the future value of an investment
PMT	Returns the periodic payment for an annuity
NPER	Returns the number of periods for an investment
RATE	Returns the interest rate per period of an annuity

### PowerPoint:

PowerPoint is a presentation software program that is part of the Microsoft Office package. PowerPoint uses a graphical approach to presentations in the form of slide shows that accompany the oral delivery of the topic. This program is widely used in business and classrooms and is an effective tool when used for training purposes.

### Slides:

when you create a presentation using PowerPoint, the presentation is made up of series of slides. The slides that you create using PowerPoint can also be presented as overhead transparencies or 35mm slides. Each slide can contain text, graphics, charts, videos and Smart Art.

### Handouts:

Handouts are paper copies of all or some of the slides to be given to the audience. They are basically thumbnails of the slides printed together on a sheet of paper. By default, PowerPoint offers choices to include 1, 2, 3, 4, 6 and 9 slide thumbnails per Handout page-some layouts, such as the one for 3 thumbnails also provide some space next to the thumbnail for notes to be written/printed.

### Starting PowerPoint

Click on the start button.

Select "Microsoft Office" from "All Programs" in Window Vista or "Programs" in other Windows.

Click on "Microsoft PowerPoint".

### Creating a New Presentation:

when you start PowerPoint for the first time, by default a Blank Presentation is selected. You can start adding text and other objects and by subsequently including new slides.

### Templates:

You can create your presentation quickly and easily by using templates(template: A file or set of files that contains information about the theme, layout, and other elements of a finished presentation.) PowerPoint 2007 templates include different themes and layouts. To create a new presentation from Template follow the below mentioned steps:

Click Office Button.

Choose "New".

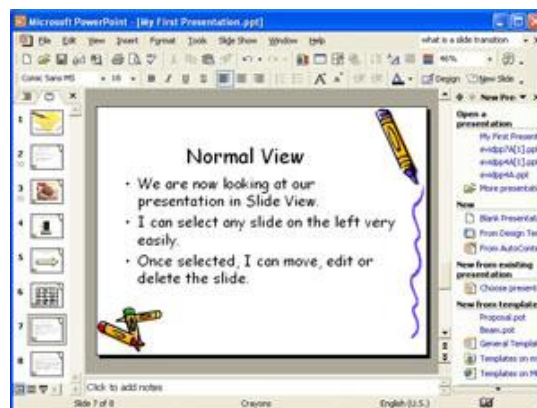
A "New Presentation" dialog box appears.

Select the desired template and start making your presentation.

### The Power Point Views:

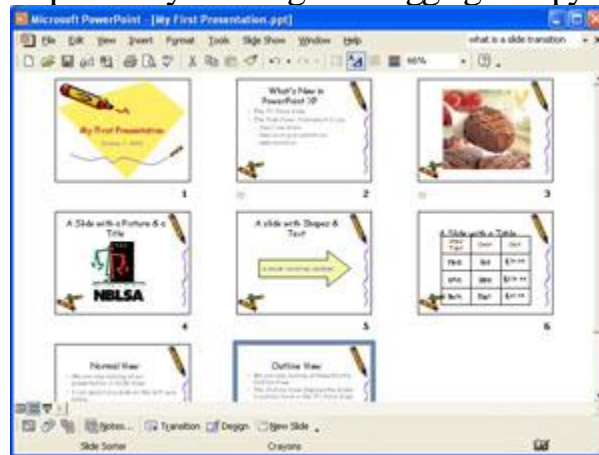
#### The Normal View

The Normal View is PowerPoint's default view. It displays each slide in the Tri-Pane area for easy selection. Once selected, slides can be moved, edited or deleted.



The Slide Sorter View

You can access the Slide Sorter view by clicking on the word View in the Menu bar and choosing the option Slide Sorter. The Slide Sorter view displays all of your slides in miniature. This view is optimal for moving and copying slides, especially from one presentation to another. Slide repositioning is accomplished by selecting and dragging or copying and pasting.



The Slide Show View

You can access the Slide Sorter view by clicking on the word View in the Menu bar and choosing the option Slide Show or by pressing the F5 key. This is how you access your actual slide show! All transitions, animations, and timing will be visible.

### **Animation:**

Using animation in PowerPoint is a great way to make a presentation more interesting. Animation can be applied as a custom animation effect that allows movement of an object within a slide.

### **Custom Animation:**

Custom animation is a set of effects which can be applied to objects in PowerPoint so that they will animate in the slide show. You can also change the order in which each object will appear on the slide, sound can be added to individual object on a slide.

### **To add Custom Animation to an object on a Slide:**

Select the object you want to animate.

On the Animation tab, in the Animations group, click Custom Animation.

Click Add Effects.

Point to one of the animation options. From the submenu that appears, click the type of effect you want to add.

Once you create the custom animation, you can also configure how it is applied to the object. Right-click the custom animation and click Effect Options.

Configure the effect and timing options.

### SPSS

#### Introduction to SPSS:

#### Definition:

The abbreviation SPSS stands for Statistical package for the social science and is a comprehensive system for analyzing the data. This package of program is available for both personal and mainframe (or multi user) computers. SPSS package consist of a set of software tools for data entry, data management, statistical analysis and presentation. SPSS integrates complex data and file management, statistical analysis and reporting functions. SPSS can take data from almost any type of file and use them to generate tabulated reports, charts and plots of distributions and trends, descriptive statics and complex statistical analyses.

#### Features of SPSS:

It is easy to learn and use.

It includes a full range of data management system and editing tools.

It provides in dept statistical capabilities.

It offers complete plotting, reporting and presentation features.

SPSS makes statistical analysis accessible for the causal user and convenient for the experienced user. The data editor offers a simple and efficient spreadsheet like facility to entering data and browsing the working data file

#### Statistics program:

SPSS (originally, Statistical Package for the Social Sciences) was released in its first version in 1968 after being developed by Norman H. Nie and C. Hadlai Hull. Norman Nie was then apolitical science postgraduate at Stanford University, and now Research Professor in the Department of Political Science at Stanford and Professor Emeritus of Political Science at the University of Chicago. SPSS is among the most widely used programs for statistical analysis in social science. It is used by market researchers, health researchers, survey companies, government, education researchers, marketing organizations and others. The original SPSS manual (Nie, Bent & Hull, 1970) has been described as one of "sociology's most influential books". In addition to statistical analysis, data management (case selection, file reshaping, creating derived data) and data documentation (a metadata dictionary is stored in the data file) are features of the base software.

#### Statistics included in the base software:

Descriptive statistics: Cross tabulation, Frequencies, Descriptive, Explore, Descriptive Ratio Statistics Bivariate statistics: Means, t-test, ANOVA, Correlation (bivariate, partial, distances), Nonparametric tests Prediction for numerical outcomes: Linear regression Prediction for identifying groups: Factor analysis, cluster analysis (two-step, K-means, hierarchical), Discriminant

The many features of SPSS are accessible via pull-down menus or can be programmed with a proprietary 4GL *command syntax language*. Command syntax programming has the benefits of reproducibility; simplifying repetitive tasks; and handling complex data manipulations and analyses. Additionally, some complex applications can only be programmed in syntax and are

not accessible through the menu structure. The pull-down menu interface also generates command syntax, this can be displayed in the output though the default settings have to be changed to make the syntax visible to the user; or can be pasted into a syntax file using the "paste" button present in each menu. Programs can be run interactively or unattended using the supplied Production Job Facility. Additionally a "macro" language can be used to write command language subroutines and a Python programmability extension can access the information in the data dictionary and data and dynamically build command syntax programs. The Python programmability extension, introduced in SPSS 14, replaced the less functional SAX Basic "scripts" for most purposes, although Sax Basic remains available. In addition, the Python extension allows SPSS to run any of the statistics in the free software package R. From version 14 onwards SPSS can be driven externally by a Python or a VB.NET program using supplied "plug-ins".

SPSS places constraints on internal file structure, data types, data processing and matching files, which together considerably simplify programming. SPSS datasets have a 2-dimensional table structure where the rows typically represent cases (such as individuals or households) and the columns represent measurements (such as age, sex or household income). Only 2 data types are defined: numeric and text (or "string"). All data processing occurs sequentially case-by-case through the file. Files can be matched one-to-one and one-to-many, but not many-to-many.

The graphical user interface has two views which can be toggled by clicking on one of the two tabs in the bottom left of the SPSS window. The 'Data View' shows a spreadsheet view of the cases (rows) and variables (columns). Unlike spreadsheets, the data cells can only contain numbers or text and formulas cannot be stored in these cells. The 'Variable View' displays the metadata dictionary where each row represents a variable and shows the variable name, variable label, value label(s), print width, measurement type and a variety of other characteristics. Cells in both views can be manually edited, defining the file structure and allowing data entry without using command syntax. This may be sufficient for small datasets. Larger datasets such as statistical surveys are more often created in data entry software, or entered during computer-assisted personal interviewing, by scanning and using optical character recognition and optical mar recognition software, or by direct capture from online questionnaires. These datasets are then read into SPSS.

PSS can read and write data from ASCII text files (including hierarchical files), other statistics packages, spreadsheets and databases. SPSS can read and write to external relational database tables via ODBC and SQL.

Statistical output is to a proprietary file format (\*.spv file, supporting pivot tables) for which, in addition to the in-package viewer, a stand-alone reader can be downloaded. The proprietary output can be exported to text or Microsoft Word. Alternatively, output can be captured as data (using the OMS command), as text, tab-delimited text, PDF, XLS, HTML, XML, SPSS dataset or a variety of graphic image formats (JPEG,PNG, BMP and EMF).

**Add-on modules provide additional capabilities. The available modules are:**

SPSS Programmability Extension (added in version 14). Allows Python, R, and .NET programming control of SPSS.

SPSS Data Validation (added in version 14). Allows programming of logical checks and reporting of suspicious values.

SPSS Regression Models - Logistic regression, ordinal regression, multinomial logistic regression, and mixed models.

SPSS Advanced Models - Multivariate GLM and repeated measures ANOVA (removed from base system in version 14).

SPSS Classification Trees. Creates classification and decision trees for identifying groups and predicting behavior.

SPSS Tables. Allows user-defined control of output for reports.

SPSS Exact Tests. Allows statistical testing on small samples.

SPSS Categories

SPSS Trends

SPSS Conjoint

SPSS Missing Value Analysis. Simple regression-based imputation.

SPSS Map

SPSS Complex Samples (added in Version 12). Adjusts for stratification and clustering and other sample selection biases.

SPSS Server is a version of SPSS with client/server architecture. It had some features not available in the desktop version, such as scoring functions (Scoring functions are included in the desktop version from version 19).

### **Versions:**

Early versions of SPSS were designed for batch processing on mainframes, including for example IBM and ICL versions, originally using punched cards for input. A processing run read a command file of SPSS commands and either a raw input file of fixed format data with a single record type, or a 'getfile' of data saved by a previous run. To save precious computer time an 'edit' run could be done to check command syntax without analysing the data. From version 10 (SPSS-X) in 1983, data files could contain multiple record types.

SPSS version 16.0 runs under Windows, Mac OS 10.5 and earlier, and Linux. The graphical user interface is written in Java. The Mac OS version is provided as a Universal binary, making it fully compatible with both PowerPC and Intel-based Mac hardware.

Prior to SPSS 16.0, different versions of SPSS were available for Windows, Mac OS X and Unix. The Windows version was updated more frequently, and had more features, than the versions for other operating systems.

SPSS version 13.0 for Mac OS X was not compatible with Intel-based Macintosh computers, due to the Rosetta emulation software causing errors in calculations. SPSS 15.0 for Windows needed a downloadable hot fix to be installed in order to be compatible with Windows Vista.

The latest version of SPSS is 19.0.

### SPSS Data Entry

When we are creating a new data set, it is typical to start by defining the names and other properties of the variables first and then entering the specific values into each variable for each independent source of data. Recall that there is one row for each independent source of data and one column for each characteristic (i.e., variable) that we have measured from each data source. There are times, however, when we decide to add additional variables after we have entered some of the data. Adding variables after the fact does not present any special challenges; we simply go to the variable view, click in an empty row, and start defining our new variables as we do below. The first step to defining variable names and properties is to select the variable view tab in the data window. Then we can create (or edit) each of the properties below.

#### Name

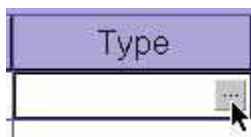
The name of each SPSS variable in a given file must be unique; it must start with a letter; it may have up to 8 characters (including letters, numbers, and the underscore \_ (note that certain key words are reversed and may not be used as variable names, e.g., "compute", "sum", and so forth). To change an existing name, click in the cell containing the name, highlight the part you want to change, and type in the replacement. To create a new variable name, click in the first empty row under the name column and type a new (unique) variable name.



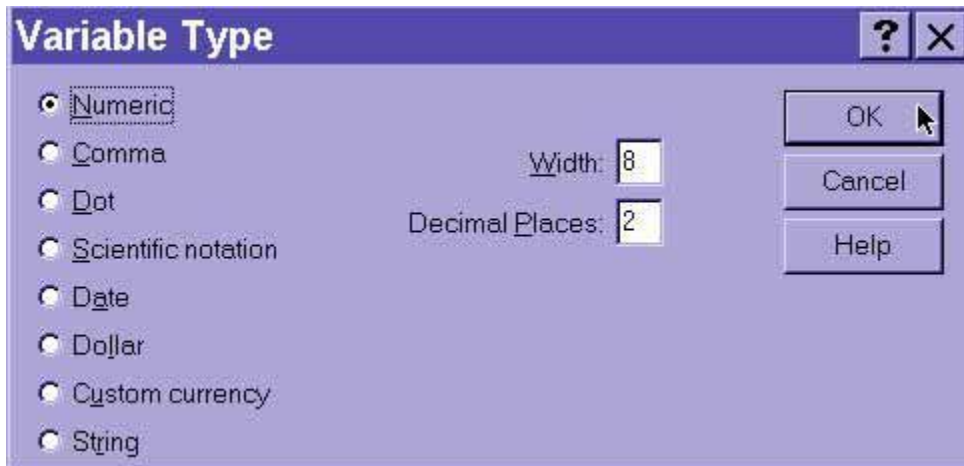
Notice that we can use "cat\_dog" but not "cat-dog" and not "cat dog". The hyphen gets interpreted as subtraction (cat minus dog) by SPSS, and the space confuses SPSS as to how many variables are being named.

#### Type

The two basic types of variables that you will use are numeric and string. Numeric variables may only have numbers assigned. String variables may contain letters or numbers, but even if a string variable happens to contain only numbers, numeric operations on that variable will not be allowed (e.g., finding the mean, variance, standard deviation, etc...). To change a variable type, click in that cell on the grey box with.



Clicking on this box will bring up the variable type menu:



If you select a numeric variable, you can then click in the width box or the decimal box to change the default values of 8 characters reserved to displaying numbers with 2 decimal places. For whole numbers, you can drop the decimals down to 0.

If you select a string variable, you can tell SPSS how much "room" to leave in memory for each value, indicating the number of characters to be allowed for data entry in this string variable.

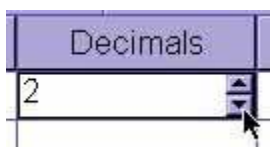
### Width

The width of a variable is the number of characters SPSS will allow to be entered for the variable. If it is a numerical value with decimals, this total width has to include a spot for each decimal, as well as one for the decimal point. You can change a width by clicking in the width cell for the desired variable and typing a new number or you can use the arrow keys at the edge of the cell



### Decimals

The decimals of a variable is the number of decimal places that SPSS will display. If more decimals have been entered (or computed by SPSS), the additional information will be retained internally but not displayed on screen. For whole numbers, you would reduce the number of decimals to zero. You can change the number of decimal places by clicking in the decimals cell for the desired variable and typing a new number or you can use the arrow keys at the edge of the cell



### Label

The label of a variable is a string of text to indentify in more detail what a variable represents. Unlike the name, the label is limited to 255 characters and may contain spaces and punctuation.

For instance, if there is a variable for each question on a questionnaire, you would type the question as the variable label. To change or edit a variable label, simply click anywhere within the cell.

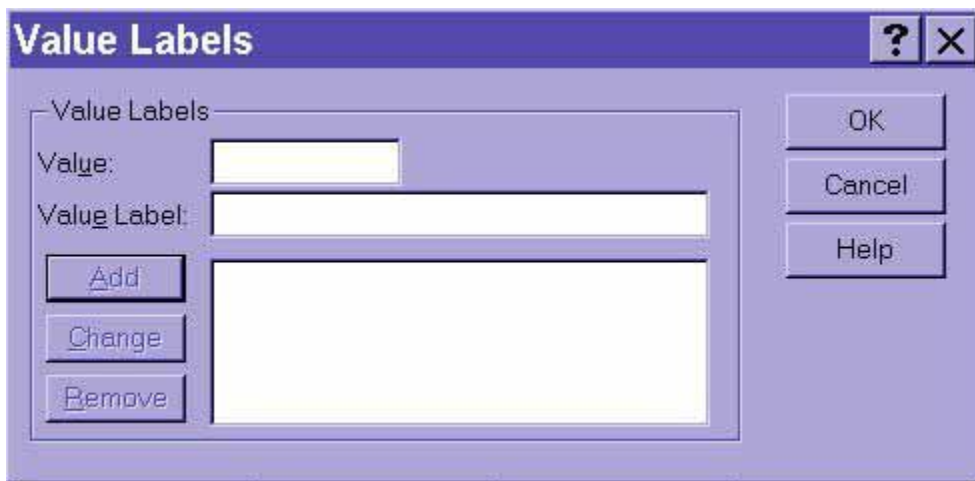
Label
Which do you like better, dogs or cats?

### Values

Although the variable label goes a long way to explaining what the variable represents, for categorical data (discrete data of both nominal and ordinal levels of measurement), we often need to know which numbers represent which categories. To indicate how these numbers are assigned, one can add labels to specific values by clicking on the ... box in the values cell

Values
None

Clicking here opens up the Value Labels dialogue box.



The dialog box titled "Value Labels" has a title bar with a question mark and a close button. It contains a "Value Labels" section with two input fields: "Value:" and "Value Label:". Below these fields are three buttons: "Add", "Change", and "Remove". To the right of the input fields are three buttons: "OK", "Cancel", and "Help".


Click in the Value field to type a specific numeric value

Click in the Label field to type the corresponding label

Click on the Add button to add this pair of value and label to the list

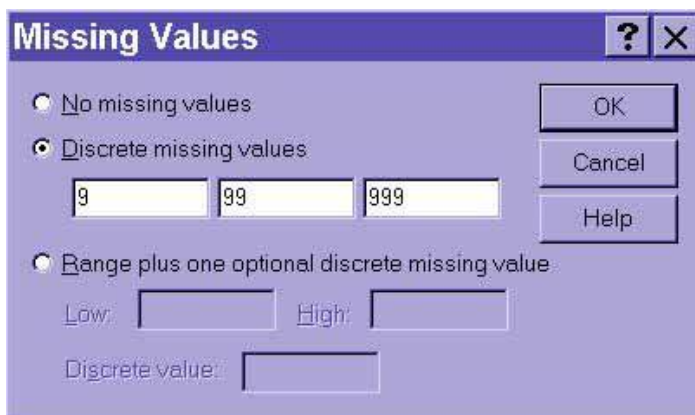
You can remove a pairing created above by clicking on that pair and then clicking on the delete button. Similarly, you can change pairing by clicking on the pair, then typing in a new value, a new label, or both; then, you click on the Change button. When you are satisfied with the definitions of each value, click on the OK button



The real beauty of value labels can be seen in the Data View by clicking on the "toe tag" icon in the tool bar , which switches between the numeric values and their labels

## Missing

We sometimes want to signal to SPSS that data should be treated as missing, even though there is some other numerical code recorded instead of the data actually being missing (in which case SPSS displays a single period -- this is also called SYSTEM MISSING data). In this example, after clicking on the ... button in the Missing cell, I declared "9", "99", and "999" all to be treated by SPSS as missing (i.e., these values will be ignored)

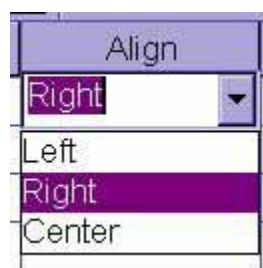


## Columns

The columns property tells SPSS how wide the column should be for each variable. Don't confuse this one with width, which indicates how many digits of the number will be displayed. The column size indicates how much space is allocated rather than the degree to which it is filled.

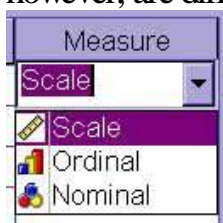
## Align

The alignment property indicates whether the information in the Data View should be left-justified, right-justified, or centered



### Measure

The Measure property indicates the level of measurement. Since SPSS does not differentiate between interval and ratio levels of measurement, both of these quantitative variable types are lumped together as "scale". Nominal and ordinal levels of measurement, however, are differentiated



### Entering the Data

The first step for entering the actual data is to click on the Data View tab.

To enter new data, click in an empty cell in the first empty row. The "Tab" key will enter the value and jump to the next cell to the right. You may also use the Up, Down, Left, and Right arrow keys to enter values and move to another cell for data input.

To edit existing data points (i.e., the change a specific data value), click in the cell, type in the new value, and press the Tab, Enter, Up, Down, Right, or Left arrow keys.

### Data analysis:

**Analysis of data** is a process of inspecting, cleaning, transforming, and modeling **data** with the goal of highlighting useful information, suggesting conclusions, and supporting decision making. Data analysis has multiple facets and approaches, encompassing diverse techniques under a variety of names, in different business, science, and social science domains.

### Application of internet in research:

#### INFLIBNET:

**Information and Library Network (INFLIBNET) Centre** is an Autonomous Inter-University Centre (IUC) of University Grants Commission, Government of India, involved in creating infrastructure for sharing of library and information resources and services among Academic and Research Institutions. INFLIBNET works collaboratively with Indian university libraries to shape the future of the academic libraries in the evolving information environment.

It is a major National Programme initiated by the UGC in 1991 with its Head Quarters at Gujarat University Campus, Ahmadabad. Initially started as a project under the IUCAA, it became an independent Inter-University Centre in 1996.

INFLIBNET is involved in modernizing university libraries in India and connecting them as well as information centres in the country through a nation-wide high speed data network using the state-of-art technologies for the optimum utilization of information. INFLIBNET is set out to be a major player in promoting scholarly communication among academicians and researchers in India

### **Objectives:**

#### **The primary objectives of INFLIBNET are:**

To promote and establish communication facilities to improve capability in information transfer and access that provide support to scholarship learning, research and academic pursuit through cooperation and involvement of agencies concerned.

To establish INFLIBNET: Information and Library Network a computer communication network for linking libraries and information centres in universities, deemed to be universities, colleges, UGC information centres, institutions of national importance and R & D institutions, etc. avoiding duplication of efforts.

### **Functions:**

#### **In order to fulfill the broad objectives, INFLIBNET will do the following:**

Promote and implement computerization of operations and services in the libraries and information centres of the country, following a uniform standard.

Evolve standards and uniform guidelines in techniques, methods, procedures, computer hardware and software, services and promote their adoption in actual practice by all libraries, in order to facilitate pooling, sharing and exchange of information towards optimal use of resources and facilities.

Evolve a national network interconnecting various libraries and information centres in the country and to improve capability in information handling and service.

Provide reliable access to document collection of libraries by creating on-line union catalogue of serials, theses/dissertations, books, monographs and non-book materials (manuscripts, audio-visuals, computer data, multimedia, etc.) in various libraries in India.

Provide access to bibliographic information sources with citations, abstracts etc. through indigenously created databases of the Sectoral Information Centres of NISSAT, UGC Information Centres, City Networks and such others and by establishing gateways for on-line accessing of national and international databases held by national and international information networks and centres respectively.

Develop new methods and techniques for archival of valuable information available as manuscripts and information documents in different Indian Languages, in the form of digital images using high density storage media.

Optimise information resource utilization through shared cataloguing, inter-library loan service, catalogue production, collection development and thus avoiding duplication in acquisition to the extent possible.

Enable the users dispersed all over the country, irrespective of location and distance, to have access to information regarding serials, theses/dissertations, books, monographs and non-book materials by locating the sources wherefrom available and to obtain it through the facilities of INFLIBNET and union catalogue of documents.

Create databases of projects, institutions, specialists, etc. for providing on-line information service.

Encourage co-operation among libraries, documentation centres and information centres in the country, so that the resources can be pooled for the benefit of helping the weaker resource centres by stronger ones.

Train and develop human resources in the field of computerized library operations and networking to establish, manage and sustain INFLIBNET.

Facilitate academic communication amongst scientists, engineers, social scientists, academics, faculties, researchers and students through electronic mail, file transfer, computer/audio/video conferencing, etc.

Undertake system design and studies in the field of communications, computer networking, information handling and data management.

Establish appropriate control and monitoring system for the communication network and organise maintenance.

Collaborate with institutions, libraries, information centres and other organisations in India and abroad in the field relevant to the objectives of the Centre.

Create and promote R&D and other facilities and technical positions for realising the objectives of the Centre.

Generate revenue by providing consultancies and information services.

Do all other such things as may be necessary, incidental or conducive to the attainment of all or any of the above objectives.

Dr. Jagdish Arora is the Director of The Centre as on date.

### **USE OF INTERNET SIGHTS (DOAJ)**

Directory of open access journals:

### **Definition:**

#### **Open Access Journal:**

We define open access journals as journals that use a funding model that does not charge readers or their institutions for access.

#### **Quality Control:**

The journal must exercise peer-review or editorial quality control to be included.

#### **Research Journal:**

Journals that report primary results of research or overviews of research results to a scholarly community.

#### **Periodical:**

A serial appearing or intended to appear indefinitely at regular intervals, generally more frequently than annually, each issue of which is numbered or dated consecutively and normally contains separate articles, stories, or other writings.

#### **Aim & Scope:**

The aim of the Directory of Open Access Journals is to increase the visibility and ease of use of open access scientific and scholarly journals thereby promoting their increased usage and impact. The Directory aims to be comprehensive and cover all open access scientific and scholarly journals that use a quality control system to guarantee the content. In short a one stop shop for users to Open Access Journals.

#### **E journals:**

Electronic journals, also known as e-journals, e-journals, and electronic serials, are scholarly journals or intellectual magazines that can be accessed via electronic transmission. In practice, this means that they are usually published on the Web.

An electronic journal that provides its content over the Internet. Some are accessible to anyone, but many others require purchase of a subscription. Lewis Library maintains access to thousands of e-journals.

Electronic Journals are very important source for the scientific research and development. E-journals are becoming vital to carry any meaning full research. This resource is widely used by R& D workers and other users of the libraries to carry out day-to-day qualitative research, education and knowledge.

In recent years, there has been a surge in the number of electronic journals available to libraries for their users to access. More titles are becoming available via publishers and subscription agents. There is a common view amongst librarians that libraries are forsaking traditional print resources in favor of electronic resources. With the application of IT, particularly Internet, there has been a shift in comparative growth from traditional print journals to electronic journals. Print journal refers to conventional print editions published and distributed as paper copies while online editions refer to journal editions available online through computer networks (Internet).

The journal editions available online are called e-journals.

Characteristics of electronic journals

Can be used simultaneously by more than one user;

Provide timely access;

Support searching capabilities;

Accommodate unique features such as links to related items;

Save physical storage space;

Contain multimedia information;

Do not require physical processing;

Environment friendly;

Automatically generate alerting and other secondary services

Advantages of electronic journals

The speed of publication and delivery of the journal issues is much faster than the print versions

Inclusion of audio and video base text in the journal issues is possible.

To access and retrieve relevant articles, a good number of search engines are available

Downloading and printing of relevant articles at the end user workstations is possible.

Alerting the users regarding the publication of new issues and articles of their interest becomes earlier in electronic media

E-journals have solved the problems of libraries such as space, shelving, missing issues, missing pages and cutting of the pages, etc

Help in minimizing the problems related to the conservation and preservation of journals.

### **Why E journal:**

Save space

Users don't need to visit the library

No lost or damaged titles

Can provide adjustable fonts etc. for disabled users

Instant delivery of 'purchased' books

Can be used to provide access to out of print materials

Save cost

### **E-library:**

a list of some books and articles on the media and communication sectors of the Philippines, written by both Filipino and foreign scholars.

E-Library refers to all the library resources that are available online through computers and databases. These are different than the open internet, as they have restricted access. The University of Manitoba Libraries is either given special access, or pays money so that students and faculty can access the articles, databases, books, services, and resources through E-Library for free.

You need your ID and password to access many of the online library resources. If you are signing in from off campus, you will need to use your ID and password to sign into our proxy server.

### **EBSCO:**

#### **WHAT IS EBSCO HOST?**

EBSCO is the name of a company through which DePaul subscribes to 40 databases, e.g., Academic Search Premier, Business Source Complete and PsycInfo. EBSCO host is not a single database in and of itself, but the collection of all of these various databases.

If you are in one of the EBSCO databases, you'll see an option at the top of the search interface "Choose Databases" that will display the full list; change your selection or choose multiple databases to search simultaneously. The option "Sign in to EBSCO host" allows you to create and manage folders, set up email alerts and otherwise personalize your search efforts.

#### **About EBSCO Information Services:**

Established in 1944, EBSCO is the world's leading information agent providing consultative services and cutting-edge technology for managing and accessing quality content, including print and e-journals, e-packages, research databases, e-books and more. Now more than ever libraries and research organizations are looking for new ways to manage their collections more efficiently. EBSCO Information Services has developed "e" discovery solutions, including EBSCO A-to-Z<sup>®</sup> and Link Source<sup>®</sup>, as well as management solutions such as EBSCONET<sup>®</sup>, EBSCONET<sup>®</sup>\_ERM Essentials<sup>®</sup> and EBSCO MARC Updates. These services offer unparalleled integration to help librarians save time and money while empowering their users.

#### **EBSCO host Databases**

Links to several databases through the EBSCOHost interface, including Academic Search Premier, CINAHL, ERIC, and PsycINFO.

Academic Search Premier

AGRICOLA

CINAHL

Computer Source

EconLit

ERIC

GreenFILE

LGBT Life with Full Text

History Reference Center

Library, Information Science & Technology Abstracts (LISTA)

MasterFILE Premier

MLA International Bibliography

MLA Periodicals Directory

Nation Digital Archive

NTIS

Pre-CINAHL

Professional Development Collection

PsycArticles

Psychology and Behavioral Sciences Collection

PsycINFO

Religion and Philosophy Collection

RILM Abstracts of Music Literature

Science Reference Center

SPORT Discus