

M. Com. 3rd Semester

Course: MC-307

Computer Application in Business

Lesson 1 to 21

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**MC 307 COMPUTER APPLICATIONS IN BUSINESS
(AECC)**

**Max. Marks: 80
Internal Assessment: 20**

Note: There will be Ten (10) questions in the paper spread into Five Units as Two questions from each unit. The candidate will require to attempt one question from each unit. Each question will carry Sixteen (16) marks.

COURSE OBJECTIVE:

Computer application in business avail to analyze the competition, researching the products and prices of their competitors, studying them through websites. Students also will be able to understand (LAN) Local Area Networks, WAN, E-mail, internet, Multimedia and MS-office.

COURSE CONTENTS:

UNIT-I

Modern Information Technology: Basic idea of Local Area Networks (LAN), Wide Net Works (WAN), E-mail, internet, Multimedia. Introduction to Windows: Write, Paintbrush, File Manager, Print Manager, Control Panel etc.

UNIT-II

Introduction and working with MS-Word in MS-OFFICE: Word basics Commands, Formatting; Text and documents; Sorting, Working with graphics; Introduction to mail merge. Working with EXCEL: Excel basics; formatting, functions, chart feature; Working with graphics in Excel, Using worksheets as databases.

Unit III

Presentation with Power – Point: Power point basics; Creating presentations the easy way; Working with graphics in Power-Point; Show time; Introduction to Lotus smart suite for Data Sheet Analysis. Spreadsheets and their uses in business.

Unit IV

Introduction to Tally: Maintenance of Accounting books along with financial statement analysis.

Unit V

Statistical Packages Useful in Business: Usage of statistical packages for analysis (as per availability)

Course Outcomes:

After completion of this course, the student will be able to:

1. Student will be able to apply Computer Knowledge in Business Decision Making.
2. Operate a variety of advanced spreadsheet, operating system and word processing functions.
3. Identify the basics of information technology and apply software applications to enhance efficiency of business functions.

References:

- Ron Mansfield, The Compact Guide to Microsoft office; BPB Publication.
- Dienes, Sheila S., Microsoft office, Professional for windows 95;
- Instant Reference; BPB Publication.
- Peter Norton, Working with IBM-PC

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Objectives

- Computer Network
- Types of Networks
- Local Area Network
- Metropolitan Area Network
- Wide Area Network
- Internet
- Evolution of Internet
- Applications of Internet

1.1 Computer Network

A network can be defined as a group of computers and other devices connected to each other so that they can exchange data. Each of the devices on the network can be termed as a node. A node can be a computer, printer or any other device capable of sending and receiving data generated by other nodes on the network. More precisely, a computer network consists of two or more computers that are linked in order to share resources, exchange files or allow electronic communications. The computers on a network may be linked through twisted-pair copper wire, coaxial cable, optical fiber and various wireless technologies.

1.2 Different Types of Networks

Depending upon the geographical area covered by a network, its classification is as follows: Local Area Network (LAN), Wide Area Network (WAN) and Metropolitan Area Network (MAN). Figure 1.1 shows the classification of network.

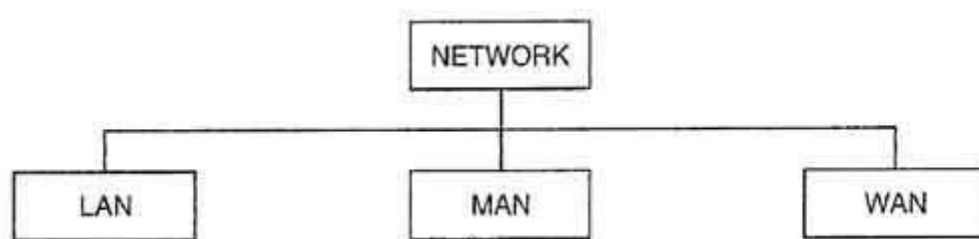


Figure 1.1: Different types of Computer Networks

Local Area Network

A LAN is a network that is used for communicating among computer devices, usually within an office building or home. LAN enables the sharing of resources such as files or hardware devices that may be needed by multiple users. The geographical area covered by LAN is limited in size, typically spanning a few hundred meters and no more than a mile. Figure 1.2 shows a view of LAN (Local Area Network).

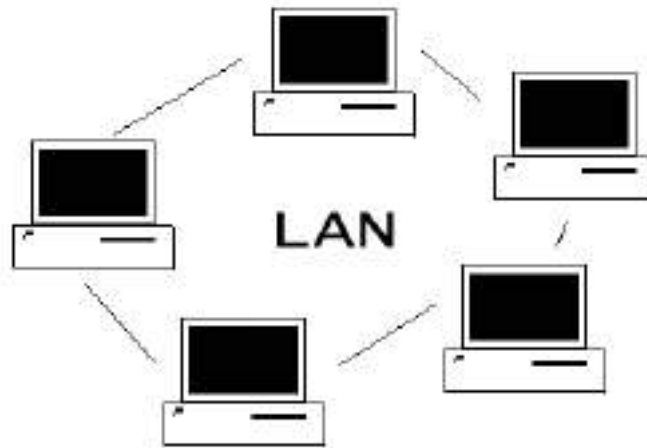


Figure 1.2: Local Area Network

Data transmission rate in LAN is very fast, with speeds ranging from 10 Mbps to 10 Gbps. LAN's can be either wired or wireless. Communication medium such as twisted pair, coaxial or fibre optic cable can be used in wired LAN's. Nodes in a LAN are linked together by using a certain topology. These topologies include: Bus, Ring and Star.

Metropolitan Area Network

Metropolitan Area Network (MAN) is larger than a local area network and as its name implies, covers the area of a single city. MAN rarely extends beyond 100 KM and frequently comprises a combination of different hardware and transmission media. A MAN might be owned and operated by a single organization, but it usually will be used by many individuals and organizations. It can be single network such as a cable TV network or it is a means of connecting a number of LANs into a larger network so that resources can be shared LAN to LAN as well as device to device.

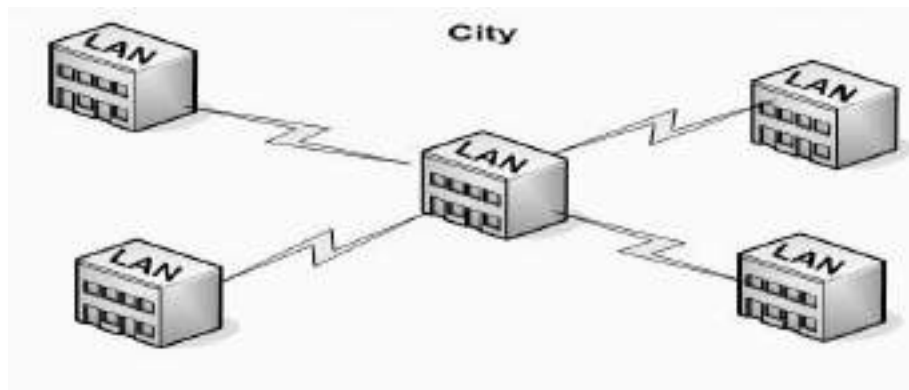


Figure 1.3: Metropolitan Area Network

As shown in Figure 1.3, by using MAN, resources can be shared from LAN to LAN and from computer to computer also. MANs are usually owned by large organizations to interconnect its various branches across a city. MAN is based on IEEE 802.6 standard.

Wide Area Network

A wide area network (WAN) is a network that is usually used for connecting computers, which spans a wide geographical area, such as between different cities, states or even countries. WANs often connect multiple smaller networks, such as local area networks (LANs) or Metropolitan Area Networks (MANs). The world's most popular WAN is the Internet.

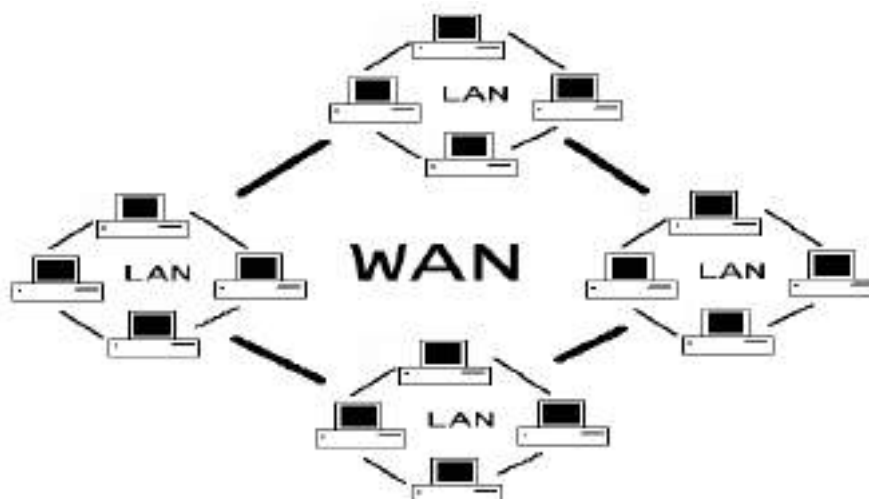


Figure 1.4: Wide Area Network

Figure 1.4 depicts WAN (Wide Area Network). To cover great distances, WANs may transmit data over leased high-speed phone lines or wireless links such as satellites.

1.3 Internet

The internet is a means of transport for information. It is not a thing but it is a set of standards which allow different computers to communicate with each other. The Internet, sometimes called simply "the Net" is a network of networks in which users at any one computer can get the information from any other computer in the world and sometimes talk directly to the users of any other computer anywhere in the world. A computer network is a data communications system made up of hardware and software that transmits data from one computer to another. The one part of a computer network includes physical infrastructure like wires, cables, fibre optic lines, undersea cables and satellites and the other part of a network is the software that keep it running. Computer networks can connect to other computer networks to get an even bigger computer network. The Internet is a set of connected computer networks. It is often also referred to as the Information Superhighway or simply, the Net or the Web.

Today the internet is a public, cooperative and self-sustaining facility accessible to hundreds of millions of people worldwide. Internet uses can be simply categorized as publishing and getting information on various subjects like marketing, management, science, new technologies, training materials, jobs, higher education, mathematics, music, games, software, and e-Commerce and many more.

The kind of information available in the internet can also be listed as text documents, graphic files, sound and video files, downloadable games and software, demo games and software. In short the Internet has greatly changed the way people use computers and communicate today.

1.4 Evolution of Internet

In 1969, the Department of Defense Advanced Research Projects Agency (ARPA) developed an experimental network called ARPAnet to link together

four supercomputing centres for military research. This network had many and difficult design requirements that it had to be fast, reliable, and secure. The ARPAnet network employed a set of standard protocols to create an effective way for these people to communicate and share data with each other.

ARPAnet's popularity continued to spread among researchers and in the 1980's the National Science Foundation whose NSFNet linked several high speed computers and evolved into a huge network of computers which is today known as the Internet. By the late 1980's, thousands of cooperating networks were participating in the Internet.

In 1991, the U.S. High Performance Computing Act established the NREN (National Research & Education Network). NREN's goal was to develop and maintain high-speed networks for research and education and to investigate commercial uses for the Internet. The Internet has been improved through the developments of various services such as Gopher and the World Wide Web.

Even though the internet is predominantly thought of as a research oriented network, it continues to grow as an informational, creative, and commercial resource every day and all over the world.

1.5 Applications of the Internet

The Internet provides many facilities to the people. The main application areas of Internet are discussed below:

Sharing Information

The internet provides a platform where people can share information with other people around the world. The scientist or researchers can interact with each other to share knowledge and to get guidance. Sharing information through internet is very easy, fast and cheap.

Collection of Information

On the internet people can get information on any topic of interest. A lot of information of different types is stored on the web server on the Internet. It means that billions of websites contain different information in the form of text

and pictures. One can easily collect information on every topic of the world. For this purpose special websites called search engines are available on the Internet to search information of every topic of the world. The most popular search engines are google.com, msn.com, altavista.com, search.com, yahoo.com, ask.com, dogpile.com etc. The scientists, writers, engineers and many other people use these search engines to collect latest information for different purposes. Usually the information on the Internet is free of cost and is available twenty four hours a day.

News

One can get latest news of the world on the Internet. Most of the newspapers of the world are also available on the internet. They have their websites from where we can get the latest news about the events happening in the world. These websites are periodically updated or they are immediately updated with latest news when any event happens around the world.

Searching Jobs

People can search different types of jobs all over the world. Most of the organizations, departments around the world advertise their vacant vacancies on the internet. The search engines are also used to search the jobs on internet. One can apply for the required job through internet.

Advertisement

Nowadays most of the commercial organizations advertise their product through internet. It is very cheap and efficient way for the advertising of products. The products can be presented with attractive and beautiful way to the people around the world.

Communication

One can communicate with other through internet around the world. People can talk by watching to one another and for this purpose different services such as Chatting, Video conferencing, E-mail, Internet telephony etc. are provided on the Internet.

Entertainment

Internet also provides different types of entertainment to the people. One can play games with other in any part of the world. Similarly people can watch and download movies, can also listen to the music online or download music of our choice from the internet. People can also make new friends on the Internet for enjoyment.

Online Education

Internet provides the facility to get online education. Many websites of different universities provide lectures and tutorials on different subjects or topics. One can also download these lectures or tutorials into their computers. One can listen to these lectures repeatedly and can get a lot of knowledge. Virtual classroom is an environment that enables teachers worldwide to teach students synchronously on the Internet. It is very cheap and easy way to get education.

Online Results

Today most of the universities, education boards, organizations provide their results on the Internet. The students or the applicants can get their results from any part of country or world with the help of internet.

Online Airlines and Railway Schedules and Reservation

Airline companies and Railways provide their schedules of flights and trains respectively on the Internet. The bookings of the tickets can be done online which saves our time and efforts.

Online Medical Advice

Many websites are also available on the Internet to get information about different diseases. One can consult a panel of online doctors to get advice about any medical problem. In addition a lot of information is also available on the Internet for research in medical field.

Shopping

The online shopping has become very popular. People can find and purchase anything i.e. appliances, books, clothing, groceries, gadgets, software, furniture etc. via the internet.

Social Networking

Social networking websites function like an online community of internet users. The social networking community members share common interests in hobbies, religion, politics and alternative lifestyles. Some common sites are facebook, twitter, my space and YouTube.

Summary

- A network can be defined as a group of computers and other devices connected to each other so that they can exchange data.
- The computers on a network may be linked through twisted-pair copper wire, coaxial cable, optical fibre and various wireless technologies.
- Different types of network are Local Area Network (LAN), Wide Area Network (WAN) and Metropolitan Area Network (MAN).
- A LAN is a network that is used for communicating among computer devices, usually within an office building or home.
- Metropolitan Area Network (MAN) is larger than a local area network and as its name implies, covers the area of a single city.
- A wide area network (WAN) is a network that is usually used for connecting computers, which spans a wide geographical area, such as between different cities, states or even countries.
- The internet is a means of transport for information. It is not a thing but it is a set of standards which allow different computers to communicate with each other.

Exercise 1

Q.1 What is meant by Computer Network?

Q.2 Write a short note on Local Area Network.

Q. 3 Differentiate between WAN and MAN.

Q.4 Write a short note on the evolution of internet.

Q.5 Define the term internet. Discuss the various applications of internet.

Q.6 Discuss the following:

- ARPANET
- NREN

Objectives

- Introduction
- World Wide Web (WWW)
- Web Browsers
- Search Engines
- E-mail
- File Transfer Protocol

2.1 Introduction

The Internet is a worldwide network of computer networks, which feature such services as data-sharing, electronic messaging and on-line commerce. Millions of computers are connected through the internet and the internet is made up of several parts but major parts are namely- World Wide Web (WWW), E-mail and FTP.

2.2 World Wide Web (WWW)

The World Wide Web is a part of the internet which designed to allow easier navigation through the use of graphical user interfaces and hypertext links between different addresses. The World Wide Web was created in 1992 by Tim Berners-Lee and continues to change and expand rapidly. The web is the user part of the internet based on TCP/IP protocol technology to swap information back and forth. People use the Web to communicate, access information, for business, and recreational purposes.

The World Wide Web commonly called the web or WWW is a tool that we use on the internet to get an access to information stored on other systems throughout the world. The web has powerful linking abilities to other internet services and resources worldwide. The web consists of a body of information protocols, conventions, standards and concepts. The growth of the Internet was enhanced by the increasing popularity of personal computers, e-mail and the World Wide Web which was introduced in 1991 and saw explosive growth beginning in 1993. By 2000 it was estimated that the number of adults using the Internet exceeded 100 million in the United States alone. The World Wide Web (WWW or W3) is a hypertext system that made browsing the Internet and retrieving information both fast and easy. The Web is the collection of globally distributed text, multimedia files, documents and other network services that are linked to create an immense worldwide electronic library. It is called the Web because it is made of many interconnected sites and it looks like a spider web. The Web consists of three main parts:

- Hypertext Markup Language (HTML)
- Hyper Text Transfer Protocol (HTTP)

- Universal Resource Locator (URL)

The Hypertext Markup Language (HTML) which comprises the programming codes, or tags, that defines fonts, layouts, embedded graphics, and hyperlinks to other documents accessible via the Web.

The Hyper Text Transfer Protocol (HTTP) which defines a set of standards for transmitting Web pages across the Internet.

The Universal Resource Locator (URL) which is a standardized naming convention for identifying a Web document or file i.e. the address of a link. Users can retrieve information quickly by clicking on hyperlinks. Text, graphics, sound, and video can all be accessed by using browsers like Firefox, Safari, Opera, or Internet Explorer.

2.3 Web Browsers

The World Wide Web is a system of internet servers that support specially formatted documents. Web browsers are used to make it easy to access the World Wide Web. Browsers are able to display Web pages in part to an underlying Web protocol called Hyper Text Transfer Protocol. HTTP defines how messages are formatted and transmitted and what actions Web servers and browsers should take in response to various commands. It allows Web clients and Web servers to communicate with each other. When we enter a Web address in the browser, this actually sends an HTTP command to the Web server directing it to fetch and transmit the requested Web page and display the information in the browser. All Web servers serving Web sites and pages support the HTTP protocol. For example the web address to reach the definition of browser on Google is: <http://www.google.com/browser.html>.

As one enter the URL "<http://www.google.com/browser.html>" into the address line of the browser, the browser breaks that web address down into three distinct parts. The Protocol: "http", the server name: "www.google.com" the file name which follows the server name: "browser.html".

In order for the browser to actually connect to the Web server to retrieve the information which is requested, it communicates with a name server to translate the server name into an IP address. The web browser is then able to

connect to the web server at the resolved IP address. Once the browser has connected to the web server using HTTP, the browser then reads the Hyper Text Markup Language and the data is then displayed in the Web browser. A Web browser is actually a software application that runs on the Internet-connected computer. It allows us to view web pages, as well as use other content and technologies such as video, graphics files, and digital certificates. Some browsers will translate only text while others do support graphics and animation. All the web browsers are not equal, and web pages will also not be displayed the same in different browsers. The most commonly used web browsers are as follows:

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

Netscape Web browser

The first commercial Web browser was Netscape. The latest version is available for windows XP, windows 2000, windows 98 SE and windows ME. Netscape Browser 8x is the next-generation release of Netscape's venerable and once extremely popular Web browser. Version 8.0 is based on code from company spin-off Mozilla, borrowing much of the functionality and format from the increasingly popular Firefox browser. The Netscape browser offers integrated pop-up controls, tabbed browsing features, and a password manager, but the most interesting and unique feature is the dual rendering and layout engines that allow users to switch between Firefox and IE.

Microsoft Internet Explorer

Windows Internet Explorer or formerly Microsoft Internet Explorer and commonly called IE is a series of graphical web browsers developed by Microsoft and included as part of the Microsoft Windows line of operating systems starting in 1995. It has been the most widely used web browser since 1999. Basically Internet Explorer is a web browser and an interface used to

surf the internet. Microsoft's Internet Explorer (IE) is currently considered the dominant browser. IE version 7 offers tabbed browsing, instant access to e-mail, integrated RSS support, better standards compliance, a built-in phishing filter, advanced security in the form of cross-domain script barriers, International Domain Name Anti-Spoofing protection and an option for deleting browsing history by removing user-identifiable information.

In 2009 windows internet explorer 8 has been made available. The internet explorer is available for the following operating systems e.g. Windows XP, Windows XP 64-bit Edition, Windows Vista, Windows Vista 64-bit Edition, Windows Server 2003, Windows Server 2003 64-bit Edition, Windows Server 2008, and Windows Server 2008 64-bit Edition.

Mozilla Firefox

Mozilla Firefox is a free, open source, cross-platform, Web browser developed by the Mozilla Corporation and hundreds of volunteers. Mozilla Corporation is responsible for the browser where volunteers have created many of the plug-ins available for the browser. Firefox offers support for many standards including HTML, XML, XHTML, CSS, JavaScript, DTD, XSL and PNG images. The browser can also be used on a variety of operating systems such as Windows, Mac OSX, BeOS, FreeBSD, Linux, and others. The current version of Firefox is 29.

Google Chrome Web browser

Google Chrome is a web browser designed for windows systems. It offers users a minimal design and the Google calls it sophisticated technology which is used to make the web faster, safer, and easier on windows-based PCs. Google Chrome features searching from the address bar, thumbnail views of the favorite pages for quick access, a private browsing function that opens an secret window when one don't want to save the browsing history, instant bookmarks, crash control and dynamic tabs. The browser works with Windows Vista and Windows XP.

Opera

Opera is an international web browser developed in Norway. It is available for Windows 3.x and Windows 9x/NT/2000/XP/2003 in four different languages. The most current release, Opera 9x, includes widgets, support for BitTorrents, support for a wide variety of image, audio, and video formats, as well as enhanced HTML features, JavaScript, server push capabilities, Opera e-mail, voice technology, and client side image mapping.

2.4 Search Engines

Internet search engines are special sites on the web that are designed to help people find information stored on other sites. There are differences in the ways various search engines work, but they all perform three basic tasks:

- They search the internet or select pieces of information on the internet based on important words.
- They keep an index of the words they find and where they find them.
- They allow users to look for words or combinations of words found in that index.

Early search engines held an index of a few hundred thousand pages and documents, and received maybe one or two thousand inquiries each day. Today, a top search engine will index hundreds of millions of pages, and respond to tens of millions of queries per day.

Types of Search Engine

Depending upon the method of searching the search engines are of the following types:

- Crawler-Based Search Engines
- Directories
- Hybrid Search Engines
- Meta Search Engines

Crawler-Based Search Engines

Crawler-based search engines use automated software programs to survey and categorize web pages. The programs used by the search engines to access the web pages are called spiders, crawlers, robots or bots. A spider will find a web page, download it and analyze the information presented on the web page. This is a seamless process. The web page will then be added to the search engine's database. After this whenever a user performs a search, the search engine will check its database of web pages for the key words.

The results in the form of list of suggested links are listed on pages by order of which is closest to what the user wants to find online. Crawler-based search engines are constantly searching the Internet for new web pages and updating their database of information with these new or altered pages. Examples of crawler-based search engines are: Google (www.google.com), Ask Jeeves (www.ask.com) and Yahoo (www.yahoo.com)

Directories

A directory uses human editors who decide what category the site belongs to. They place websites within specific categories in the 'directories' database. The human editors comprehensively check the website and rank it based on the information they find using a pre-defined set of rules. Examples of Web directories are: Yahoo Directory (www.yahoo.com) and Open Directory (www.dmoz.org)

Hybrid Search Engines

Hybrid search engines use a combination of both crawler-based results and directory results. More and more search engines these days are moving to a hybrid-based model. Examples of hybrid search engines are: Yahoo (www.yahoo.com) & Google (www.google.com)

Meta Search Engines

Meta search engines take the results from all the other search engines results, and combine them into one large listing. Examples of Meta search engines include: Metacrawler (www.metacrawler.com) and Dogpile (www.dogpile.com).

2.5 E-mail

E-mail is a method of transferring electronic messages using the internet. Electronic mail sometimes called email is a computer based method of sending and receiving messages from one computer to another. These messages usually consist of individual pieces of text which can be sent to another computer user even if the other user is not using the computer at the time when the message was sent. The message can be read at a later time. This procedure is analogous to sending and receiving a letter.

Originally email messages were restricted to simple text but now many systems can handle more complicated formats such as graphics and word processed documents. When mail is received on a computer system it is usually stored in an electronic mailbox for the recipient to read later. Electronic mailboxes are usually special files on a computer which can be accessed using various commands. Each user normally has their individual mailbox. It is very easy to send electronic mail between users of different computer systems which are connected through the networks.

History of E-mail

Electronic mail is a natural and perhaps inevitable use of networked communication technology that developed along with the evolution of the internet. In the year 1971, two programs were developed by Ray Tomlinson, Beranek and Newman which could send messages across the ARPANET. The programs were SNDMSG and READMAIL and they were used to send and read messages respectively. The actual mail addresses as we see today were introduced in 1984.

However in 1989 MCI Mail and CompuServe provided the first commercial e-mail connection to the internet through the Corporation for the National Research Initiative (CNRI) and Ohio State University respectively. E-mail

could then be accessed only through e-mail clients. Web-based mail was introduced in 1996 by Hotmail.

Structure of an E-mail

To create a new e-mail message one has to provide certain information to make sure that the message gets to its intended destination. So the structure of an e-mail message is shown in Figure 2.1 below.

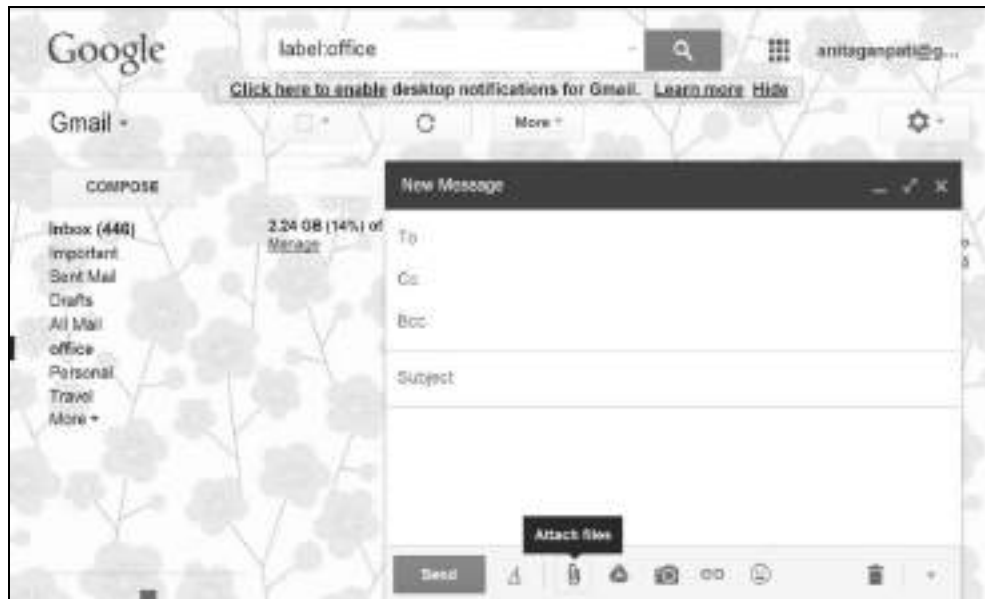


Figure 2.1: Structure of e-mail

The constituents of email structure are also defined as follows:

To: This is the address or addresses to which the mail is sent. e.g. unknown@gmail.com

Add Cc: In this Cc stands for Carbon Copy and in this field one can specify the address/addresses of those to whom we want to send a copy of the mail. The CC recipient's name is visible to all recipients.

Add BCc: In this BCc stands for Blind Carbon Copy. In the BCc also a list of addresses is mentioned. These people will also receive a copy of the message. But a BCc recipient's name is not visible to the other recipients. The BCc recipients can see the To and Cc addresses.

Subject: A short title for the mail. It tells the recipient about contents of the message.

Attachments: One can attach one or more pictures, documents or any other file with the e-mail. Some computers specify a maximum size for the e-mails

they can handle so one has to keep that in mind while sending very big attachments.

Body: The body contains the actual message which has to be sent.

From: This is the address of the sender of the e-mail. Apart from the e-mail address, from field may contain the name of the sender also.

E-mail Address

The postal address of any residence contains information about the name, House Number, Street, City, Country and the ZIP/PIN code. Similarly an e-mail address will show the name and the computer which is used for sending and receiving the email. For example: anitaganpati@gmail.com is a form of email address.

In the example anitaganpati is the user name, @ is the computer having the domain name gmail.com. The whole text following the @ symbol is the address of the computer. The @ symbol in e-mail addresses was also introduced by Ray Tomlinson.

Email providers

Most email services have been around for years but the various free and popular email providers are: Google, Yahoo, MSN etc. Gmail is a free email service provided by Google. In many ways, Gmail is like any other email service: One can send and receive emails, block spam, create an address book and perform other basic email tasks. But, it also has some more unique features that help to make it one of the most popular email services on the Web.

Create an Gmail Account

The procedure for setting up an email account will be explained briefly in the following section. Creating an account for other email accounts is very similar. Open any browser i.e. Internet Explorer, Google chrome, Safari, Mozilla Firefox for opening a particular email account. In case of a gmail account, open <https://accounts.google.com> website. Then click on create an account. The following window as shown in Figure 2.2 will open:

Create your Google Account

One account is all you need
A single username and password gets you into everything Google.

Make Google yours
Set up your profile and preferences to suit the way you like it.

Take it all with you
Carry all your documents, and get a lot more from your life with it.

Name
First Last

Choose your username
Username (Google will add a number if it's taken)

Create a password
Password

Confirm your password
Confirm Password

Birthday
Month Day Year

Gender
Male Female

Mobile phone
Country + Phone Number

Your current email address
Email Address

Prove you're not a robot
Step this verification (shows verification code for input)

Type the text:
1234

Location
Country State

☐ I agree to the Google Terms of Service and Privacy Policy

Figure 2.2: Creation of Gmail account

After filling the required details the gmail account with username dcchpu@gmail will be created.

E-mail Advantages

1. E-mail messages are transferred instantly.
2. Cost of sending an email is zero or negligible
3. One e-mail message can be sent to multiple recipients almost at the cost of a single email. When compared to conventional postal service this is indeed a huge saving.
4. Any digital document can be sent over email as an attachment.
5. The delivery of email messages is almost guaranteed.
6. Just like the postal and courier services we can request a return receipt which tells that the email has been delivered or not.
7. One of the greatest advantages of using email is that it is accessible anywhere, anytime through a variety of devices - computers, laptops, palmtops and even cell phones. One can check email from any location as long as an active internet connection is available.
8. If not all several steps in the emailing process can be automated. A good example is sending birthday greetings to people. An email

program checks the birthday and the name of the recipient from a list. A message is then formulated and sent on the specified date.

2.6 File Transfer Protocol

File Transfer Protocol is a protocol used for transferring files from one computer to another typically from a computer to a web server. To transfer files with FTP a program often called the "client" is used. The FTP client program initiates a connection to a remote computer running FTP "server" software. After the connection is established the client can choose to send and/or receive copies of files singly or in groups. To connect to an FTP server the client requires a username and password as set by the administrator of the server. Many public FTP archives follow a special convention that accepts username as "anonymous."

Simple FTP clients are included with most network operating systems. But most of these clients such as FTP.EXE on Windows support a relatively unfriendly command-line interface. Many alternative freeware / shareware third-party FTP clients have been developed that support graphic user interfaces and additional convenience features. In any FTP interface the clients identify the FTP server either by its IP address e.g. such as 192.168.0.1 or by its host name such as ftp://about.com. In TCP there are two ways of transferring data - ASCII or text mode for text files and binary mode for all other types of information (e.g., images). Thus FTP includes commands to specify which mode to use for the file transfer.

FTP Connection

To connect the local machine to the remote machine type

ftp machinename

where *machinename* is the full machine name of the remote machine, e.g. ipswitch.com. If the name of the machine is unknown then type

ftp machinennumber

where *machinenumber* is the IP address of the remote machine e.g. 129.82.45.181. If the remote machine has been reached successfully then FTP responds by asking for a *loginname* and *password*.

When someone enter the *loginname* and *password* for the remote machine it returns the prompt

```
ftp>
```

and permits the access on the remote machine. This enables the user to move around in his or her own directory and to copy files to and from the local machine using the FTP interface commands.

Anonymous FTP

At times we may wish to copy files from a remote machine on which we do not have a *loginname*. So this can be done by using *anonymous* FTP. When the remote machine asks for the *loginname*, one should type in the word *anonymous*. Instead of a *password*, one should enter the own electronic mail address. This allows the remote site to keep records of the anonymous FTP requests. Once the user has been logged in, the user is in the anonymous directory for the remote machine. This usually contains a number of public files and directories. Again the user will be able to move around in these directories. However the user is only able to copy the files from the remote machine to own local machine but the user will not able to write on the remote machine or to delete any files from there.

Summary

- The Internet is a worldwide network of computer networks, which feature such services as data-sharing, electronic messaging and on-line commerce.
- The World Wide Web is a part of the internet which designed to allow easier navigation through the use of graphical user interfaces and hypertext links between different addresses.
- The Hypertext Markup Language (HTML) which comprises the programming codes, or tags, that defines fonts, layouts, embedded graphics, and hyperlinks to other documents accessible via the Web.
- The Hyper Text Transfer Protocol (HTTP) which defines a set of standards for transmitting Web pages across the Internet.
- The Universal Resource Locator (URL) which is a standardized naming convention for identifying a Web document or file i.e. the address of a link. Users can retrieve information quickly by clicking on hyperlinks.
- Web browsers are used to make it easy to access the World Wide Web.
- Internet search engines are special sites on the web that are designed to help people find information stored on other sites.
- E-mail is a method of transferring electronic messages using the internet. Electronic mail sometimes called email is a computer based method of sending and receiving messages from one computer to another.
- File Transfer Protocol is a protocol used for transferring files from one computer to another typically from a computer to a web server.

Exercise 2

- Q.1 Define e-mail. Explain the structure of email.
- Q.2 What are the contents of email address?
- Q.3 Elaborate the advantages of email.
- Q.4 What are the main tasks performed by a search engine?
- Q.5 Explain File Transfer Protocol.
- Q.6 Define Search Engine and discuss its various types.
- Q. 7 Write a note on world wide web.
- Q. Discuss different web browsers.

Objectives

- Introduction
- Elements of Multimedia Applications
- Categories of Multimedia
- Hypermedia Versus Multimedia
- Uses of Multimedia
- Components of A Multimedia Presentation

3.1 Introduction

Multimedia is a tele-service concept that provides integrated and simultaneous services of more than one telecommunication services, namely, voice-world, video world and data-world. Truly, multimedia is supposed to provide such service in real time and in interactive mode. Typical examples of multimedia applications are WWW, video conferencing, video on demand, interactive TV, interactive movies, electronic magazines and journals, groupware, digital video editing and home shopping.

Multimedia is fast emerging as an important tool of information technology and as a basic tool of tomorrow's life. Interactive multimedia is a service, which provides simultaneous access, dissemination, transportation and processing of more than one information services like voice, video and data in the interactive mode and in the real time environment. Multimedia is to integrate three communication worlds, namely, telephone world, data world and video/TV world into a single communication world. Multimedia application shall comprise of more than one information types, namely the non-real time service of data, images, text and graphics, and the real time service of voice and video. Future world of information and communication shall be converged to multimedia application and shall provide comfort, competition, mobility, efficiency and flexibility. As per Fred T. Hofstetter "Multimedia is the use of a computer to present and combine text, graphics, audio and video with links and tools that let the user navigate, interact, create and communicate".

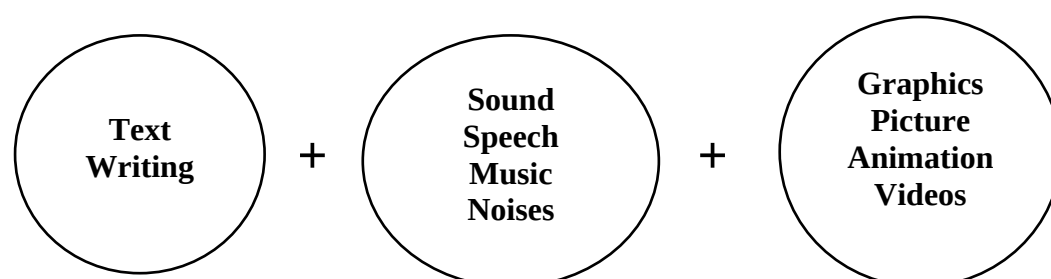


Figure 3.1: Multimedia

Multimedia may be defined as the media that uses multiple forms of information content and information processing (e.g. text, audio, graphics, animation, video and interactivity) to inform or entertain the user. It is shown in

Figure 3.1 above. Multimedia also refers to the use of electronic media to store and experience multimedia content. Multimedia is similar to traditional mixed media in fine art, but with a broader scope. The term "rich media" is synonymous for interactive multimedia.

3.2 Elements of Multimedia Applications

Multimedia means that computer information can be represented through audio, graphics, image, video and animation in addition to traditional media (text and graphics). Hypermedia can be considered as one type of particular multimedia application. Multimedia is a combination of content form.

Various elements used in multimedia applications are as follows:

- Graphics Images
- Animation
- Text
- Audio
- Video

Graphics Images

Graphic images are digital representations of non-textual information such as drawing, chart, or photographs which play an important role in the learning process and which is worth a thousand words. Graphics are especially useful when there is a need to illustrate something or compare information. Images can be added to multimedia applications using color scanners and digital camera. Figure 3.2 shows a digital camera and scanner which are an example of graphic images.



Digital Camera



Scanner

Figure 3.2: Graphic images

Animation

Animation is actually a series of images, presented very quickly. They are useful for the "experience" they allow the end user to have. Just as television is better than newspapers in providing a first-person, experiential account of an event, multimedia that effectively incorporates moving images takes users to the scene and allows them to experience an event for themselves.

Text

Text is an important component used in many multimedia applications. They are characters that are used to create words, sentences and paragraphs. Text alone provides just one source of information. Yet, text is good at providing basic information. It is the simplest, and often the most effective way to get one's message across. Insufficient attention given to the presentation and flow of text within multimedia application can result in the failure to communicate the presentation's central message.

Audio

Audio is music, speech, or any other sound that the computer converts from analog sound/waves into a digital format. Sound helps in providing an additional element. There are times when it is important to let users hear the actual sound or sounds from a person or event. An audio device is shown in Figure 3.3.



Figure 3.3: Audio Device

Video

Video is made up of series of frames of slightly varied images which, when shown in rapid succession, give the impression of movement (as shown in Figure 3.4). Shooting video requires video skills and an understanding of the special demands of multimedia and pictures. Video sequences are made by capturing frames.

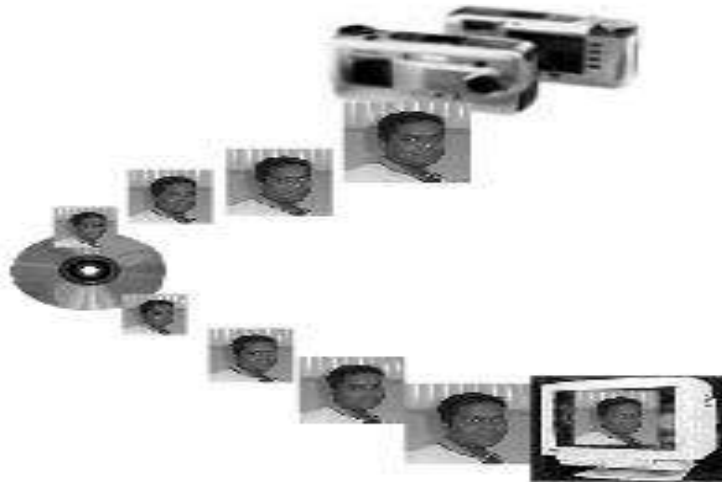


Figure 3.4: Video as Composition of Frames

3.3 Categories of Multimedia

Multimedia may be broadly divided into linear and non-linear categories. Linear active content progresses without any navigation control for the viewer such as a cinema presentation. Non-linear content offers user interactivity to control progress as used with a computer game or used in self-paced computer based training. Non-linear content is also known as hypermedia content.

Multimedia presentations can be live or recorded. A recorded presentation may allow interactivity via a navigation system. A live multimedia presentation may allow interactivity via interaction with the presenter or performer. The linear multimedia is where the users or the viewer's cannot interact with the media such as a movie. The non-linear multimedia involves interactivity such as computer games, computer based training. Multimedia presentations can be live or recorded.

3.4 Hypermedia versus Multimedia

Text media may be classified into two groups: linear and non-linear. A book is an example of linear medium. A book is written for reading from the beginning to the end. The hyper-text is non-linear. In non-linear media, accessing or reading is not necessary from the starting to the end. Links and jumping without loss of meaning and continuity are essential parts of non-linearity. We may think of sequential memory versus random access memory to compare linear media versus non-linear media. Hypermedia refers to media like text, graphics, images, sound and video with property of non-linearity. Book is one example of linear media whereas WWW (World Wide Web) is one of the best examples of hypermedia.

Multimedia refers to computer-based information representation of different media like text, graphics, images, animation, video, audio and sound, whereas the hypermedia can be seen as an application of multimedia.

3.5 Uses of Multimedia

Multimedia is used in many areas, including business, education, mathematics and scientific research.

Engineering

In Engineering, especially in mechanical and automobiles engineering, multimedia is primarily used for designing a machine or an automobile. This lets an Engineer view a product from various perspective, zoom in on critical parts and do other manipulation, before actually producing it. This is known as computer-aided design (CAD) or computer-aided engineering (CAE).

Medicine

Doctors are using advanced instruments, computer simulations and techniques to diagnose the illnesses of patients. Virtual surgery for example help the doctor to understand how to perform the surgery. They can also see the simulation of how the human body is affected by diseases due to the viruses and bacteria. This in turn help them to find techniques to prevent such diseases.

Mathematical and Scientific Research

In Mathematical and Scientific Research, multimedia are mainly used for modelling and simulation. For example, a scientist can look at a molecular model of a particular substance and manipulate it to arrive at a new substance.

Virtual Reality (VR)

This technology allows a user to interact with a computer-simulated environment, be it a real or imagined one. Most current virtual reality environments are primarily visual experiences, displayed either on a computer screen or through special stereoscopic displays, but some simulations include additional sensory information, such as sound through speakers or headphones. Mainly applied in medical and gaming applications.

Users can interact with a virtual environment or a virtual artifact (VA) either through the use of standard input devices such as a keyboard and mouse, or through multimodal devices such as a wired glove and omnidirectional treadmill. The simulated environment can be similar to the real world, for example, simulations for pilot or combat training, or it can differ significantly from reality, as in VR games.

In the Arts there are multimedia artists, whose minds are able to blend techniques using different media that in some way incorporates interaction with the viewer. One of the most relevant could be Peter Greenaway who is melding Cinema with Opera and all sorts of digital media.

Education

In Education, multimedia is used to produce computer-based training courses (popularly called CBTs) and reference books like encyclopedias. A CBT lets the user go through a series of presentations, text about a particular topic, and associated illustrations in various information formats. Edutainment is an

informal term used to describe combining education with entertainment, especially multimedia entertainment.

Industry

In the Industrial sector, multimedia is used as a way to help present information to shareholders, superiors and coworkers. Multimedia is also helpful for providing employee training, advertising and selling products all over the world via virtually unlimited web-based technologies.

Multimedia Messaging System (MMS)

The Multimedia Messaging System, or MMS, is an application of multimedia which allows you to send and receive message containing Multimedia related content such as audio and video and also text. Today many cellphones have inbuilt MMs as a feature. An electronic multimedia encyclopedia can present information in better ways than traditional encyclopedia, so the user has more fun and learn more quickly. For instance, an article on American history can include hyperlinks to articles on various presidents who had rule the country even since the independence, when user click on a hyperlink, they are redirected to a detailed article about that President. Hyperlinks help user access information in a non-linear fashion as opposed to print material which are essentially linear. This can speed-up learning and improve the user experience, when added to multiple elements such as picture, photographs, audio and video. It is also said that some people learn better by seeing that reading and some other by listening.

In addition multimedia is heavily used in the entertainment industry, especially to develop special effects in movies and animation for cartoon characters. Multimedia games are a popular pastime and are software programs available either as CD-ROMs or online. Some video games also use multimedia features. Multimedia application that allow user to actively participate instead of just sitting by as passive recipient of information are called Interactive Multimedia. The other areas where multimedia is used are – Advertising, Computer Simulations, Governmental Services and Journalism

3.6 Components of a Multimedia Presentation

A basic multimedia system includes input devices, output devices, memory, backing storage, and a variety of software.

Input devices and software

Keyboard and mouse

For text entry, a standard QWERTY keyboard and mouse are needed.

Scanner

A scanner allows the input of drawings, photographs or text directly into the computer's memory. A scanner is similar to a photocopier as it shines a light onto the item to be scanned and then reads the light that is reflected.

Optical Character Recognition Software (OCR)

Optical Character Recognition Software is usually known as OCR software. When you use OCR software with a scanner you can scan text directly into the computer's memory as a word-processed document. Once scanned into the computer's word processor text can be edited and saved just like any text you may have typed into the word processor. OCR software has a limited number of characters it recognizes, and therefore mistakes in scanned text are common.

Microphone

A microphone can be used to allow sound to be entered into a computer's memory. Most computers have inbuilt microphones, or have an interface which allows a microphone to be plugged into the computer. The quality of sound generated by a microphone is generally poor so it would not be used for recording music.

Voice Recognition Software

Voice Recognition Software allows the user to enter text by speaking rather than typing. The user speaks into the microphone and the words spoken are

converted into text in a word-processing package. Voice recognition has following drawbacks:

- The user must speak slowly and clearly to allow the software to recognize all the words.
- The software has difficulty with strong accents and the user may have to repeat words and phrases before they are recognized.

Graphics tablet

A graphics tablet has a pen or pointer connected to a flat board, which is sensitive to pressure. When pressure is applied to the board using the pen or pointer, the position of the pen or pointer is sent to the computer. A graphics tablet allows the user to draw or trace shapes which will go directly into the computer. A graphics tablet can allow the user to write text directly into the computer with the correct software.

Handwriting Recognition Software

Handwriting Recognition Software allows the user to write in his or her normal handwriting. The software reads the shape of the writing and converts it into text that goes into the computer's word processing program. One drawback of handwriting software is that if you are a poor writer the software may not read the handwriting correctly and errors will occur.

Digital camera

Photographs taken using a digital camera can be easily saved to a computer's memory. The camera is connected to the computer using a cable, which then allows pictures stored in the camera to be uploaded into the computer's memory. The amount of memory that a digital camera has will restrict the number of images that can be stored. A camera with 4mb of memory will be able to store between 30 to 100 JPEG images depending on the level of resolution used for the images. Resolution is the amount of detail in an image. If high-quality images are required they will need to be saved as a high-resolution image. The higher the resolution the more memory is required. Therefore, if you take pictures with a high resolution you will not be able to store as many pictures in your camera.

Digital Camera Software

Most digital cameras come with photo-enhancing software, which will allow you to alter the content as well as the brightness, contrast and colors of the photographs.

Video camera

A digital video camera is used for taking movies and works in a similar way to a still video camera but the pictures are stored on a tape. A digital video camera can be connected to a computer system using a cable normally supplied with the camera. If the computer has the correct software, videos can be transferred onto the computer. Once the video is in the computer's memory the videos can be edited. Movies require a great deal of memory, so to store videos would require a large backing storage.

Output devices

Monitors

Monitors are also known as Visual Display Units. The VDU is the screen used to display the output from the computer. The image displayed on the VDU is made up of small blocks called pixels. The more pixels that are on an image the greater the resolution. Remember that the greater the resolution the more detailed your image will be. So a high-resolution monitor will give a high-quality picture, as it will have more pixels than a low-resolution monitor. The two main types of monitor are: Cathode ray tube and liquid crystal display.

Cathode Ray Tube: This is the most common type of monitor. Images on this type of monitor are created by beams hitting phosphorus inside the screen making the phosphorus glow. The glowing particles of phosphorus are the pixels.

Liquid Crystal Display: A LCD monitor is flat and lightweight and also needs very little power to operate. LCD screens are normally found on laptop computers

Speakers

Loudspeakers are required to output the sound for a multimedia presentation. Most computers have in-built loudspeakers, as well as an interface which allows additional loudspeakers to be connected to the computer.

Sound cards

Sound cards are additional pieces of hardware that are inside a computer. A good quality sound card improves the sound quality and additional software allows sound to be composed, edited and recorded on the computer.

Sound must be converted from its original analogue state to digital to allow the output of sound from a computer. Good-quality soundcards enhance this conversion. The speakers and microphone plug into the sound card.

Data projectors

Data projectors simply project a presentation from the computer onto a large white screen usually mounted against a wall. Therefore instead of everyone crowding round a monitor the audience can sit and watch a presentation in comfort, as if watching a film in a cinema.

Graphics card

The quality of image displayed on a monitor depends on the quality of the graphics card installed inside the computer. The better the graphics card the better the quality of images that can be displayed.

Graphics cards usually have a large amount of their own memory which allows a variety of resolutions and screen displays. The monitor and data projector plug into the graphics card.

Backing storage

In order to store multimedia presentations you need backing storage. There are a number of backing storage devices which are all parts of the hardware of a computer system. When discussing backing storage the term access is used. In this unit we will only look at backing storage which has random or direct access. Random/direct access is when the storage device can go to a piece of data straightaway wherever it is stored.

Hard disk

On a computer system the hard disk is the main backing storage device. Modern hard-disk drives have a large storage capacity usually between 20 and 30 gigabytes. This large storage capacity is ideal for multimedia presentations as these usually have large storage requirements, especially if they contain high-quality sound and video files.

Floppy disk

Floppy disks are ideal for storing and transferring small files, but due to their small storage capacity (1.44megabytes) they are not usually suitable for multimedia files.

Compact disks

CDs are known as optical storage which means that they use lasers to store and read data. CDs can be removed from a computer and used in other computers easily, making them portable unlike a hard disk. CDs have direct access.

Compact Disk Read Only Memory (CD-ROM)

CD-ROMs have a large storage capacity (700megabytes), making them ideal storage for multimedia presentations. Indeed most computer games and programs come on CD-ROM. CD-ROMs cannot be updated as they are Read Only.

Compact Disk Recordable (CD-R)

Like CD-ROMs you can only save to CD-Rs once, which means One cannot edit the program or presentation once saved onto the disk. The CD-R works in exactly the same way as a CD-ROM and also has a large storage capacity.

Compact Disk Re-Writable (CD-RW)

Unlike CD-ROMs and CD-Rs a CD-RW can be re-written too many times. CD-RWs also have a large storage capacity, which makes them ideal backing storage for large multimedia presentations that may need to be updated.

Digital Versatile Disk (DVD)

The main difference between CDs and DVDs is that DVDs have a larger storage capacity, up to 17 gigabytes.

Digital Versatile Disk – Recordable (DVD-R)

DVD-Rs are disks that can be written to once.

Digital Versatile Disk – Re-Writable (DVD-RW)

DVD-RWs are disks that can be written to more than once, which also makes them ideal for storing large multimedia presentations that may need to be updated.

USB – Flash drive

A flash drive is a small compact memory chip that plugs into the USB port of a computer. Flash drives allow data to be stored, erased and re-written to many times. Flash drives are portable backing storage devices that have a storage

capacity ranging from 64 megabytes up to 256 megabytes. The table on the next page gives a summary of the cost, capacity and speed of access and portability of the backing storage devices discussed. Remember that technology is improving every day so it is impossible to give exact storage capacity and cost.

File Types

There are many different ways to store files but choosing the correct file type can dramatically reduce the amount of backing storage required. Some file types compress the data, which makes the storage requirements smaller and therefore faster to download.

Text

Text files may have one of the following file extensions: .txt for text, .doc for document and .rtf for rich text format. Txt and Doc are versions of saving word-processed documents. However, they may only save data to a specific application, e.g. only open in Microsoft Word. If they will open in another application the original formatting of the text may be lost. RTF files are saved with all the information about styles, fonts, sizes and page layout. RTF files are recognized by a range of applications allowing transfer of text to other applications without having to sort out how the text is formatted.

Graphics

Graphics files may have one of the following file extensions: .bmp for bitmap, .gif graphics interchange format and .jpeg which is Joint Photographic Experts Group and is used for photographs and graphics.

Summary

- Multimedia application shall comprise of more than one information types, namely the non-real time service of data, images, text and graphics, and the real time service of voice and video
- Graphic images are digital representations of non-textual information such as drawing, chart, or photographs which play an important role in the learning process and which is worth a thousand words.
- Animation is actually a series of images, presented very quickly.
- Text media may be classified into two groups: linear and non-linear. A book is an example of linear medium. A book is written for reading from the beginning to the end. The hyper-text is non-linear. In non-linear media, accessing or reading is not necessary from the starting to the end.
- A basic multimedia system includes input devices, output devices, memory, backing storage, and a variety of software.

Exercise 3

Q.1 Explain Multimedia.

Q.2 What are the different elements of multimedia?

Q.3 Discuss the different categories of multimedia.

Q.4 Differentiate between hypermedia versus multimedia.

Q.5 Explain different uses of multimedia.

Q.6 What are various components of a multimedia presentation?

Objectives

- Operating System
- Windows 7
- Windows 7 Features
- Starting Windows 7
- Windows 7 Desktop

4.1 Operating System

An operating system is the most important software that runs on a computer. An operating system act as an intermediary between user of a computer and hardware. The purpose of an operating system is to provide an environment in which a user can execute programs in a convenient and efficient manner.

The operating system performs many essential tasks for computer. It controls the memory needed for computer processes, manages disk space, controls peripheral devices, and allows you to communicate with the computer without knowing exactly how a computer works. The operating system begins to do its job of controlling the way in which the computer functions. The operating system is responsible for managing the computer's hardware and software resources.

The three most common operating systems for personal computers are Microsoft Windows, Mac OS X, and Linux. Modern operating systems use a Graphical User Interface(GUI). A graphical user interface (GUI) is a human-computer interface (i.e., a way for humans to interact with computers) that uses windows, icons and menus and which can be manipulated by a mouse.

One of the most popular operating systems is Microsoft Windows. Microsoft created the windows operating system in the mid 1980s. Over the years, there have been many different versions of windows operating system. The various versions are: Windows 98, Windows 2000, Windows XP, Windows Vista and Windows 7. Regardless of the version, they all have the same basic functionality. Windows operating system comes preloaded on most new PCs, which helps to make it the most popular operating system in the world.

4.2 Windows 7

Windows 7 is an operating system developed by Microsoft for use on personal computer, including home and business desktops, laptops, netbooks and tablet PCs released in 2009. It provides a Graphical User Interface (GUI) that allows user to visually interact with computer's functions easily or user friendly way. Windows 7 supports both 32 bit and 64 bit processors and comes in six

versions. Following are the Windows 7 Operating system versions released by Microsoft:

- Windows 7 Starter
- Windows 7 Home Basic
- Windows 7 Home Premium
- Windows 7 Professional
- Windows 7 Enterprise
- Windows 7 Ultimate

4.3 Windows 7 Features

Primary features of Windows 7 are:

Graphical User Interface (GUI)

The GUI allows to interact with items on screen using keyboard and mouse.

Speed

Windows 7 bring a more responsive and active feel. It provides improved desktop responsiveness, an expected faster boot time then earlier versions of windows.

Multitasking

Multitasking enables running multiple programs or applications at a time.

Lower hardware requirements

It can run well on lower end hardware and also runs the programs which were designed to run on Window XP operating system.

Manage multiple users

It can manage multiple users with different privileges on same computer.

Multimedia support

The windows media players included in Windows 7 enable you to play and online stream almost every type of multimedia files.

Taskbar / Start menu

By default, taskbar icons are now larger and items are grouped together and are not labeled with text.

Aero-shake

Aero-shake is a new visual feature of Window 7. If we have a multiple windows open and we want to focus on one go to the title bar (at the top) and shake with the mouse. This minimizes all the other windows leaving just the one you've shaken on the desktop.

Windows Firewall and Windows Defender

Firewall protection saves your computer from online malware whereas Windows Defender is built in anti-malware software protecting computer from different viruses and malwares.

Wireless connectivity

Wireless devices are more easily installed and many more devices are supported with Windows 7.

4. 4 Starting Windows 7

When the computer is turned on, Windows 7 starts automatically, but one may have to navigate the Welcome and user log-on screen along the way.

4.5 Windows 7 Desktop

When we start the computer, the screen that appears first is called as the desktop. The desktop is the work area, where one can access everything which is needed to operate the computer, such as system components, applications, the internet, etc. The Desktop is split into two areas. The strip at the bottom, with the clock to the right and the round start button to the left, is called the Taskbar. The rest of the Desktop is the space where all your programs will appear when you start them up. This space contains default background wallpaper, but it can also contain shortcuts to programs, documents and folders.

Components of the Desktop

Start button 

One of the most important tools we use while working with windows operating system. The Start button allows us to open menus and start applications. The Start Button gives access to all the programs that come with the windows. By default, it is located at the bottom left part of the screen on the taskbar & is always visible when windows is running. The Start menu

has three basic parts namely: Left Pane, Right Pane and Search Box. The large left pane shows a short list of programs on the computer. Clicking All Programs displays a complete list of programs. At the bottom of the left pane is the search box, which allows to find programs and files on the computer by typing in search terms. The right pane provides access to commonly used folders, files, settings, and features. It's also has shut down option to turn off the computer. The screen short of start button is shown below in Figure 4.1.



Figure 4.1: Start Button

Left Pane of Start Button for Opening programs

One of the most common uses of the Start menu is opening programs installed on the computer. To open a program shown in the left pane of the Start menu, click it. The program opens and the Start menu closes.

If the program we want to open is not listed, click All Programs at the bottom of the left pane. The left pane displays a long list of programs in alphabetical order, followed by a list of folders. Clicking one of the program icons starts the program, and the Start menu closes.

The search box

The search box is one of the most convenient ways to find things on the computer. The exact location of the items will be given by the search box. Desktop, and other common locations). It will also search your e-mail messages, saved instant messages, appointments, and contacts. The search box is depicted in the Figure 4.2.

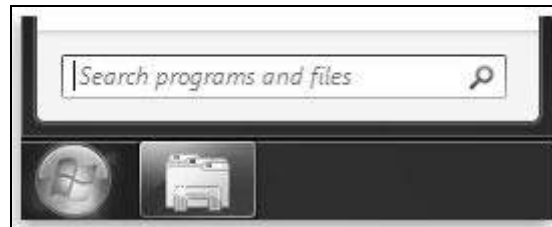


Figure 4.2: Search Box

Right Pane

The right pane of start button contains Personal Folder, Documents, Pictures, Music, Computer, Control Panel, Default programs, Help and Support, Shut Down options.

Personal Folder

Opens the personal folder, which is named for whoever is currently logged on to Windows. For example, if the current user is Anita, the folder will be named Anita. This folder, in turn, contains user-specific files, including the My Documents, My Music, My Pictures, and My Videos folders.

Documents

Links to the documents library, where we can access and open text files, spreadsheets, presentations and other kinds of documents.

Pictures

Links to pictures folder, where we can access and view digital pictures and graphics files.

Music

Links to a music folder, where one can access and play music and other audio files.

Computer

Clicking on this link will open a window where one can access disk drives, cameras, printers, scanners, and other hardware connected to the computer.

Control Pane

Allows to make changes to the current settings on the computer.

Devices and Printers

Opens a window where one can view information about the printer, mouse, and other devices installed on the computer.

Default Programs

Opens a window where one can choose which program we want Windows to use for activities.

Help and Support

Gives us access to a help facility where one can find out how to do certain things on the computer.

Shut Down

Allows the User to turn off the computer.

Taskbar

A thin strip that runs across the bottom of your screen is known as the taskbar. It is split into a number of different areas: a round Start button, Quick launch icons, a notification area, and a clock. All other areas are the Taskbar itself. It is primarily used to switch between open windows and applications. By default, the taskbar is located on the bottom edge of the desktop. We can click the Taskbar and drag it to other locations. The Figure 4.3 below shows the different areas of taskbar.



Figure 4.3: Taskbar

There is one more area on the Taskbar-the Desktop button. In the Figure 4.4 below, see a narrow rectangle to the right of the clock. This button is used to minimize all open programs and reveal the desktop.

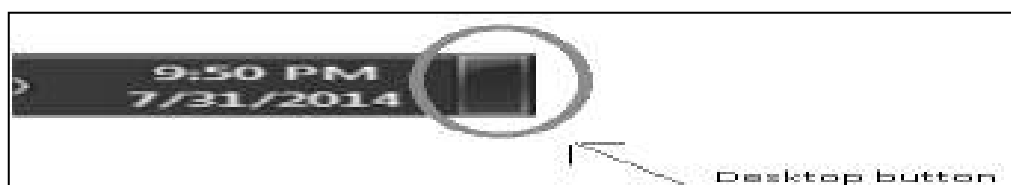


Figure 4.4: Desktop Button

Quick Launch Area

The icons to the right of the round start button are known as the quick launch icons, meaning that one can quickly launch any of the programs seen on the taskbar. When the mouse is hover over one of the icon, we will see a small popup rectangle that shows a preview of any open window. In the image below the mouse is over the Internet Explorer icon. One can also use the Start menu to add programs to the Quick Launch area as shown in Figure 4.5 below. Right-click the program, which we want to add. From the menu, select “Pin to Taskbar”. In the image below, we’re adding Calculator as a quick launch icon.



Figure 4.5: Adding Programs to Quick Launch Area

The result is a new icon in the Quick Launch area as shown in Figure 4.6 below.



Figure 4.6: Added Icon in Quick Launch Area

Notification Area

The Notification area, formally called the System Tray, is the area of the Taskbar where one can view programs and tasks that are running in the

background, as well as view important messages about updating your computer. In the image below, the Notification area shows three icons. The first white arrow on the left is for hidden icons. To see which icons have been hidden Click the white arrow. The last icon in the Notification area is the speaker icon. This sets the volume for computer speakers. Click the speaker icon to see a slider that one can move up and down.

The second icon in the notification area is white flag. The Figure 4.7 depicts this. The flag alerts about the system related issues like maintenance, security etc. which needs to be resolved. The action centre can be accessed by clicking the icon to find more details of the issue.

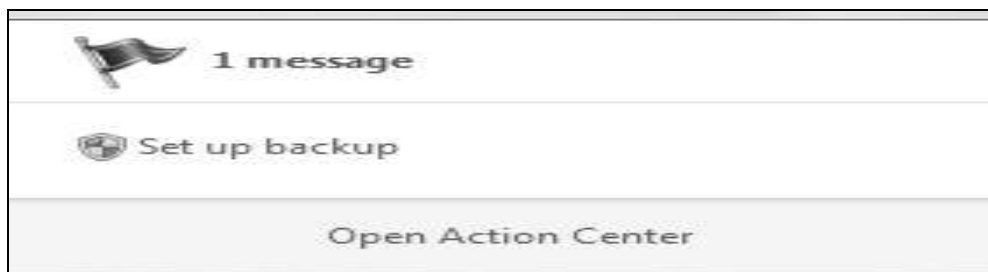


Figure 4.7: Flag in Notification Area

The fourth icon in the notification area indicates the network status of WLAN (wireless local area network) or WIFI (wireless fidelity) internet connection as shown in Figure 4.8. The status also indicates the strength of WIFI signals along with connectivity status of WLAN.



Figure 4.8: WLAN/WIFI Symbol in Notification Area

This tells us whether the WIFI connections are available and can be connected to access the internet. The information yellow triangle on the WIFI status icon indicates that connection has been established however with the limited connectivity or no internet connectivity. The WLAN status icon without the information yellow triangle indicates that the internet can be accessed through the established WLAN.

Clock Area

The default clock shows the date as well as the time as shown in Figure 4.9.

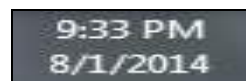


Figure 4.9: Clock Area

The calendar can be accessed by clicking on the clock icon. It is shown in Figure 4.10.

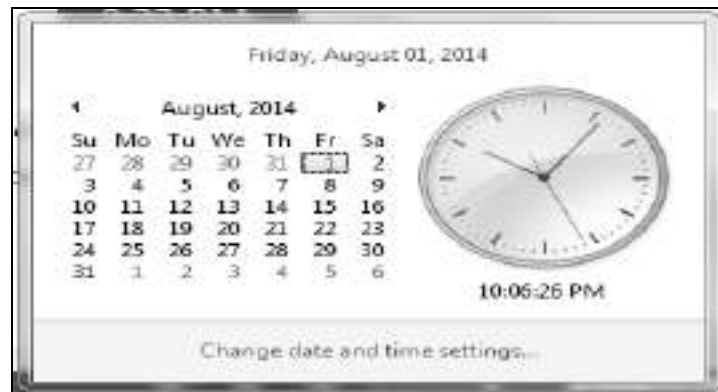


Figure 4.10: Calendar Area

One can change the date and time by clicking on “Change date and time setting”. The following dialogue box appears as shown in Figure 4.11.

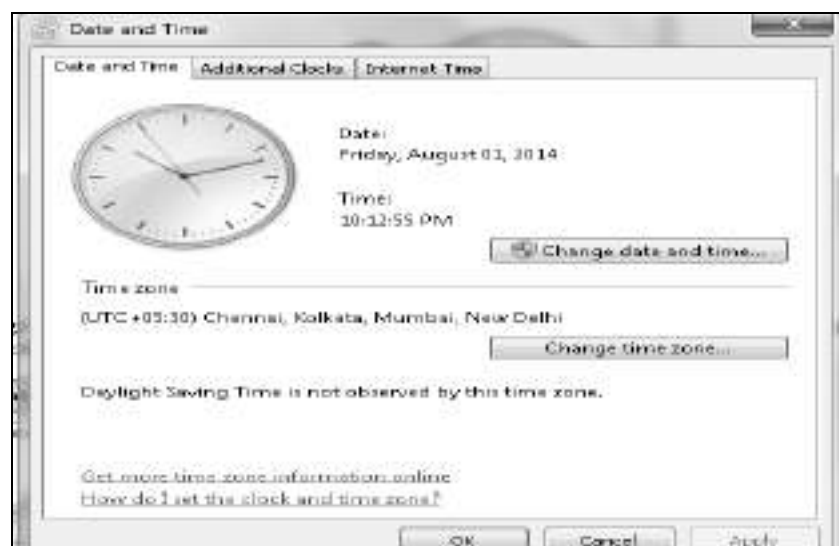


Figure 4.11: Date and Time Settings

Icons or Graphical pictures

The small graphical pictures on the desktop are called icons. One type of icon is an object icon. Examples of object icons are My

Computer, Recycle Bin and Internet Explorer. These icons allow us to open files and programs on our computer. Other types of icons are the Shortcut icons. Shortcut icon allows us to open an application quickly. These icons appear on the desktop and with little arrow in the left corner. Desktop shortcuts or shortcut icons are links to the files and programs on our computer. We can add or delete shortcuts without affecting programs on our computer. To open a program using an icon, place the mouse over the icon. After which, the text appears identifying its name or contents. Then, double-click the icon.

Computer Icon



Computer Icon is used to quickly and easily see everything on your computer. Click the Computer icon on the desktop to browse through the files and folders. Computer displays icons for all the disk drives and options for common windows utilities as shown in the Figure 4.12:

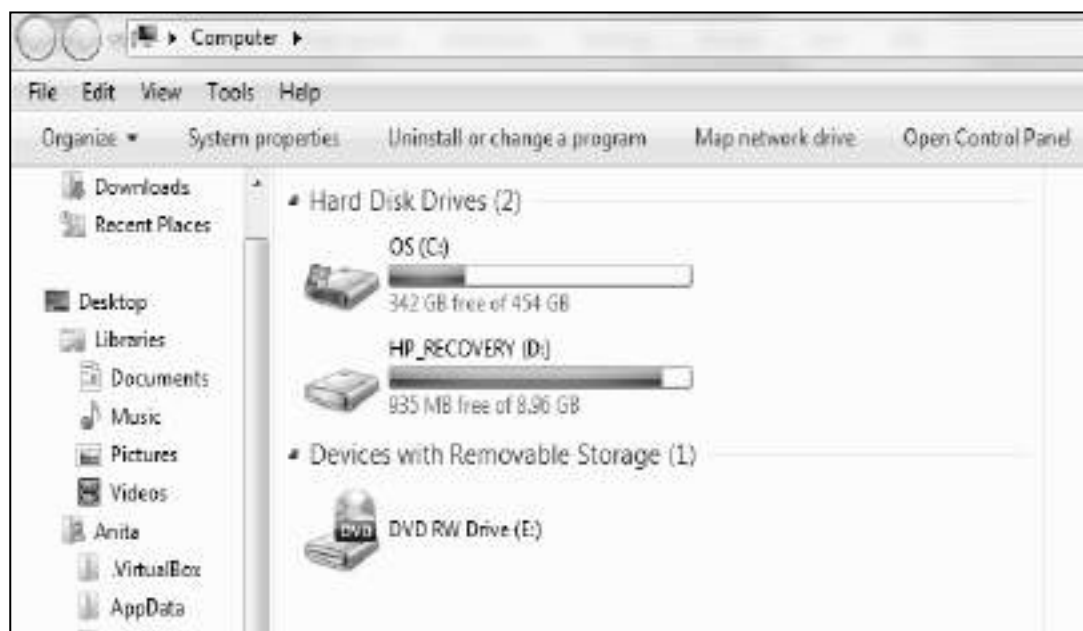


Figure 4.12: Screenshot of Computer Icon

Functions of Computer icon are:

- To browse the contents of various disks like hard disk, CD, DVD etc.
- To create, copy, move or rename files and folders.
- To run a particular application.

- To see system properties (right click on the Computer icon on Desktop and select properties option).
- To uninstall or change a program.
- To open Control Panel.

Recycle Bin



Recycle Bin is the same as the dustbin at home. Anything which is a waste or not needed is put into the dustbin. Similarly, when any data or a record is not required, it can be deleted and put in the recycle bin.

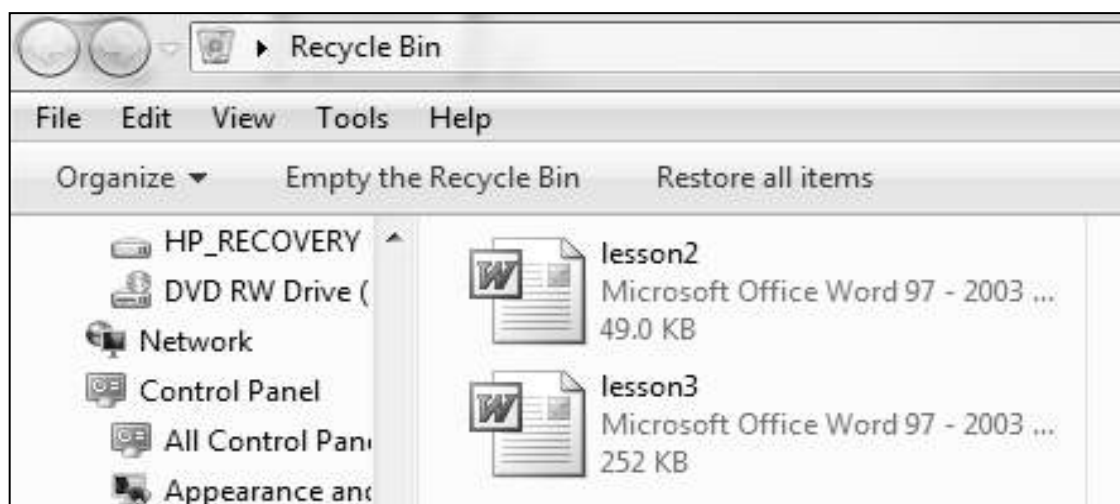


Figure 4.12: Screenshot of Computer Icon

To move all items back to their original location, click Restore all items. To permanently remove all items, click Empty the Recycle Bin. No file can be restored after this.

You can either delete a specific file from recycle bin or you can restore it back to original location. To restore a file, select it by clicking mouse on it and click restore this item tab. To delete a file follow these steps:

- Right click on the item you want delete.
- Click on delete option.

Summary

- An operating system act as an intermediary between user of a computer and hardware.
- Windows 7 is an operating system developed by Microsoft for use on personal computer, including home and business desktops, laptops, netbooks and tablet PCs released in 2009.
- The first screen that appears, when we start the computer is called as the desktop.
- The control panel allows making changes to the current settings on the computer.
- The start button allows us to open menus and start applications.
- Computer icon is used to quickly and easily see everything on your computer.
- When any data or a record is not required, it can be deleted and will be send to the recycle bin.

Exercise 4

Q.1 Define operating system.

Q.2 Discuss different features of Windows 7.

Q.3 Discuss different components of the desktop.

Q.4 Explain Windows 7 operating system.

Q.5 Explain briefly notification area of taskbar.

Q.6 Write a short note on Quick Launch Area of taskbar.

Q.6 Explain the following:

- Recycle Bin
- Computer Icon
- Start button

Objectives

- Introduction
- Uses of Control Panel
- Open the Control Panel in Windows 7
- Views of Control Panel

5.1 Introduction

The Control Panel is a part of the Microsoft Windows, which allows users to view and manipulate basic system settings and controls, such as adding hardware, adding and removing software, controlling user accounts and changing accessibility options. Control Panel is full of specialized tools that are used to change way Windows looks and behaves. Some of these tools help us to adjust settings that make our computer more fun to use.

5.2 Uses of Control Panel

The control panel may be used for the following purpose:

- Add or remove programs from your computer.
- Add or remove hardware devices.
- Configure and set the properties of various devices like printers, modem, keyboard, mouse etc.
- Set display properties such as wallpaper, screen saver etc.
- Manage different user settings.
- Set date and time.

5.3 Open the Control Panel in Windows 7

To open the control panel in windows7 Click Start Button on the taskbar then Click on Control Panel on the Start Menu.

5.4 Views of Control Panel

The Control Panel has three different views: Category View, Large Icon View and Small Icon View (Figure 5.1).

Category View

The category view groups the options under various different categories.

Large Icon View

This view displays as many of the large, individual CONTROL panel program icons as can appear in the Control Panel. Windows displays an alphabetical listing of more than 50 Control Panel Programs on your system.

Small Icon View

This view displays all the small, individual Control Panel program icons in the Control Panel. To switch from Category view to Large Icons or Small Icons view, click the View by drop-down button in the upper –right corner of the Control Panel and then choose Large Icons or Small Icons form the buttons drop-down menu.



Figure 5.1: Different Views of Control Panel Category

Appearance and Personalization

Personalization option is used to change the picture, colors and sound for the computer. The appearance and personalization option has three suboptions namely: change the theme, change desktop background and adjust screen resolution. To change the theme click on personalization with left mouse button (Figure 5.2).



Figure 5.2: Screenshot of Appearance and Personalization

The screen above is used to select a Theme from the available list. A Theme customizes not only desktop background but also a screensaver, the color of windows, sounds and mouse pointers. To set background wallpaper only select Desktop background from the bottom left. The default is called Harmony. When we select Desktop background following window appears. Select a picture from the one available by clicking on it with left mouse button. This will change the desktop background. Click the Save Change button at the bottom to make the change permanent. To set a picture of your own choice, click the dropdown list at the top, where it says Windows Desktop Background(Figure 5.3).

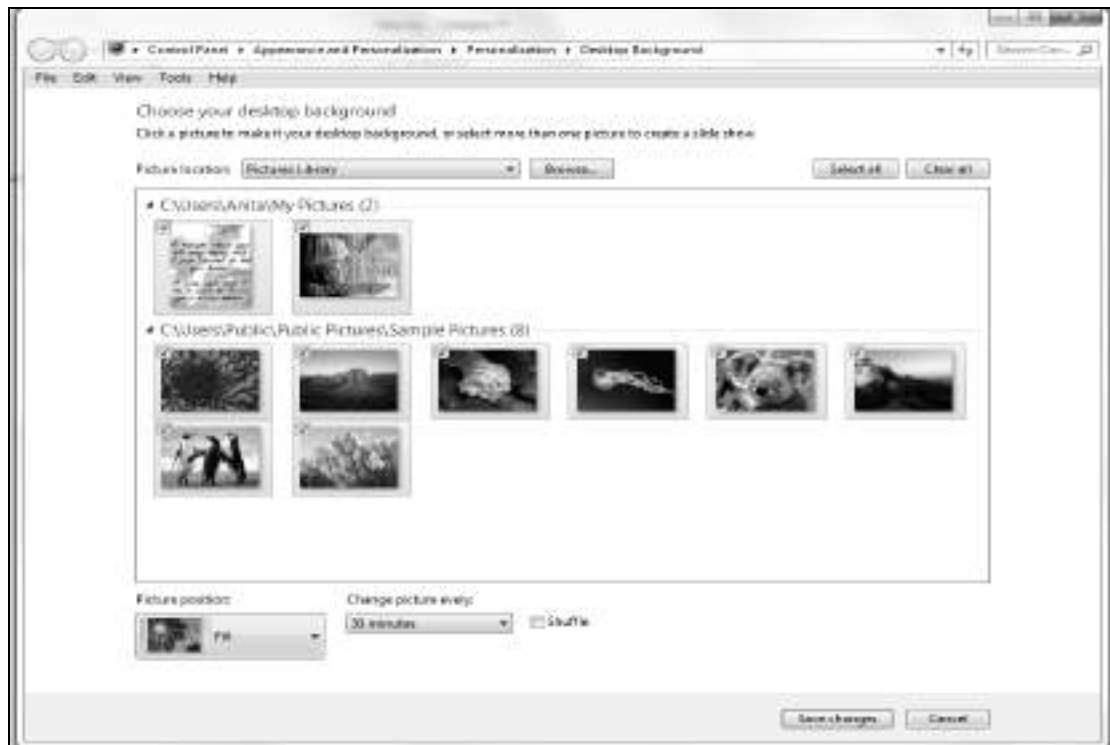


Figure 5.3: Screenshot of Desktop Background

Another option is to click the Browse button. A dialogue box appears(See Figure 5.4).

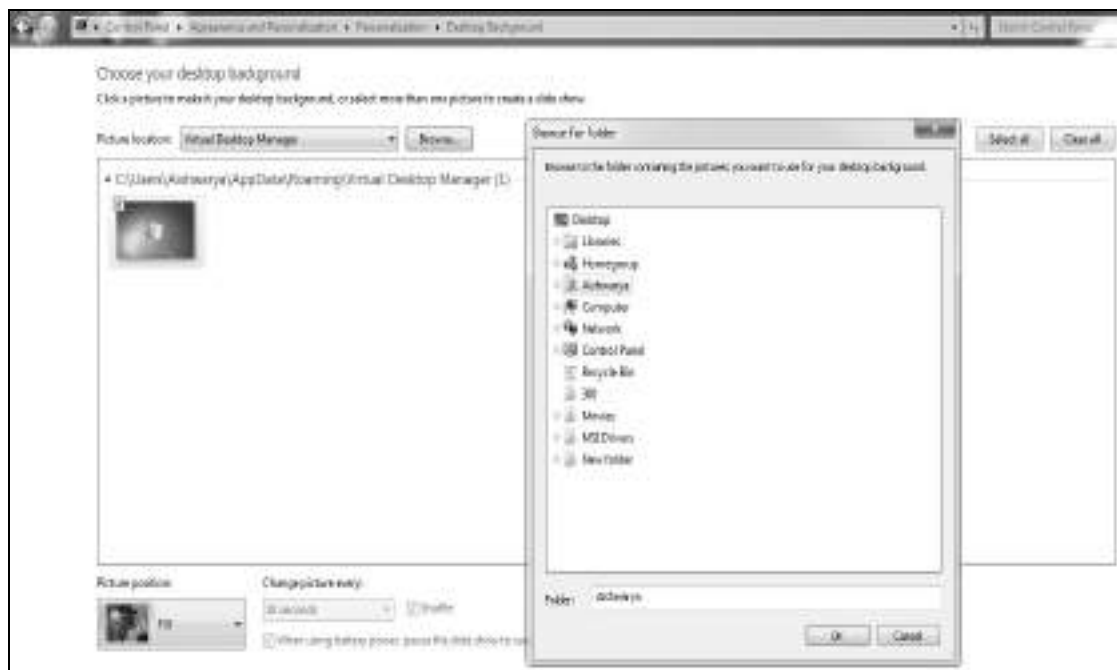


Figure 5.4: Choosing Desktop Background

Browse to the folder where the images are and click OK. In above picture a folder named Aishwarya is selected which contain some images in it. When we click OK, we will see the images in that folder. Select the image we want to appear on the desktop from those available. To have slideshow of all images in the folder, click the Select All button. After we click Select All button the dropdown list shown below becomes available. The list lets us choose how often each image will appear in the slideshow before moving on to the next one. The default is 10 seconds (Figure 5.5).

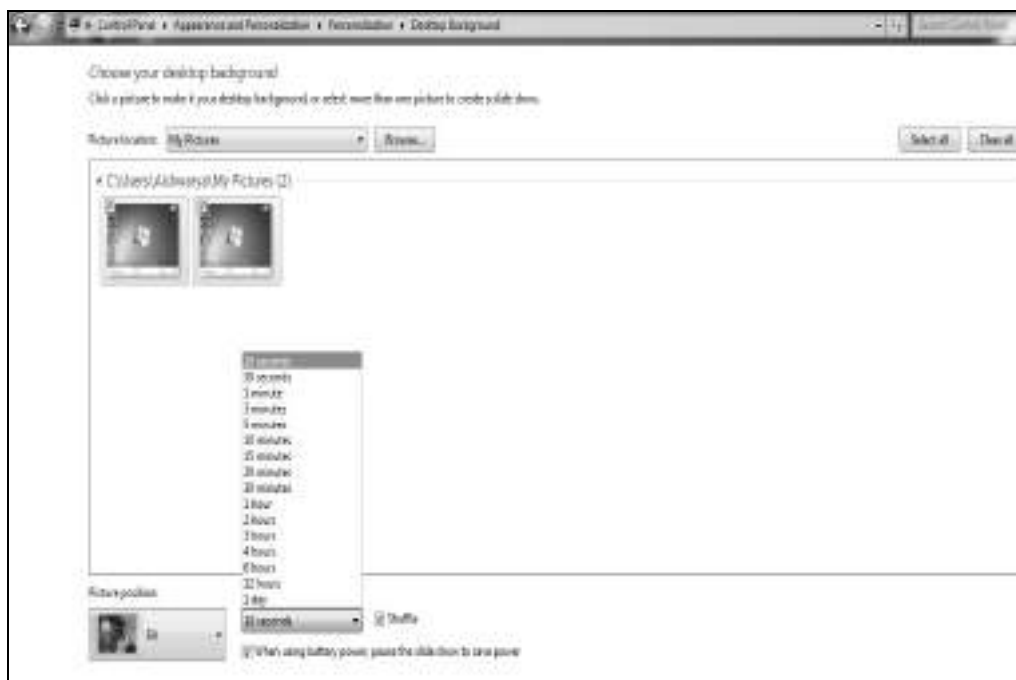


Figure 5.5: Choosing the Time for Desktop Background

Picture Position is another area which gives different alignment for the picture selected on the desktop. Once the changes have been made click Save Changes. The control takes us back to the first screen.

The Window Colour area allows us to change the colour of the window border, start menu and taskbar. When we click on Window Colour icon the following window appears (Figure 5.6).



Figure 5.6: Changing the Colour of Window Border

Things like the start menu, the taskbar and the areas around programs can all have the same colour scheme. The default is called sky. While we uncheck the box that says “Enable transparency” will deeper the colour that we have chosen. Show Colour Mixer option provides more colour schemes.

Summary

- The Control Panel is a part of the Microsoft Windows, which allows users to view and manipulate basic system settings and controls, such as adding hardware, adding and removing software, controlling user accounts and changing accessibility options.
- Control Panel is full of specialized tools that are used to change way Windows looks and behaves.
- The Control Panel has three different views: Category View, Large Icon View and Small Icon View
- Personalization option is used to change the picture, colors and sound for the computer.
- The appearance and personalization option has three suboptions namely: change the theme, change desktop background and adjust screen resolution. To change the theme click on personalization with left mouse button.

Exercise 5

Q.1 What is meant by control panel?

Q.2 Write a short note on different views of control panel.

Q. 3 Discuss different uses of control panel.

Q.4 Write a short note on personalization option.

Objectives

- Introduction
- Paint
- Note Pad
- WordPad

6.1 Introduction

Windows 7 comprises of a group of specialized utilities known as accessories that can help us to do work on the computer in many ways. These accessories are not full-featured programs, but they are useful for specific job in the windows environment. Accessories include a calculator, a painting program (Paint), a text editor (Notepad) and a word processor (WordPad). The various accessories are discussed in detail in the following section.

To use an accessory, click on Start → All Program → Accessories and then click the name of particular accessory which is to be launched.

6.2 Paint

Paint is a drawing tool that one can use to create black and white or color drawings. One can use this accessory for creating and editing the graphics files. This program offers options of types of brush, line and fill tools that one can use when drawing a new image or touching up an existing one. The paint accessory can open graphics saved in a variety of different image formats (including bitmap, JPEG, GIF, TIFF and PNG). The program can also save the images that you create or touch up with in these different formats. To open Paint program: Click Start → All Program → Accessories → Paint. The paint tool interface is shown below in Figure 6.1.

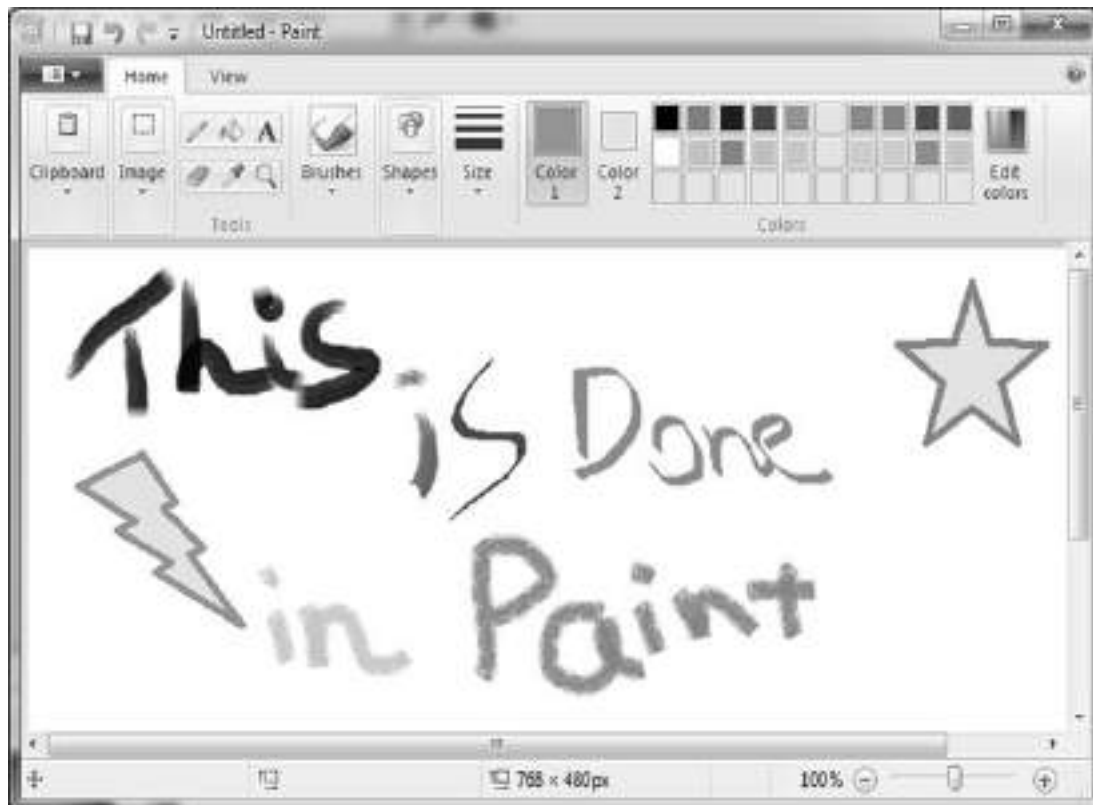


Figure 6.1: Paint Tool Interface

Drawing Different Line

One can use several different tools to draw in paint. The tools we use and the options we select determine how the lines appear in the drawing. There are several tools that one can use to draw lines in Paint. Various tools are Pencil tool, Brushes, Line tool, Curve tool. The pencil tool is shown in the Figure 6.2 below.

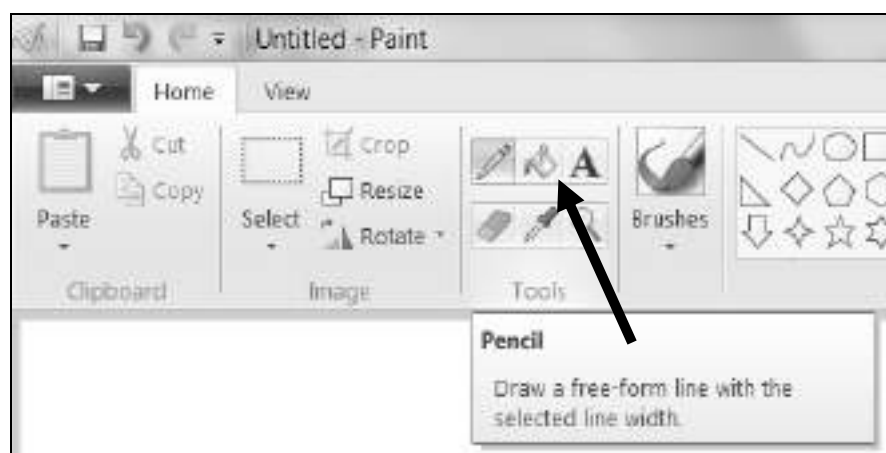


Figure 6.2: Drawing Tool Pencil

Drawing Different Shapes

One can use paint to add different shapes in a picture. The ready-made shapes range from traditional shapes like rectangles, ellipses, triangles and arrows and unusual shapes, such as a heart, lightning bolt or callout. If we want to make our own custom shapes, one can use the polygon tool to do this. The polygon tool is shown in Figure 6.3.

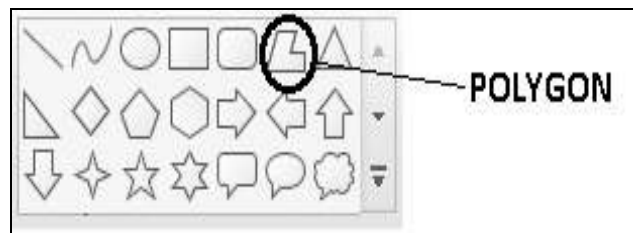


Figure 6.3: Polygon Tool.

Adding Text

In Paint, one can also add text or message in the picture as shown in the Figure 6.4

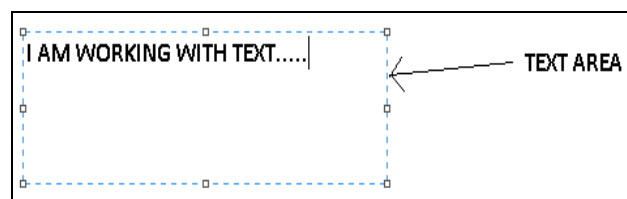


Figure 6.4: Text Area

Selecting and Editing Object

If we want to make a change to part of a picture or an object then select the part of the picture that we want to change and then make the editing. Some of the changes include the following: resizing an object, moving or copying an object, rotating it or cropping the picture to only show the selected item. Figure 6.5 depicts the selection and editing tool.



Figure 6.5: Selection and Editing Tool.

Working with Color

There are a number of tools to help to work with colour in Paint. Click on the Edit colours icon on the Ribbon and the following window will appear. It lets us to use the colours that we want when drawing and editing in Paint as shown in Figure 6.6.

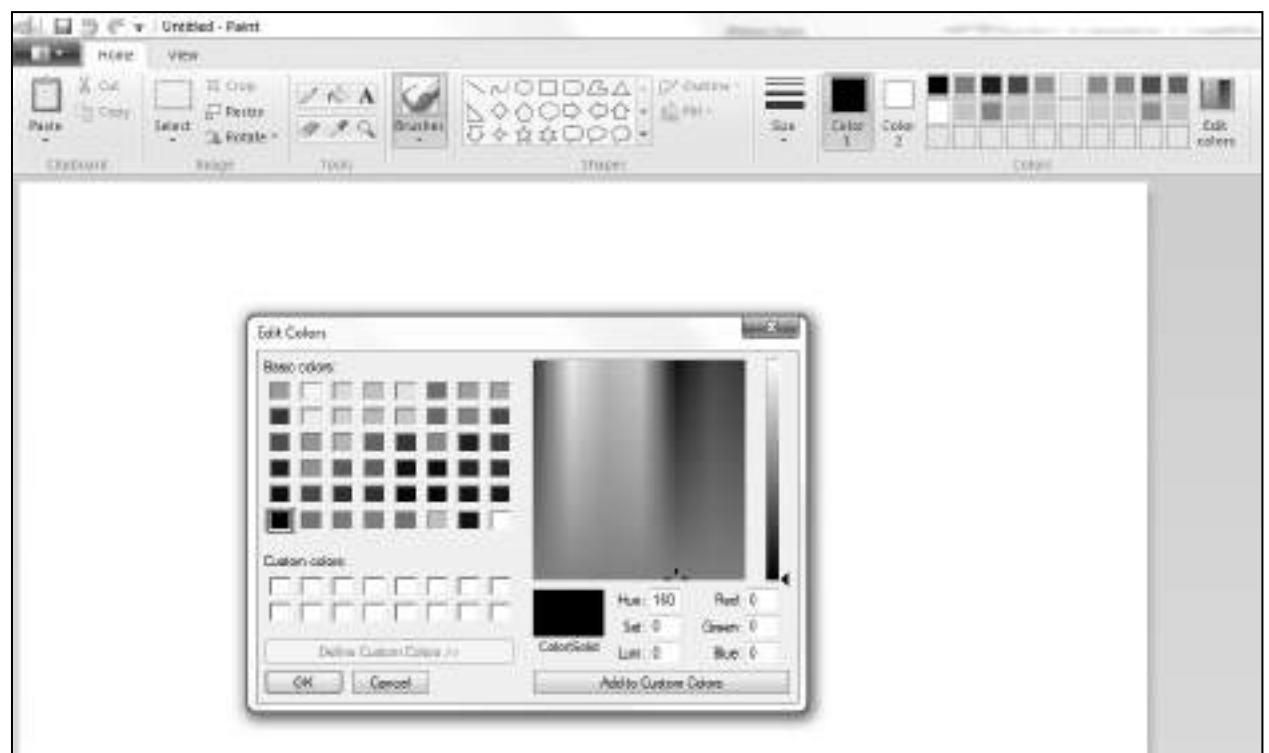


Figure 6.6: Colour Selection Tool.

Viewing Picture

Changing the view in Paint lets us to choose how we want to work with picture. One can zoom in on a certain part of the picture or the whole picture if we want. Conversely, one can zoom out if the picture is too large. In addition, one can show rulers and gridlines as we work in Paint, which can help us to work better in Paint. Click on the View option on Ribbon and the following window will appear as shown in Figure 6.7.



Figure 6.7: Viewing Pictures

Saving and using Picture

When editing in Paint, one should save the work frequently so we don't accidentally lose it. After we save our picture, we can use it on the computer or share it with others in e-mail. When we save a new picture for the first time, we need to give it a file name. Figure 6.8 depicts this.

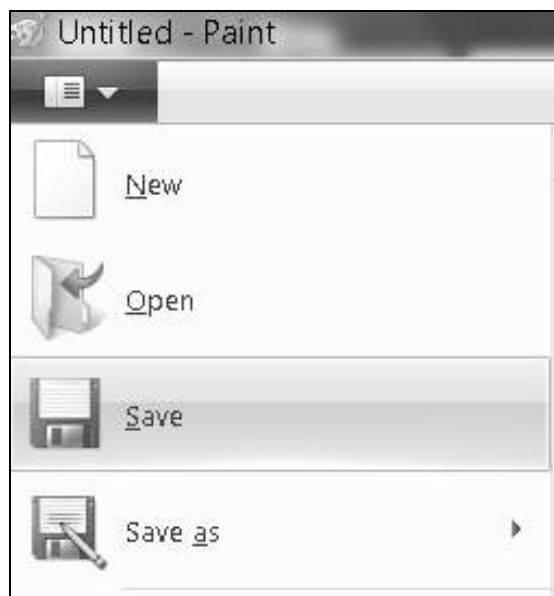


Figure 6.8: Saving and Using Pictures.

6.3 Note Pad

Notepad is a basic text editor that we can use to open and edit text files. In notepad, the File menu provides the following commands, which are essential for editing text files:

New: To start a new text files.

Open: To open an existing text file for editing

Save and Save As: To save changes to the text file which is being edited.

Page Setup: To modify the page setting for printing the text file we are editing, including the paper size, source, orientation, margins, header and footer.

Print: To print a hard copy of the text file which is being edited.

To open Note Pad: Click **Start** → **All Program** → **Accessories** → **Notepad**.

The Notepad Interface

The main window of the application is quite simple. As we can see in the Figure 6.9. There are only five menus and two information area to deal with, other than the writing area.

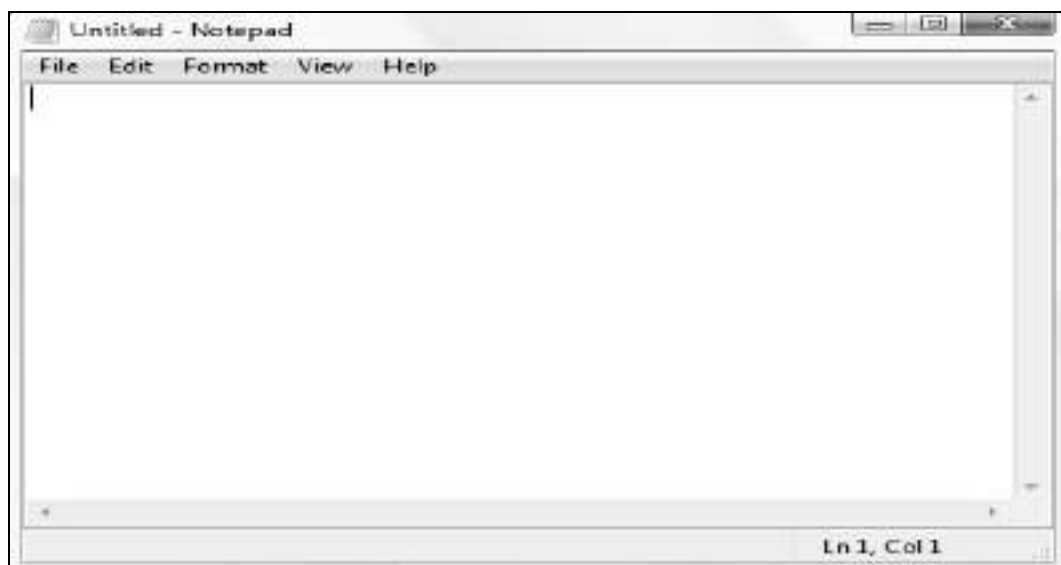


Figure 6.9: Notepad Interface

File Menu

The Menu Bar on top has a few useful menus. The File menu offers basic options for creating a new document, opening an existing one, saving, printing and customizing page as shown in Figure 6.10.

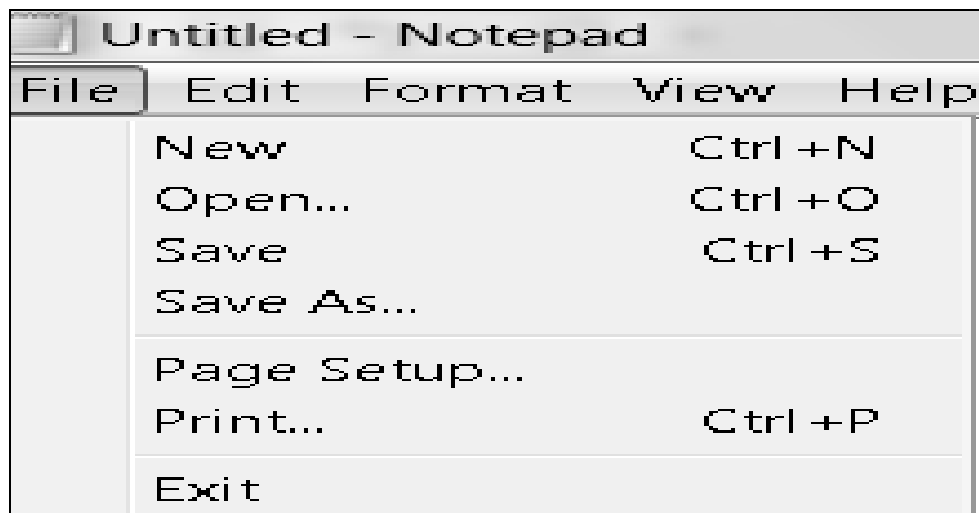


Figure 6.10: File Menu in Notepad

Edit Menu

The Edit menu offers editing options like copy, cut, paste or delete. There are also a few searching options such as: Find, Go To a specific line number in the document, or Replace which help us to find a specific text and to replace it with something else. Clicking on Time/Date insert the current time and date. It is depicted in Figure 6.11.

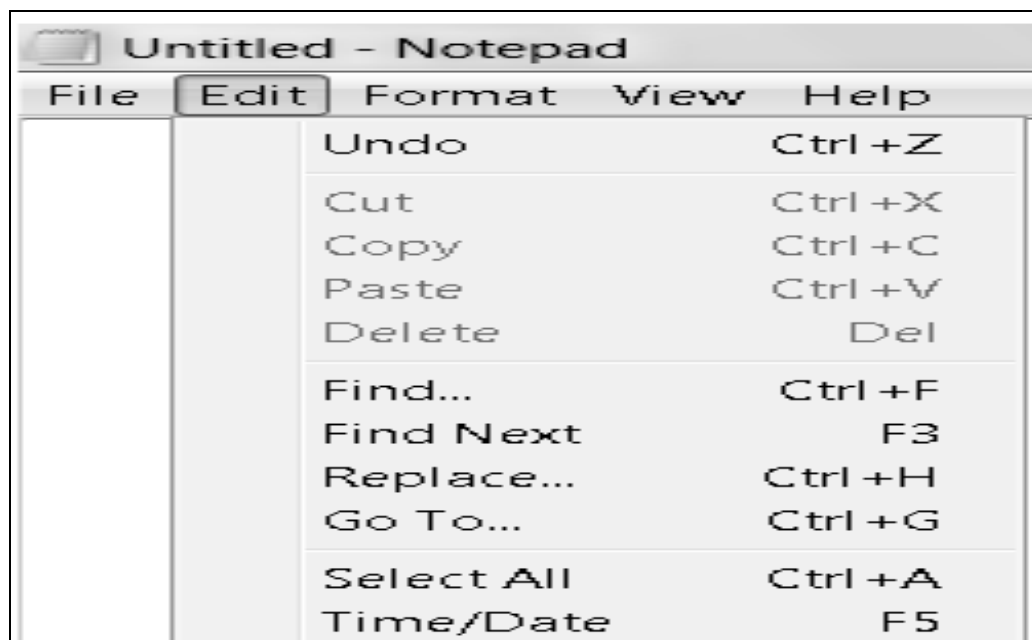


Figure 6.11: Edit Menu

Format Menu

In the Format menu there is an option called 'Word Wrap'. When this option is not active the text appears in a continuous line, no matter how long it is. If we have to read a very long text, we need to use the scroll bar to read it all. Figure 6.12 shows it.

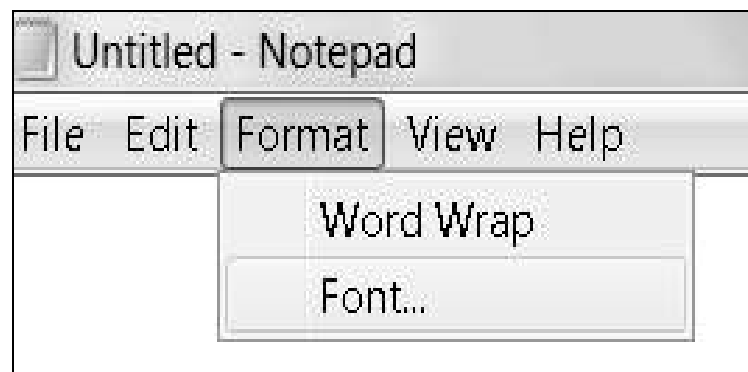


Figure 6.12: Format Menu in Notepad

In the 'Word Wrap' the text is made to fit the Notepad window and it is easier to read. However, when this option is enable, one can no longer use the Go To function from the Edit menu. When Word Wrap is active, the Status bar is disabled automatically.

Creating and Saving a Notepad Document

To create a new document just open the application and begin to write the text. When done, save the document by going to the menu File and choosing Save As. Select the location where we want to save the text file and type the name of the file. When done, press the Save button.

Opening a Notepad Document

One can open a Notepad document by using the Open option from the File menu. A new window appears, where we have to choose the location, then select the desired document and press Open.

Printing a Document

To print a document in Notepad select the Print option from the File menu or press Ctrl+P on the key board.

6.4 WordPad

Word pad is a word processor. Word pad is used to process the textual information including typing, editing, formatting and printing. Word pad is more powerful than Notepad and less powerful than MS word as shown in Figure 6.13. Words are processed and the spellings are corrected and the words are made to look beautiful. To open Word Pad: Click Start →All Program → Accessories → WordPad.

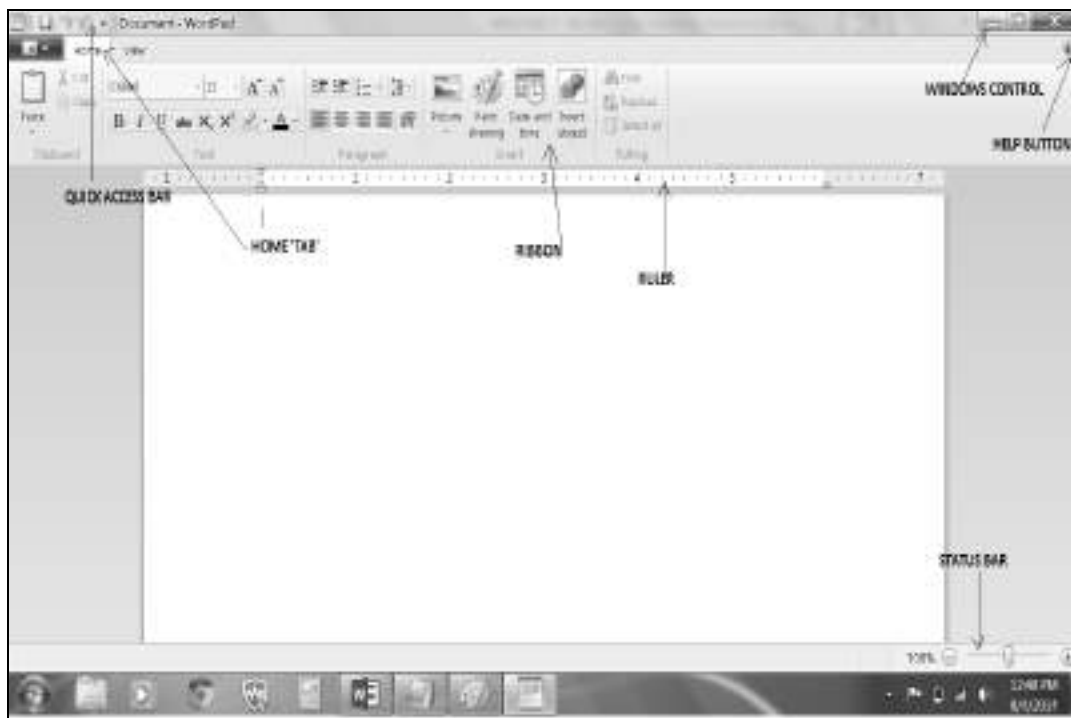


Figure 6.13: WordPad Window

Click on the arrow to the left of the Home Tab. A drop down menu is displayed which contains functions that enable us to open, save, print or perform other operations on the document as shown in Figure 6.14.



Figure 6.14: WordPad Controls

New: This function will open a new WordPad screen.

Open: This function will open an existing document.

Save: This function is used when we make changes to an existing document, and we want to re-save the document with the changes.

Save As: Creates a copy of the document with a different name other than the existing one.

Print: This option allows us to have a hard copy of an electronic document.

Page Setup: This function allows us to select the paper size, orientation (portrait or landscape), margins (top, bottom, sides) and print page numbers.

Send e-mail: Enables us to send the document as an email attachment.

Exit: Allows us to exit WordPad and closes down the WordPad screen.

Home TAB

The Home Tab has five groups: Clipboard, Font, Paragraph, Insert and Editing as shown in Figure 6.15.

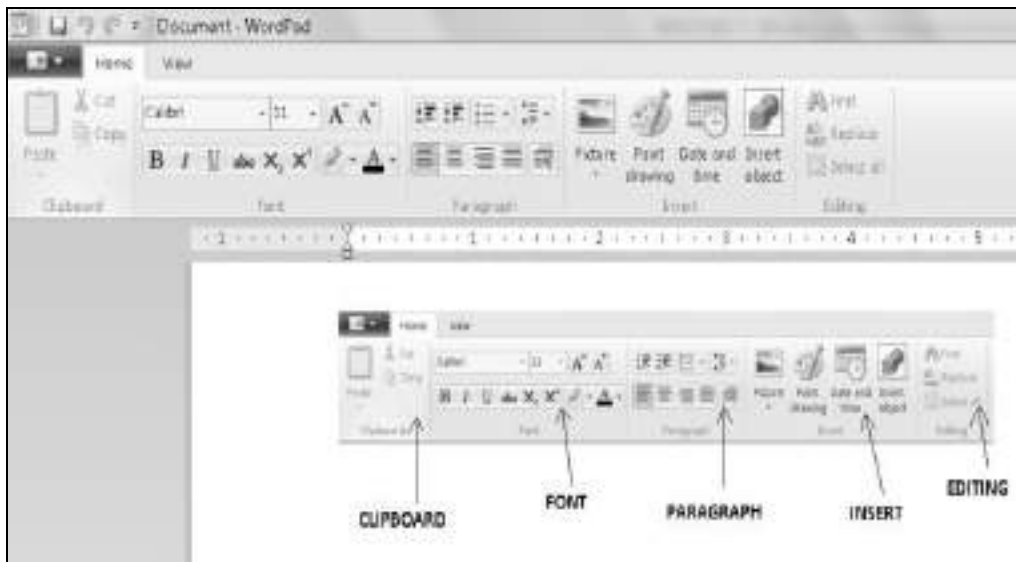


Figure 6.15: Home Tab

In Clipboard, there are three options available, Cut, Copy and Paste. Font Group contains various options like font style, font size, bold text, italicize text, underline text, subscript and superscript, text highlighter (the down arrow will give the choice of 12 different colors), The 'A' will change the color of the words or letters. Select color by clicking on the down arrow.

In Paragraph Group the left arrow will move indented, bulleted or numbered text to the left of the page. Right arrow will move indented, bulleted or numbered text to the right of the page. Three dots will provide bulleted and numbered points. Press the down arrow beside the bullets to see other options. Double headed arrows and lines, set the line spacing and indents.

Four square boxes with lines show position of text on your page. Box 1 will align the text from the left. Box 2 will align the text from center. Box 3 will align the text from right hand side. Box 4 will align the text from both right and left hand side.

Insert Group provides various options to insert pictures, paint drawings, date/ time and various objects from Microsoft package.

In Editing Group Find function helps to find text quickly in a document. Replace function enables you to both find text in a document and replace it with other word. Select All selects all the text in the document.

View Tab

The View Tab has three groups: Zoom, Show or hide, Settings. Click on the View tab to see three groups. It has been depicted in Figure 6.16

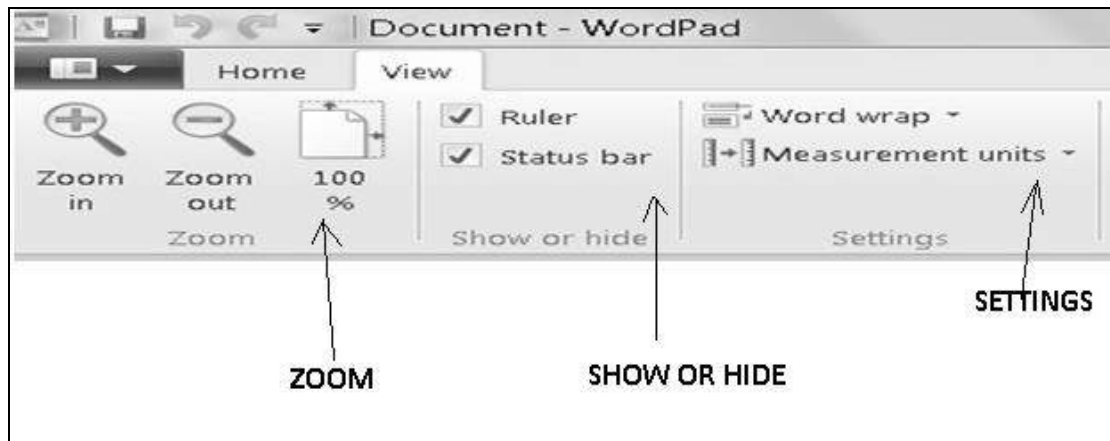


Figure 6.16: The View Tab

Zoom option allows to zoom in (increase text size), zoom out (reduce text size), or set for 100%. In Show or hide option, tick the Ruler to show it and un-tick to hide the ruler. Tick to show the Status Bar and un-tick to hide the status bar.

In Settings group there are two options Word Wrap and Measurements units. Word Wrap allows us to change the way the page looks. One can have three different views, no wrap, wrap to window or wrap to ruler. Measurement units allow to set your computer to work in inches, centimetres, points or picas.

Summary

- Paint is a drawing tool that one can use to create black and white or colour drawings.
- The paint tool provides a lot of tools and functions to the user.
- Notepad is a basic text editor that we can use to open and edit text files.
- We can save, edit, format and delete text with the help of the notepad.
- Word pad is a word processor. Word pad is used to process the textual information including typing, editing, formatting and printing.

Exercise 6

- Q1. Write a short note on Paint.
- Q2. Write various uses of the Paint application.
- Q3. Write various steps to launch Notepad.
- Q4. Briefly explain all the tools involved in the Paint.
- Q5. Explain briefly the procedure involved in saving a file in WordPad.

Objectives

- Word Processor
- Benefits and Advantages
- Features of Word Processor
- Uses of Word Processors
- Available word processing packages
- Microsoft Word 2007
- Launching Word 2007

7.1 Word Processor

A word processor can be defined as a computer program that provides for the manipulation of text and can be used for writing documents, inserting, changing words or paragraphs and printing documents.

Word processing is an application program that allows to create letters, reports, newsletters, tables, form letters, brochures and Web pages. Using this application program one can add pictures, tables, and charts to the documents.

Word processing involves the transformation of written text into a form that gives it a formal, systematic look that facilitates easy reading. The application program that enables the processing of words is called the '*Word Processing program*' or simply '*Word Processor*'. A Word Processor therefore is a computer-based program that

- Is used to type text
- Corrects spelling and grammatical errors
- Allow to preview the complete text before it can be actually printed
- Provides a variety of character styles and sizes to choose from

As far as typing of text is concerned, even text editors like Notepad also allow to type and process text. A word processor, however, is a more sophisticated program with many more features. These features make the word processor a far more efficient tool to create formatted documents.

7.2 Benefits and Advantages

The benefits and advantages of using a word processor can be summarized as follows:

Increased productivity

Modern day computers are sophisticated machines that enable quick typing and online editing and hence, faster completion of tasks.

Decreased repetitive work

Storage of text in the form of files enables duplication without any rework.

Neat, attractive and organized outputs

Word processing features that define the page layout, viz. page length and margins, give the documents a formal look.

Improved quality of text

This is due to the presence of features that define the appearance of text, viz. size and style of characters.

Faster proof-reading

Tools that check spelling, grammar and meanings of words are available to speed up the process.

Saving

Another important advantage is that, once checked, material recalled from disc need not be checked again. Great time savings can thus be made by only having to make sure that the amendments have been made to a document.

7.3 Features of Word Processor

The main features of a word processor are:

1. Editing features allow the user to locate, revise, correct and rearrange text in a document.

Copy

Copies selected text so it can be placed in another location, leaving the original text unchanged.

Cut

Removes selected text from the current location.

Paste

Places selected text that has been copied or cut at another location.

Find

Locates a specified keystroke, word, or phrase in a document. Available

Replace

Finds a specified keystroke, word, or phrase, and then replaces it with another keystroke, word, or phrase. All occurrences of the specified text can be replaced at one time, or replacements can be made selectively.

Select

Highlights text on which various operations may be performed. Use the mouse and/or key combinations to select text. Once selected, the text can be bolded, underlined, italicized, deleted, copied, moved, printed, saved, etc.

Spell-Check

Checks words, documents, or parts of documents for misspellings.

Undo

Reverses the last change made in the text. This feature restores moved text to its original location.

Redo

Reverses the last Undo action.

2. Enhancement features improve the appearance of a document and/or emphasize important words, phrases, or sentences.

Bold

Prints text darker than other copy as it is keyed. Bold may be added after text has been keyed by first selecting the text.

Borders

Adds a border to any or all sides of a page, paragraph, or column, as well as to a table or a cell within a table. Page border options may include small pictures. Borders not only enhance appearance, but also make text easier to read by emphasizing certain passages. Borders are most effective when used sparingly.

Bullets

Highlights each item in a list with a heavy dot or other character, as demonstrated in this list of features. Bullets add visual interest and emphasis.

Change Case

Changes capitalization.

Font

Consists of the typeface, style, size, and any effects used. Font features may be changed before or after text is keyed. The number and size of fonts available depends on the software and printer used.

Italic

Prints letters that slope up toward the right. Italic may be added after text has been keyed by first selecting the text.

Numbering

Shows the proper order of a series of steps or items. Use numbers instead of bullets whenever the order of items is important.

Superscript

Places text slightly higher than other text on a line. Superscript is commonly used for footnotes and endnotes, and for mathematical formulas and equations.

Underline

Underlines text as it is keyed. An underline may be added after text has been keyed by first selecting the text.

3. Formatting features change the arrangement, or layout, of pages. These features include aligning text vertically and horizontally, indenting and hyphenating text, and changing margins and line spacing.

Alignment

Refers to the horizontal position of a line of text (also called justification).

Center Page

Centers text between top and bottom margins of a page. This feature leaves an equal (or nearly equal) amount of white space above and below text. Inserting two hard returns below the last keyed line gives centered documents a better appearance.

Indent

Moves text away from the left or right margin.

Line Spacing

Changes the amount of blank space between lines of text.

Margins

Changes the amount of blank space at the top, bottom, right, and/or left edges of a page. Default margin settings are not the same for all software.

Page Break

Inserts a soft page break automatically when the current page is full.

Tab

Aligns text according to the type of tab set. By default, most word processing software programs have left tabs already set at half-inch (0.5") intervals from the left margin. These preset tabs can be cleared and reset.

Text Wrapping

Positions text in relation to an inserted object (graphic). Text may appear above and below, around, behind, or in front of an object.

4. Miscellaneous Features

AutoFormat

Automatically formats headings, bulleted and numbered lists, borders, numbers, symbols and so on as a document is keyed.

AutoCorrect

Automatically corrects many common keying, spelling, and grammatical errors. It can also insert certain text, graphics, and symbols automatically.

AutoComplete

Inserts entire items such as dates and AutoText (stored phrases) when a few identifying characters are keyed.

Macro

Allows the user to save (record) keystrokes and/or commands for retrieval (playback) later. Macros save time by eliminating repetitive keying and formatting.

Split Window

Displays a document in two panes, each with its own scroll bars. This feature can be useful when copying text between parts of a long document, or when it is necessary to see text not visible in the window where you are keying.

Zoom

Increases or decreases the size of text and amount of a page appearing on the screen.

7.4 Uses of Word Processors

The basic use of word processor is to produce formatted text. Therefore, the area of application is mainly correspondence, i.e. writing letters and other documents. As a program for creating and printing documents, it can be used for performing: Repetitive tasks like typing (Personal letters, Business letters: circulars, reminders for business, Prospectus for universities), Time consuming tasks like creating (Reports, Tenders, Contracts, Agreements), Tabular reports (Time tables, Work schedules, Balance sheets) etc.

7.5 Available word processing packages

There are a number of popular word processing packages available in the market. Each of them has different features. To name a few of them, MS-Word, WordStar, Perfect Writer, Professional Write, WordPerfect, AbiWord etc.

7.6 Microsoft Word 2007

Microsoft Word is a word processor developed by Microsoft. It was first released in 1983 under the name Multi-Tool Word for Xenix systems. The first version of Word for Windows was released in 1989. Microsoft Word was released on January 30, 2007. It was preceded by Word 2004 and succeeded by Word 2008. Word 2007 uses a new file format called docx. The MS Word 2007 window looks as shown in the Figure 7.1.



Figure 7.1: Microsoft Word 2007 Window

The Office button contains a menu of file-related commands. The Quick access toolbar provides a set of frequently used commands. The default options are to save a file, to undo the last action, and to repeat the most recent action. The Ribbon tabs provide a set of tools that are relevant to what is being currently done. In the example above, the Home tab contains formatting and editing options.

The Title bar displays the name of the program and the name of the current document. If the document haven't named yet, then it will be called Document1. Window controls are used to change the size of a window, or to close it.

The Word 2007 toolbar has seven different tabs namely: Home, Insert, Page Layout, References, Mailings, Review, and View as shown in the fig 7.2. The Home tab has the basic word processing tools, like for example, size, font,

colour, style, etc. Insert tab contains more tools than the Home tab and can insert clip art, page, tables, pictures, links, etc.



Figure 7.2: Microsoft Word 2007 Toolbar

Page Layout tab is there for adding the final touch to the document. One can change the orientation, the size of the document, page color, page border margins and theme of the page. References tab is for inserting references. For example, adding citations, a table of contents, footnotes, bibliography, captions etc. Mailings tab is for making envelopes, labels and starting a mail merge. Review tab is for things like spelling and grammar, translating, a dictionary, a thesaurus, adding a comment, etc. Finally view tab has options how the document looks like. It's sort of similar to Page Layout, except it's more of adjusting things, like zoom in, zoom out, full screen, print layout etc.

7.7 Launching Word 2007

To begin, if we are creating a new document or edit and existing document, Word 2007 need to be opened. The following steps are taken to open the Word 2007:

- 1) Click on Start button.
- 2) Click on Programs.
- 3) Click on Microsoft Office.
- 4) Click on Microsoft Word 2007
- 5) Microsoft Word will automatically open a new document.

Summary

- A word processor can be defined as a computer program to create and edit text documents.
- Modern day computers are sophisticated machines that enable quick typing and online editing.
- Formatting features in the Microsoft word can change the arrangement, or layout, of pages.
- Automatically formats headings, bulleted and numbered lists, borders, numbers, symbols are some miscellaneous features of the Microsoft word

Exercise 7

- Q1. Write a short note on Microsoft Word 2007.
- Q2. Discuss the various usages of Word processor.
- Q3. Elaborate the various advantages of word processor.
- Q4. Briefly explain the features of Microsoft Word.
- Q5. Write the various steps to launch Word 2007.

Objectives

- Creating a New Document
- Open an Existing Saved Document
- Save a Document
- Closing a Document
- Working with Text
- Formatting
- Printing Documents
- Table Handling
- Different Document Views

8.1 Creating a New Document

In order to create a New document on the menu bar one may either Click on the New Document button on Quick Access Toolbar or one can choose the Office Button and select New. Press CTRL+N on the keyboard. It is shown in Figure 8.1.



Figure 8.1: Creating a New Document

8.2 Open an Existing Saved Document

In order to open an existing saved file, we may either click on the open file button on the quick access toolbar or one can choose the office button from the menu bar and select open or press CTRL+O on the keyboard.

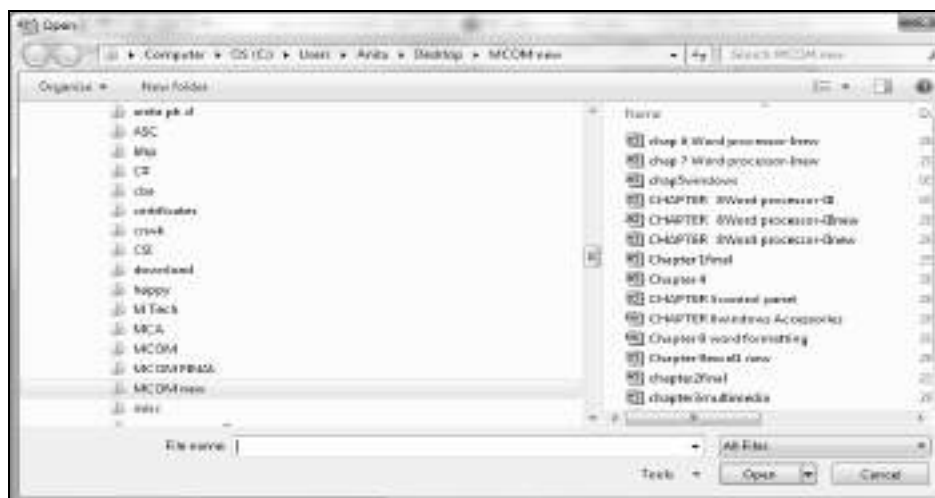


Figure 8.2: Opening a Document

Each of these methods will show an Open dialog box. Choose the file and click the Open button as shown above in Figure 8.2.

8.3 Save a Document

In order to save a document, we may either Click the Save button on the quick access toolbar Select the Office Button from the menu bar and select Save As or Press CTRL+S on the keyboard as shown in Figure 8.3.

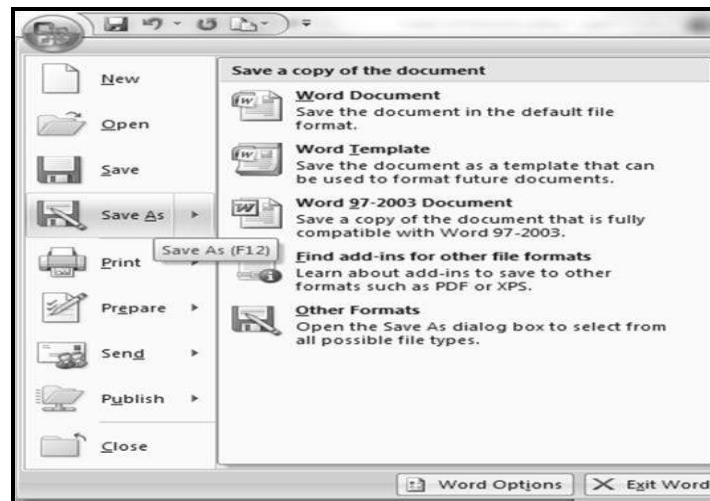


Figure 8.3: Saving a Document

In either case we will get a Save as dialog box. Choose the location where we want to save the document and then give the desired file name. Then click on Save. If we need to open this document on a computer that runs a previous version of Microsoft Office (XP, 2003, etc.), we must save this file in a previous version.

8.4 Closing a Document

In order to close a document, select the Office  Button- Close or click the Close icon if it is visible on the Quick Access Toolbar, or choose the button at the top right side of the screen.

8.5 Working with Text

To enter text, start typing in the opened window of MS-WORD. The text appears where the blinking cursor is located. To move the cursor over the text, one may use the arrow buttons on the keyboard or position the mouse and click the left button. Various keyboard shortcuts may be used to move the text in a document as shown in the table below:

Press Home	<i>To position the cursor to the beginning of the line.</i>
Press End	<i>To position the cursor at the end of the line.</i>
Press Page Up	<i>To position the cursor to the previous page.</i>
Press Page Down	<i>To position the cursor to the following page.</i>
Press Ctrl+ Home	<i>To position the cursor at the top of the document.</i>
Press Ctrl+ End	<i>To position the cursor at the bottom of the document.</i>

Selecting Text

To change any attribute of the text it has to be highlighted first. In order to highlight, Click and drag the mouse over the desired text while pressing on its left button. The shortcuts to select a certain portion of text are given in the table below:

To select the whole word	<i>Double click within the word.</i>
To select the whole paragraph	<i>Triple click within the paragraph.</i>
To select several words or lines	<i>Drag the mouse over the words.</i>
To select the entire document press	<i>Press Ctrl + A.</i>
In order to deselect text	<i>Click anywhere outside the selection on the page.</i>

Deleting Text

1. To delete text use the Backspace and Delete keys on the keyboard. Whereas Backspace deletes text to the left of the cursor, Delete erases text to its right.
2. To delete a large section of text, highlight it as explained above and then hit the Delete button.

8.6 Formatting

It involves a number of features, which help in beautifying the document, such that the document is arranged in a proper manner while the document is typed. The easiest way to format text is to make use of the formatting toolbar. The formatting .toolbar is shown below in Figure 8.4 and can be found under the HOME Menu toolbar.

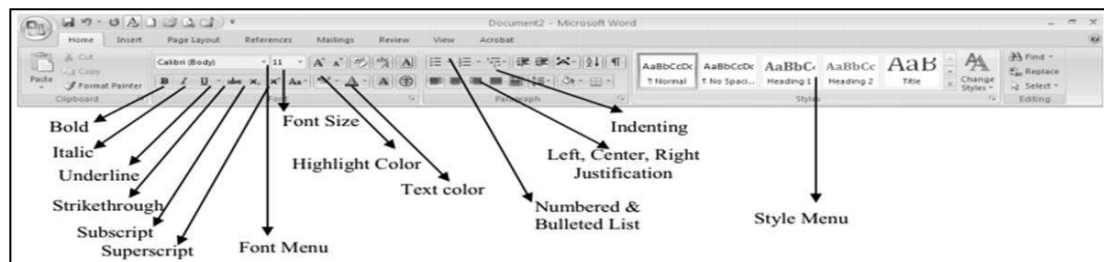


Figure 8.4: Formatting Feature in Word

Font Option

The font option allows us to choose from a wide number of fonts. To select a particular font click on the down arrow beside the box, scroll down with the scrollbar to select a particular font and select it by clicking on it.



Figure 8.5: Different Fonts in the Word

Font Size

Select a size for the font by clicking on the down arrow and scrolling down and clicking on the size that we desire. If we want to change the font of text which has already been typed in, highlight the text and then select the size as mentioned above. Figure 8.6 depicts this.



Figure 8.6: Fonts Size

Font Style

One may select whether to make the font Bold, Italicized or underlined as shown below in Figure 8.7.

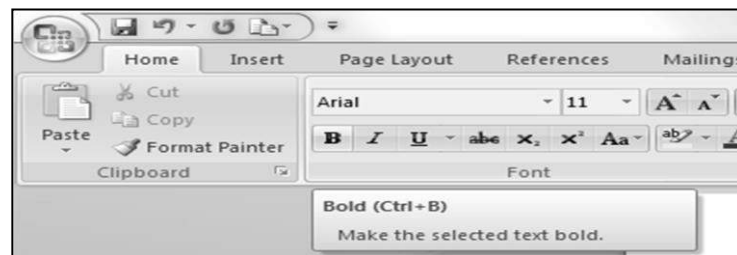


Figure 8.7: Font Style

Alignment

The text may be aligned to the left right or center or can be aligned to the right side or can be justified across the page.

Left Alignment

In this type of alignment, text is placed or fitted along the left margin so as to give it an even look. The right margin, however, appears unorganized. Align Left (Formatting toolbar) aligns the selected text, numbers, or inline objects to the left with a ragged right edge. This type of alignment is the default alignment (Fig.). Even this paragraph is an example of left alignment.

Right Alignment

In this type, the text gets aligned along the right margin giving it a straight look and the left margin appears uneven. (Fig) Align Right (Formatting toolbar) aligns the selected text, numbers, or inline objects to the right with a ragged left edge. The current paragraph is right aligned as an example.

Centre Alignment

In this type, the text is not aligned along any margin but is placed exactly in the centre of the left and right margins (Figure 8.8). Centre (Formatting toolbar) centres the selected text, numbers, or inline objects. It is useful in case of headings. This paragraph is an example of centre alignment.

Justified

Text is aligned along both left and right margins thus giving document a very balanced look (Fig.) Justify (Formatting toolbar). Justify, aligns the selected paragraphs to both the left and right margins. It is most suited for general text and this paragraph is an example of justified alignment as shown in Figure 8.8.

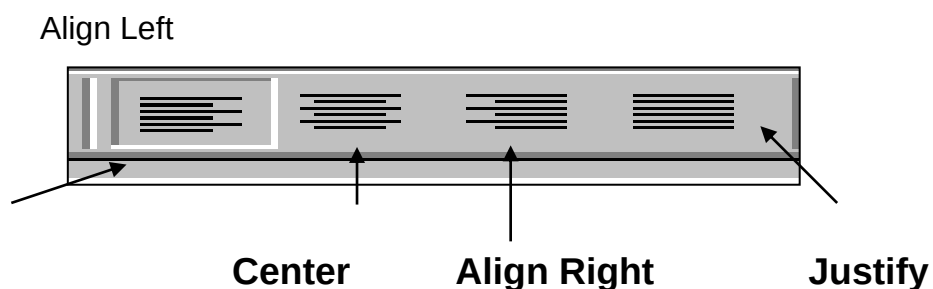


Figure 8.8: Alignment

Bullets and Numbering

Bullets and Numbering creates a numbered or bulleted list. A bullet is a special symbol / mark placed at the start of the sentence to highlight the sentence.

Consider the following statement:

Sheetal corner shop offers: Delivery of items within 10 hours. 24 Hour booking. High quality standards.

Now consider the same statement which is re-arranged in the form of points

Sheetal corner shop offers:

- ◆ *Delivery of items within 10 hours.*
- ◆ *24 Hour booking.*
- ◆ *High quality standards.*

Indentation

This process of pushing or pressing the text in, away from the left and right margins is called indenting. It is depicted in Figure 8.9. Look at the following text:

A word processor is a program that allows you to create, edit, print and save documents for future retrieval and use. Right Indent

Left Indent



Microsoft Word for windows is a word processor that is designed to help you work efficiently.

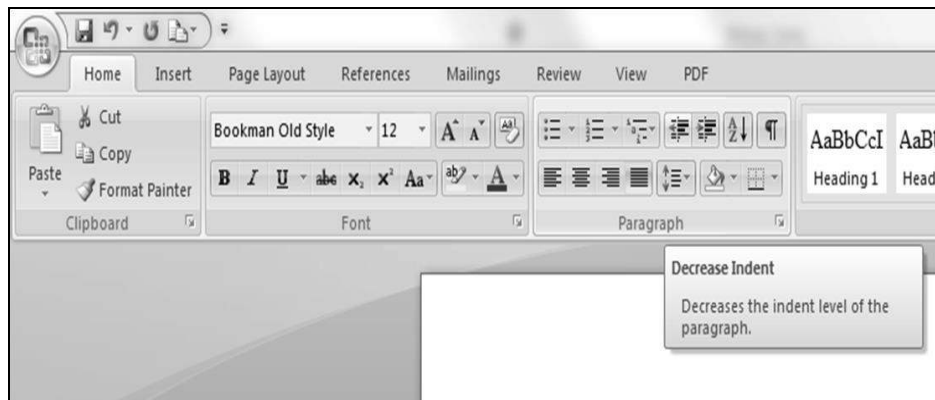


Figure 8.9: Indentation

Outside Border

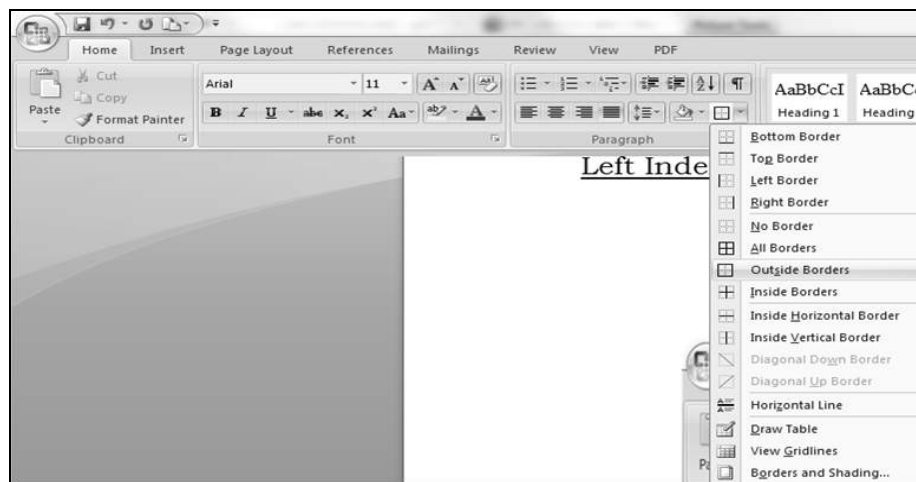


Figure 8.10: Add Border

This option adds a border around the selected text as shown above in Figure 8.10. For example the following text has been given outside border.

Microsoft Word for windows is a word processor that is designed to help you work efficiently.

8.7 Printing Documents

Once a document is ready, it needs to be printed. The printouts are called hard copies. This is in comparison with the soft copies that are kept on the secondary storage devices.

What we save on the floppy disk or hard disk as files is the soft copy. This copy can be opened up on the screen and modified. Therefore, it is soft or changeable. The copy taken on a printer, however, cannot be changed. This copy is something physical or hard. Hence the name, hard copy. While printing, the following specifications have to be given:

- Number of Pages to be printed:
 - All pages, i.e. the entire document
 - Current page, i.e. the page we were on when we selected the printing option
 - Few pages like 3rd, 6th, 20th pages of a document
 - Range of pages like 4-6
- Number of copies
- The orientation of the page
 - Portrait, i.e. vertical, when the contents are printed across the width of the page. Portrait orientation is generally more often used.
 - Landscape, i.e. horizontal, when the contents of the page are printed across the length of the page. Landscape orientation is rarely used.

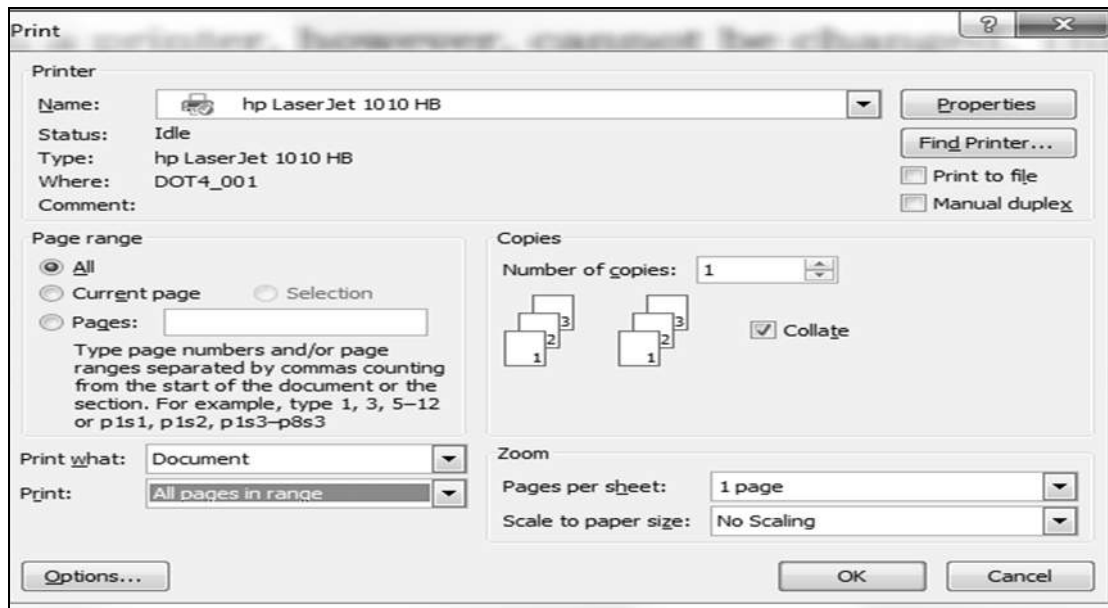


Figure 8.11: Printing Documents.

Collating sequence: When more than one copy of the document is to be printed, then you have an option of printing them either in the collating or the non-collating sequence. When the collating sequence is selected, the entire set of pages of one copy is printed first, followed by the next and so on i.e. it prints a complete copy of the document before the first page of the next copy is printed. In the non-collating sequence, all the copies of the first page are printed followed by the copies of the second page and so on.

Paper Size: The size of the paper would depend on the requirement of the user and the kind of document being printed. The preferred size for general correspondence is A4 (210 x 297mm). Figure 8.11 depicts this.

8.8 Table Handling

Often, we come across data that needs to be arranged in one or more rows and columns. Such an arrangement of data in a document can be achieved by using tables. A table consists of horizontal rows and vertical columns.

The area where a row intersects or meets with a column is called cell. A cell is where the data in a table is filled. Most word processors are equipped with a feature that inserts tables in a document. While inserting tables, the following information has to be provided:

- Number of columns
- Number of rows
- Width of Columns (However, If the width of the columns is not specified then the table fills up the entire area between the two margins).

The table can be inserted by Clicking on Insert and then Table as shown in Figure 8.12. Text can be typed in any cell. Tab is used to move within different cells. There is no overflow of text, if the text does not fit across the width of the cell, then the height of the cell extends to the next row. Once a table is created, the following modifications can be easily carried out:

- New rows and columns can be inserted
- Existing rows and columns can be deleted.
- Width of columns can be changed.
- All the formatting and alignment features that work in a normal document can also be used on the text in the table.

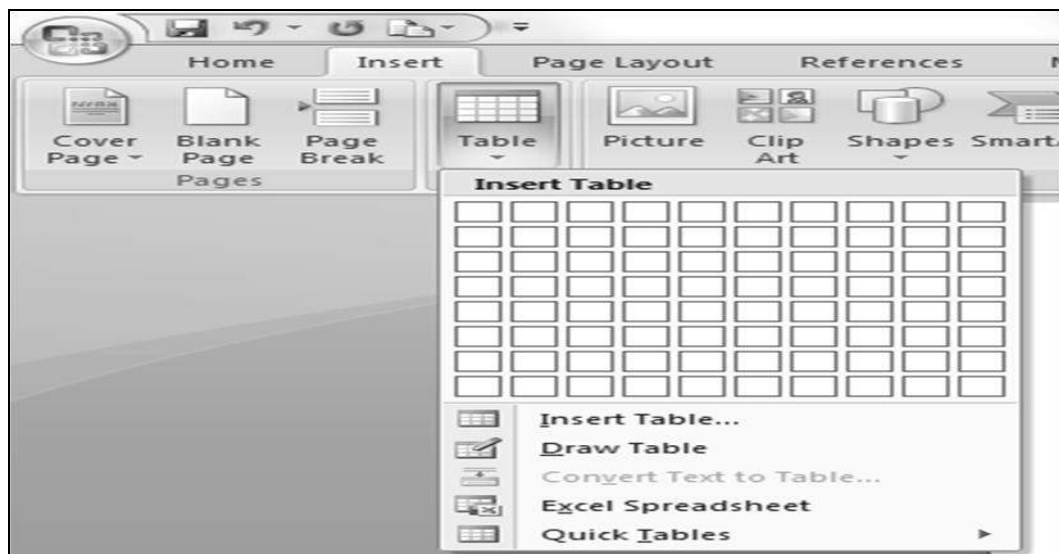


Figure 8.12: Table Handling

One can follow any of the two modes of operation while arranging data in a tabular form i.e. Create an empty table and then fill it up Or Convert already typed text into a table form by selecting the text and using the option converting text to table. The individual cell values must, however, be either separated by a comma (,), or a tab (→), or a semicolon (;), or a paragraph mark (¶).

On the hard copy, you have the option of either printing or not printing the horizontal and vertical lines (gridlines) that actually form the table. In case you want to print the gridlines, you have a variety of table formats to choose from.

8.9 Different Document Views

The document may have various views to show the text. The different views on the screen show the different aspects or features of the document.

Normal View

In Word, the normal view facilitates quick typing, editing and formatting. However a detailed page structure is not displayed. This is the default view. This view shows:

- ✓ All formatting features used
- ✓ Different fonts used,
- ✓ Line spacing,
- ✓ Indents,
- ✓ Tabs stops and
- ✓ Right margin

If a document is displayed in another view, you can switch to normal view by clicking Normal in the View menu. Thus, the normal view displays almost all the information of a document.

Print Layout View

In this view, the document is displayed exactly as it would look when printed. The exact measurements of all margins and indents are shown. Every drawing or picture incorporated is positioned exactly where it would be printed. This view is useful for editing headers and footers, for adjusting margins, and for working with columns, drawing objects, and frames. Page layout view uses more system memory, so scrolling may be slower, especially if your document contains many pictures or complex formatting.

Outline View

Word displays the document in a view that shows the headings, subheadings and text in a bulleted form. This type of view has an option that allows you to condense the entire document to show only the headings and subheadings. The arrangement looks like the index or a table of contents that we see in books. This view allows easy navigation in long documents. One or more

topics that are to be read in detail can be expanded to show the text. Outline view makes it easy to look at the structure of a document and to move, copy, and reorganize text by dragging headings. In outline view, you can collapse a document to see only the main headings, or you can expand it to see the entire document. To switch to outline view, click Outline on the View menu.

Full Screen Reading View

If required, one can switch the view to the one, which shows only the document and, none of the tool bars, menu bars, status bars. Only page breaks are visible in this mode. As full screen is occupied by the document only, more portion of the text can be seen and edited. It is best for displaying and reading documents on the screen. In order to specify which screen elements to display in full-screen mode options on the View tab (Tools menu, Options command) can be set. Normally 2 consecutive pages are shown simultaneously.

Web Layout

A view of a document as it will appear in a Web browser. For example, the document appears as one long page (without page breaks) and text and tables wrap to fit in the window.) It is best suited when you are creating a Web page or a document that is viewed on the screen. In Web layout view, backgrounds are visible, text is wrapped to fit the window, and graphics are positioned just as they are in a Web browser.

Summary

- To create a New document, on the menu bar one may either Click on the New Document button.
- To save a document, choose the location where we want to save the document and then give the desired file name.
- The text may be aligned to the left right or centre or can be aligned to the right side or can be justified across the page.
- The document may have various views to show the text. The different views on the screen show the different aspects or features of the document.

Exercise 8

- Q.1 What do you understand by formatting a document?
- Q.2 Write a short note on multi level numbering.
- Q.3 Explain document margins.
- Q.4 What is Word Wrap feature?
- Q.5 Explain the different types of Paragraph Alignment.
- Q.6 Describe first line indent, right indent and left indent.
- Q.7 Explain the various views available in MS word.
- Q.8 What is line spacing?
- Q.9 Explain the printing feature of MS-Word with the help of example.
- Q.10 Explain the table handling feature of MS word.

Objectives

- Introduction
- Creating the Data Source
- Creating a Mail Merge Letter
- Associate a Data Source with the Document
- Design Data Document
- Preview the Finished Document

9.1 Introduction

In Word processing, mail merge is the process of transferring selected information from one document to another document. For example one can write a form letter and instantly merge it with his mailing list. Other common mail merge documents include mailing labels, interoffice memos and reports. Mail Merge command enables us to take information from two documents for example a form letter and a list of names & addresses and combine them into a single document. Of equal importance, perhaps, is the ability to sort the information in the mailing list, say, in alphabetical order by last name. Mail Merge (Tools menu) produces form letters, mailing labels, envelopes, catalogues and other types of merged documents.

Let's look at a simple example of a mail merge. A reminder letter has to be sent to all the members of the library who have taken books but have not returned them. Word's mail merge feature helps in quickly creating personalized letter by merging a list of names and may be addresses from one file with a form letter stored in another file. Mail merge is joining a Data source, such as an address book, with a Microsoft Word document. When the two are joined, or merged, one can print the results onto letters, or labels, or onto an envelope directly. For the mail-merge the three different items that come into play are:

- A data source file where the recipients are stored,
- A merge document where we design the document to merge,
- Finished documents combine the data from data source file with the text in the merge document to create individual documents for the recipients.

9.2 Creating the Data Source

The first step in the mail merge process is to create a database of people, along with their address information. This database will be used later with the mail merge. To create the database, click the Mailings tab at the top of Word. Then on Start Mail Merge tab, Click on Select Recipients to see a dropdown list. The screenshot of start mail merge panel is shown in Figure 9.1 below:



Figure 9.1: Screenshot of Start Mail Merge Panel

To type a new list, click on Type New List. The dialogue box shown in Figure 9.2 will appear:

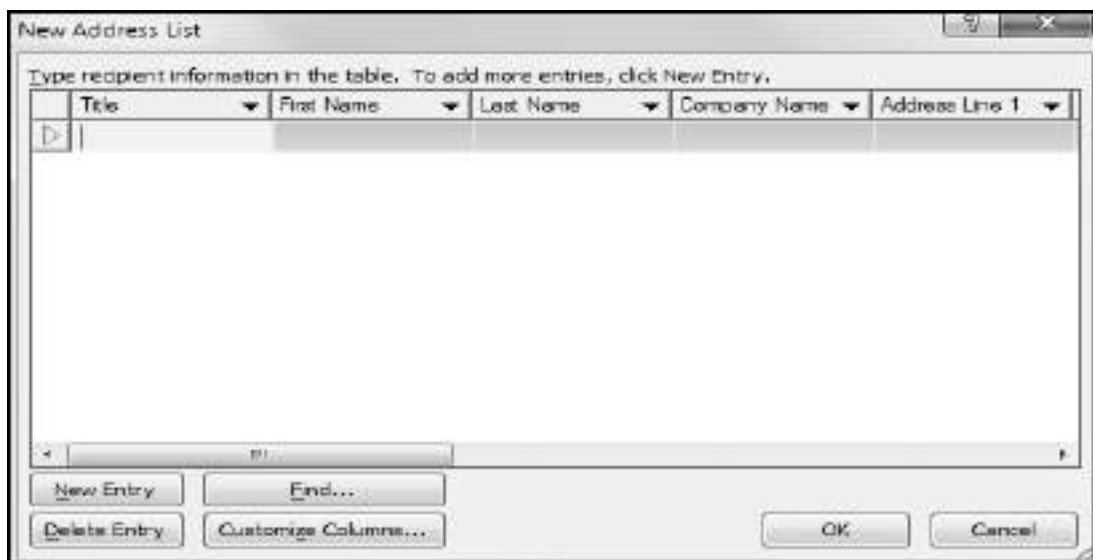


Figure 9.2: New Address List Dialogue Box

This dialogue box allows to type in address information, one address per line. If we scroll across using the scroll bar at the bottom of the dialogue box we will see that there are a lot of columns to fill in.

To see how it works, type in a title, a first name, and a last name. (To get the cursor to flash in the next box, one can either just left click, or one can press the TAB key on the our keyboard.) To add a new address, click the New Entry button in the bottom left. A new row will be created, and your cursor will be flashing in the Title box again. When finished, the Address List should look as shown in Figure 9.3:

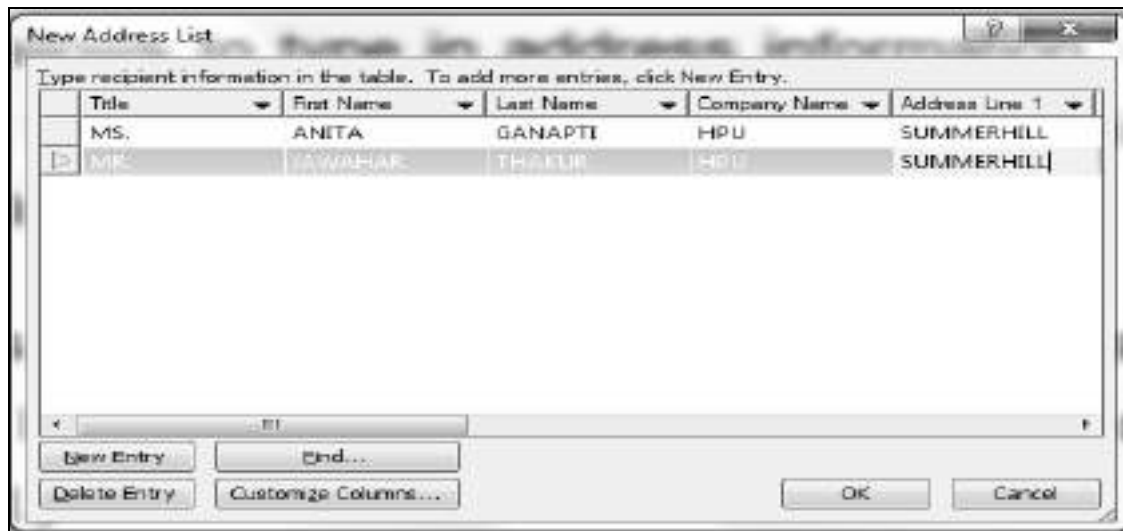


Figure 9.3: New Address List Dialogue Box with Addresses

Now click OK. When we click on OK, the Save dialogue box appear as shown in Figure 9.4:

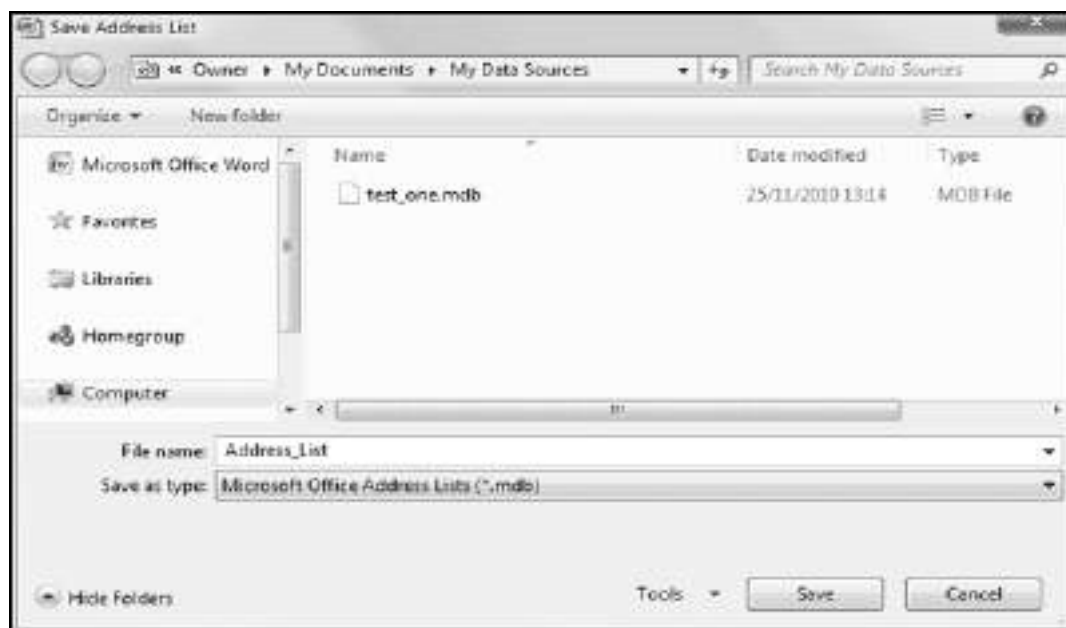


Figure 9.4: Save Address List Dialogue Box

In this case, the file is being saved in a folder called My Data Sources, which is in the My Documents folder. The type of file is a MDB database. Type a name for the file in the File Name box, in this case it has been named as Address_List. Click the Save button to save the address list. If we want to add new addresses to the list, click on Edit Recipient List on the Start Mail Merge panel as shown in Figure 9.5:



Figure 9.5: Edit Recipient List Dialogue Box

9.2 Creating a Mail Merge Letter

To create a mail merge letter Click Start Mail Merge on the Mailings ribbon and select the type of document we want to create. For example, one can select letters, e-mail messages, envelopes or labels. One can also select Step by Step Mail Merge Wizard for creating the document. Figure 9.6 shows the different types of documents available in mail merge.

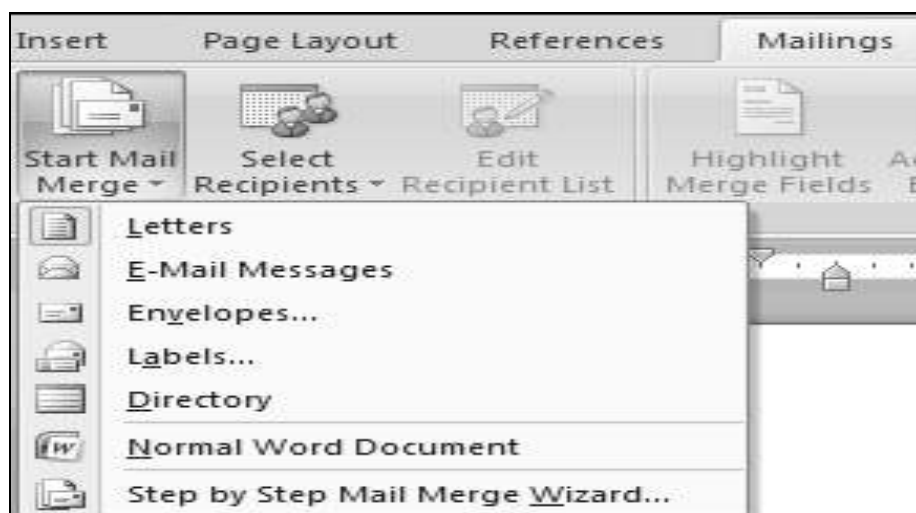


Figure 9.6: Different Types of Documents available in Mail Merge

9.3 Associate a Data Source with the Document

To associate a data source with the document click on the Mailings tab, then choose Select Recipients. Figure 9.7 shows the screenshot of associating data source with document.

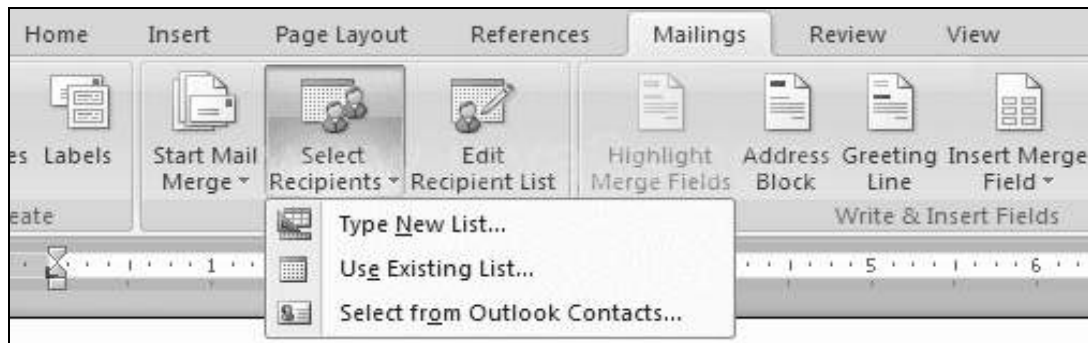


Figure 9.7: Screenshot of Associating Data Source with Document

As we have already made a recipients list named as Address_List we can append that list or can make a new list by using Type New List option. The screenshot of selecting recipient from existing database is shown in Figure 9.8.

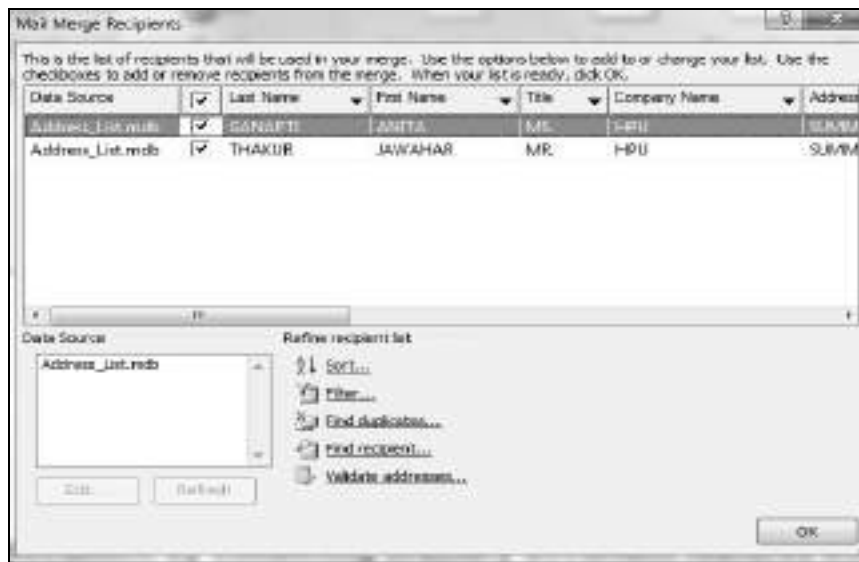


Figure 9.8: Screenshot of Selecting Recipient from Existing Database

9.4 Design Data Document

Placeholders can be used when designing the data document for information pertaining to the intended recipient. The next step is to edit the document and substitute Merge Fields for the placeholders. To insert a merge field, position the insertion point where we want the field to appear. In the Mailings tab, choose Insert Merge Field in the Write & Insert Fields group. Click on the field we want to insert. Special sets of merge fields like Address Block and Greeting Line can be inserted to save time.

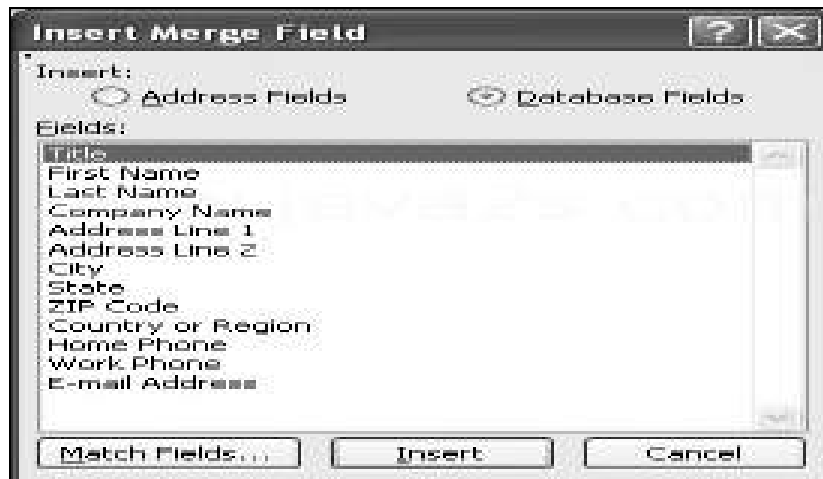


Figure 9.9: Screenshot of Insert Merge Field

9.5 Preview the Finished Document

Preview the finished document by testing to see how it looks with different data records. Click the Preview Results button in the Preview Results group of the Mailings tab. Navigation buttons help you to traverse through the records.

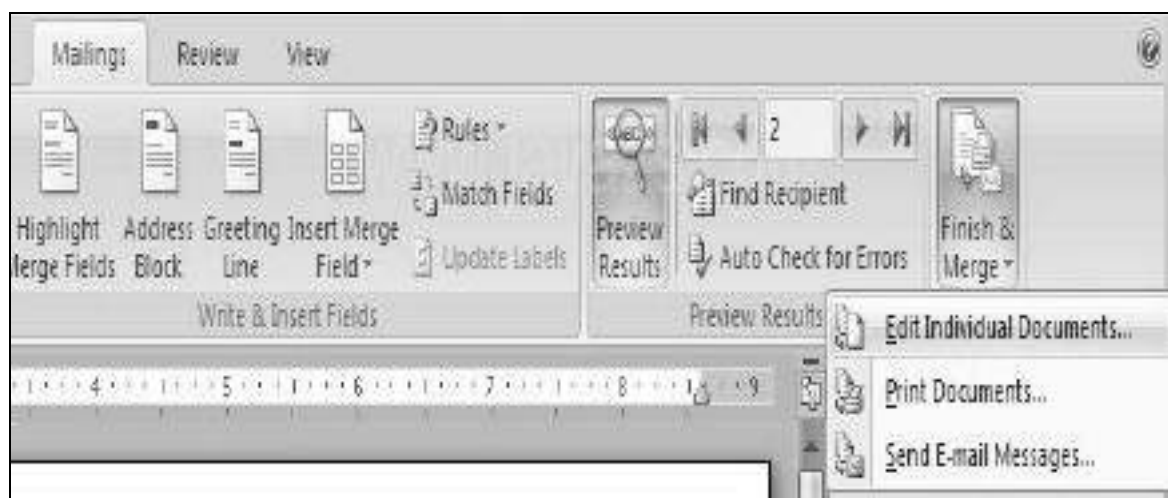


Figure 9.9: Screenshot of Preview of Finished Mail Merge Document

Finish the process. Merge the data document with the data source, creating a printed result, a saved document or an e-mailed document.

Summary

- Mail merge is the process of transferring selected information from one document to another document.
- Common mail merge documents include mailing labels, interoffice memos and reports.
- Mail Merge command enables us to take information from two documents for example a form letter and a list of names & addresses and combine them into a single document.
- For mail-merge the three different items that come into play are: A data source file where the recipients are stored, A merge document where we design the document to merge and Finished documents combine the data from data source file with the text in the merge document to create individual documents for the recipients.

Exercise 9

Q.1 What is meant by Mail Merge?

Q.2 Explain the purpose of Mail Merge.

Q. 3 What is meant by data source in mail merge?

Q.4 How the Data Document is designed in mail merge?

Q.5 Write the different steps for creating data source.

Objectives

- Basics of Spread Sheet
- Features of spreadsheet
- Spreadsheet Uses
- Spreadsheet Background
- Excel Features
- Excel 2007 Window
- Create a Workbook
- Save a Workbook
- Open a Workbook

10.1 Basics of Spread Sheet

A spreadsheet is a grid of rows and columns and is also called as work sheet. Earlier, Spreadsheets were created manually with paper and pencils. The workspace was a desk. People used lined paper or graph paper to organize the columns of number on the sheet and manipulate them. Calculating, manipulating and analysing the data present in the spreadsheet was done manually. Spreadsheet programs are developed to automate tasks such as automatic calculations, analysing data and graphical representations of numerical data. Multiple worksheets can handle simultaneously calculations and generate charts etc. In appearance a work sheet looks much like a table which is readymade in nature marked by grid lines. The grid lines run through the entire work sheet from top to bottom, left to right. Workbooks and work sheets are named to facilitate identification. Even each column and row of the worksheet has a unique name. Each column carries a letter of alphabet for its name, while each row is numbered. For instance the column is labeled 'C' and the letter 'C' appears as the column heading. The first row is labeled '3' and the number '3' appears in the row title on the left side. The naming of sheets columns and row facilities reference since it is possible to refer to any particular cell from any place in the workbook. There are 256 columns and 65,536 rows in a single worksheet. The 256th column is labeled as 'IV'. A cell is the intersection of row and column. Each cell has a unique address, which is a combination of a column label and a row title e.g. G10 denotes an intersection of G column and 10th row. The active cell is the cell in which one starts typing data. Only one cell can be active at a time and is shown by a heavy border.

10.2 Features of Spreadsheet

A spreadsheet is a super calculator performing arithmetic and scientific calculations, provided right data and the right formula is given. Spreadsheet calculations are most beneficial in similar repeated calculations. Spreadsheet are used to store information in the memory, display it in the desired manner (i.e. in the text form or in the graph form), perform automatic recalculation i.e. if any data is altered after applying the formula, the spreadsheet recalculates

all affected results. Some common applications of a spreadsheet are budgets, annual reports of the organizations, payrolls, income statements, inventory control, cost-effective analysis, sales forecasts, financial statements bank reconciliation's etc. The electronic spreadsheet generally offers the following features:

1. Accurate results.
2. A big worksheet in size to accommodate a huge amount of data.
3. Formatting of data in several ways.
4. Built-in functions to perform complicated calculations of mathematics, financial, statistical and trigonometric nature.
5. Represent data graphically.
6. Provides query facility.
7. Save data and the results.
8. What-if analysis.
9. Embedding and linking facility.
10. Drawing of objects.
11. Create macros for performing tasks.
12. Transfer capability of data to other software programs and back to the spreadsheet.

10.3 Spreadsheet Background

The concept of electronic spreadsheet started with VisiCalc. VisiCalc offered tremendous advantage over age-old conventional pen and paper. Calculations were made easy. The What-if analysis capability was introduced by Lotus in a spreadsheet besides a number of other functions namely, worksheet, graphic and database. With the advent of window based software's, Microsoft's Excel quickly became one of the most used electronic spreadsheet in the world. Microsoft Excel for windows is powerful spreadsheet application that can be used for managing, analyzing and presenting data in a graphical manner. Excel has three major components namely, the spreadsheet component, the data based component and the Chart Component. Each component is a different way of looking at and interacting with data that has a common structure based on rows and

columns. This structure is the spreadsheet, implemented as Excel, which is capable to transfer data among the components.

10.4 Spreadsheet Uses

Spreadsheet can be used by various categories of people like engineers, accountants, doctors, marketing, statisticians, stock personnel, librarian etc.

Excel may be used in a vast number of areas:

1. Preparation of result card.
2. Preparation of journals, ledgers, balance sheets etc.
3. Preparation of payroll.
4. Maintenance of stock.
5. Preparation of sales, purchases details.
6. Advertising expenses details storage and retrieval.
7. Hotel management.
8. Hospital management.
9. Income tax calculation.

10.5 Excel Features

According to Microsoft, Excel is the most comprehensive spreadsheet application available in the market. It is not just the tool for calculating, manipulating and analyzing data, but also a versatile organizational tool and an excellent one for presenting information.

Work Sheets and Graphics

It includes extremely powerful calculating features. Besides working with numbers and texts excel also provides for presenting data graphically thus helping in data analysis.

Data Lists and Databases

Database function is another important feature of Excel. Several effective functions are available for working with data listed in a tabular form. There are functions for evaluating, combining, and if necessary, rearranging data lists.

Data Exchange with other Applications

Excel uses the advantage of the Windows environment. This especially

applies to Dynamic Data Exchange (DDE) and Object Linking and Embedding (OLE) within Excel and between Excel and other window applications. As a result data, graphics, sound recordings, and animations can be easily mixed in a single document.

Standardized User Interface

Excel is a part of the Microsoft's application package MS-Office, other products being MS-Word and MS-PowerPoint. Except for a specific menu in each application, the menus in the main Menu Bar of Excel, Word and PowerPoint are identical. The key combinations (for e.g. for Cut, Copy, Paste, Boldface etc.) are also standardized. Most of the dialog boxes look similar. All options related to a particular command are combined in a single dialog box.

Workbooks

Excel works with a consistent file concept. All the data is gathered in workbooks, these workbooks store current status of the workspace, along with all currently opened files and the settings selected for them.

XML Features

The ability to import and (possibly) export XML data, and map the elements to cells in a worksheet. But this feature is not available in all editions of Excel 2003.

New List-Related Features

A common use for an Excel spreadsheet is to store a list of data. With Excel 2003, you can officially designate such a range list. After doing so, AutoFiltering is turned on, and the list appears with a blue outline (the blue outline gets thicker when the List is activated). As an option, you can choose to display summary formulas at the bottom in the "total row." You must choose these summary formulas from a dropdown list (custom formulas not allowed). The formula that's created uses the SUBTOTAL function.

Minor AutoFilter enhancements

In Excel 2003 the AutoFilter drop-downs display two new items at the top: Sort Ascending and Sort Descending. These items perform just like the more convenient buttons in the Standard toolbar.

What-If-Analysis

The method is used for simple what-if scenarios. For example, what would happen if advertising budget for the department increased by 40%? Or If you were considering taking out a home loan based on your income, how much money could you borrow for a 20-year mortgage? How much money could you borrow for a 30-year mortgage? Etc. In other words you can specify a result that you want a formula to produce, and then determine what sets of values will produce that result.

10.6 Excel 2007 Window

The MS Excel 2007 opening window has the following parts: Title Bar, Office Button, Quick Access Toolbar, Ribbon, Formula bar, Status Bar and Zoom Slider. The different parts of Excel 2007 window are shown in Figure 10.1.

Title Bar

The Title bar displays the name of the application running and the name of the file we have opened. On the far right of the window will see the Minimise, Restore or Maximise and Close buttons to control the window.

Office Button

The Office Button replaces the File menu from previous versions of Excel. Common tools such as printing and saving are performed from here. Recent documents can be seen on the right of the Office Button menu. This will speed up opening the spreadsheet that you often use. It is possible to pin documents that you use often to this menu by clicking the pin icon to the right of the document.

Quick Access Toolbar

The Quick Access Toolbar is one of only two toolbars supplied with Excel 2007. It can be customised to improve your productivity, and limit the clicking between tabs on the ribbon. By default it contains the Save, Undo and Redo icons. A good start, but you will probably find yourself adding to this list.

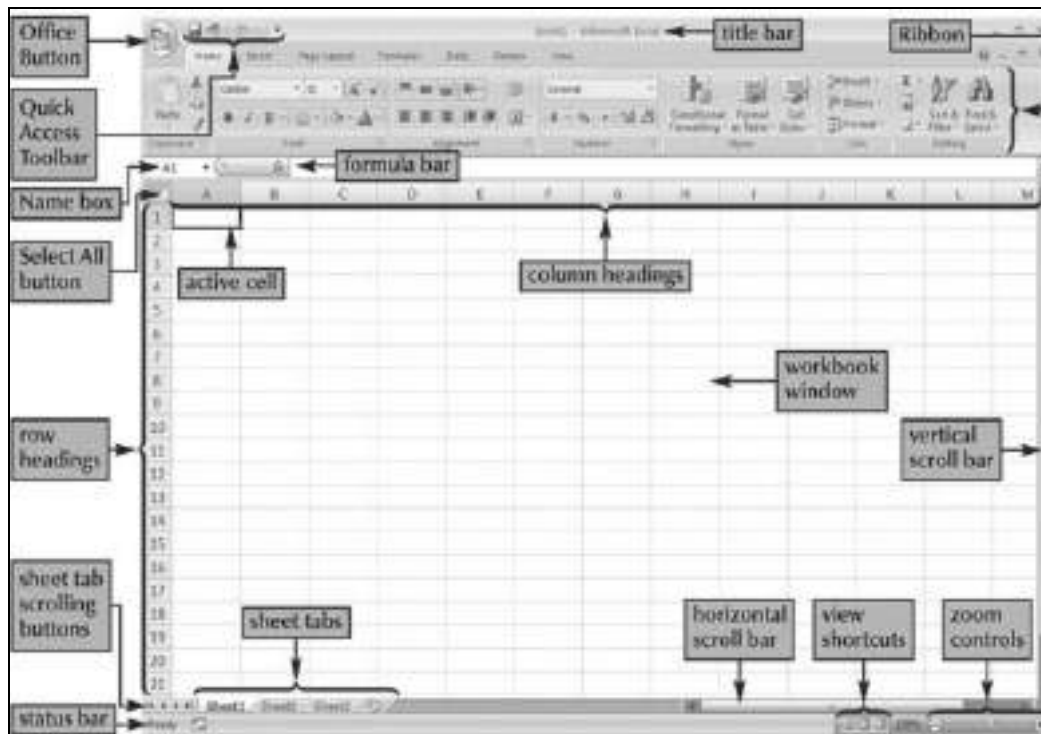


Figure 10.1: Parts of Excel 2007 Window

Ribbon

The ribbon replaces the toolbars from previous versions of Excel. It allows fast access to the majority of Excel commands via a tabular system.

Formula bar

The formula bar displays the contents of the active cell as it is, or was entered. The formula bar can be used to edit a cell content easily. When entering data into a cell in Excel your entry can be confirmed using either the Enter key or the green tick on the formula bar. To cancel an entry, for example a mistake in a formula, press the Esc key or the red X on the formula bar.

Status Bar

The Status Bar displays information whilst you work. For example it will tell if the Caps Lock or Num Lock keys are turned on. On the right of the Status Bar are three view buttons and the Zoom Slider.

Zoom Slider

The Zoom Slider is a new tool that one can drag left or right to alter the zoom level. Alternatively one can click on the zoom level for some more standard options.

10.7 Create a Workbook

To create a new Workbook, Click the Microsoft Office Toolbar, Click New and then choose Blank Document. Figure 10.2 shows the screen of creating a Workbook.

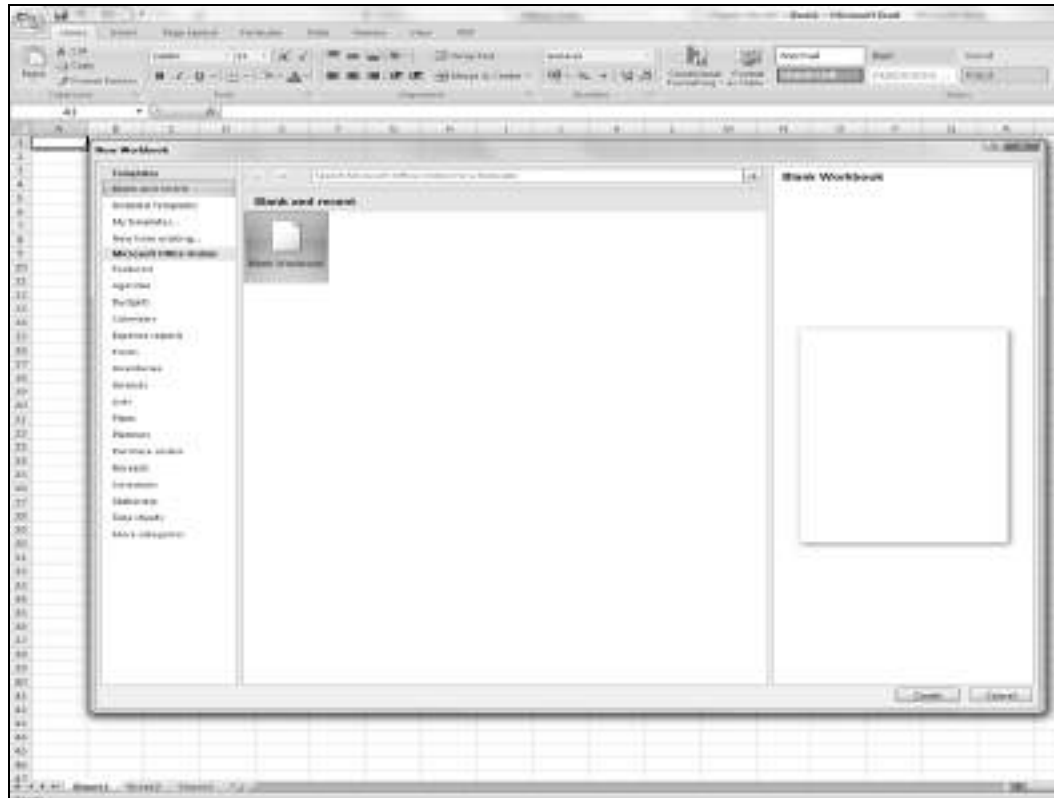


Figure 10.2: Creating a Workbook

10.8 Save a Workbook

When we save a workbook, we have two choices: Save or Save As. To save a document Click the Microsoft Office Button and Click Save. One may need to use the Save As feature when we need to save a workbook under a different name or to save it for earlier versions of Excel. In Figure 10.3 the screenshot for Saving a Workbook is shown.

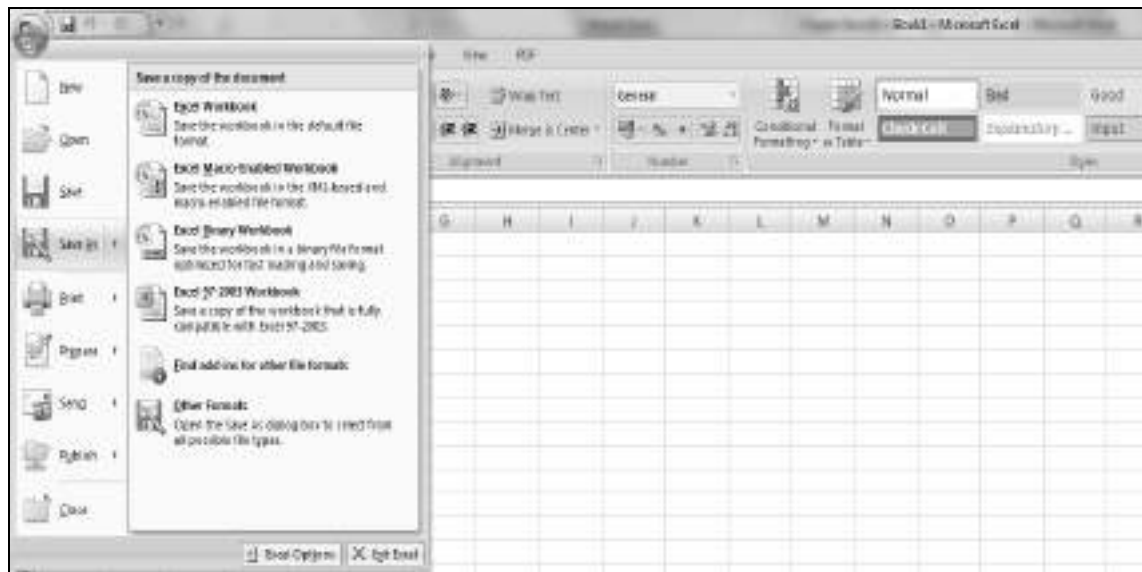


Figure 10.3: Saving a Workbook

Remember that older versions of Excel will not be able to open an Excel 2007 worksheet unless we save it as an Excel 97-2003 Format. To use the Save As feature Click the Microsoft Office Button, Click Save As, Type in the name for the Workbook and in the Save as Type box, choose Excel 97-2003 Workbook.

10.9 Open a Workbook

To open an existing workbook Click the Microsoft Office Button, Click Open, Browse to the workbook, Click the title of the workbook and Click Open. Figure 10.4 shows the screenshot for opening a workbook.



Figure 10.4: Opening a Workbook

10.10 Entering data

To enter data into Excel, click on the cell, type in your data and press Enter. After pressing Enter the cell below the current one becomes the active cell. Other alternatives are given as follows:

Tab key	Enters the data and the cell to the right of the current cell becomes the active cell.
Arrow keys	Enters the data and the cell dependent on the direction of the arrow key pressed becomes the active cell.
Mouse click	Enters the data and the cell clicked becomes the active cell.
Esc key	Cancels the entry.

10.11 Types of data in Excel

In Microsoft Office Excel 2007, the worksheet consists of a grid of columns and rows that form cells. One can enter three types of data in cells: labels, values, and formulas.

Labels

Labels are a term given to headings and names consisting of text and numbers. Labels are left aligned in a cell.

Values

Values are cells containing numbers and can be used in calculations. Dates are stored as values. Numbers are right aligned in a cell.

Formulas

A formula is a mathematical equation such as adding or subtracting two numbers. Formulas, which include Excel's functions are usually considered to be Numbers but they are sometimes identified as a separate type of data. Formulas are Excel calculations written by the user and always start with (=) sign.

Summary

- A spreadsheet is a grid of rows and columns and is also called as work sheet.
- A spreadsheet is a super calculator performing arithmetic and scientific calculations, provided right data and the right formula is given.
- There are 256 columns and 65,536 rows in a single worksheet.
- The MS Excel 2007 opening window has the following parts: Title Bar, Office Button, Quick Access Toolbar, Ribbon, Formula bar, Status Bar and Zoom Slider.
- One can enter three types of data in cells: labels, values, and formulas.

Exercise 10

- Q. 1 What benefits are provided by an electronic Spread sheet.
- Q.2 Discuss the various features of MS Excel.
- Q.3 Discuss different types of data in MS Excel.
- Q. 4 Explain different parts of MS Excel window.
- Q.5 Discuss the different key used for entering data in MS Excel.

Objectives

- Manipulating Data in Excel
- AutoFill
- Insert Cells, Rows, and Columns
- Delete Cells, Rows and Columns
- Find and Replace
- Go To Command
- Excel Formulas
- Functions in Excel
- Relative, Absolute and Mixed References

11.1 Manipulating Data in Excel

Excel allows to move, copy & paste cells and cell content through cutting and pasting and copying and pasting.

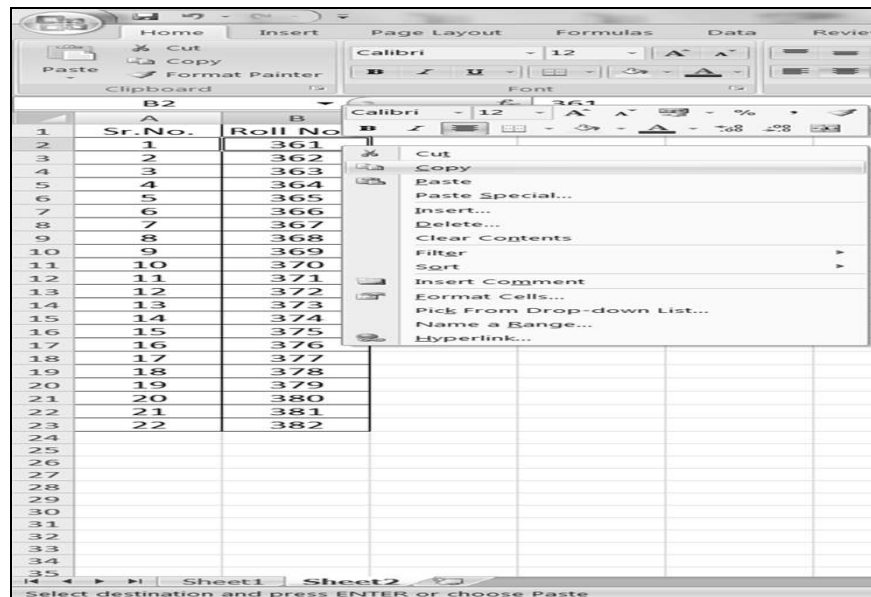


Figure 11.1: Editing Options in Excel

Select, Copy and Paste Data

To select a cell or data to be copied or cut, Click the cell and then Right Click. After Right Clicking a menu will appear. From the menu either Click Cut or Copy depending upon the type of operation we want to perform. After copy or cut Select the cell(s) where we would like to copy the data and Click Paste. If we want to select multiple cells then Click and drag the cursor to select many cells in a range (Shown in Figure 11.2).

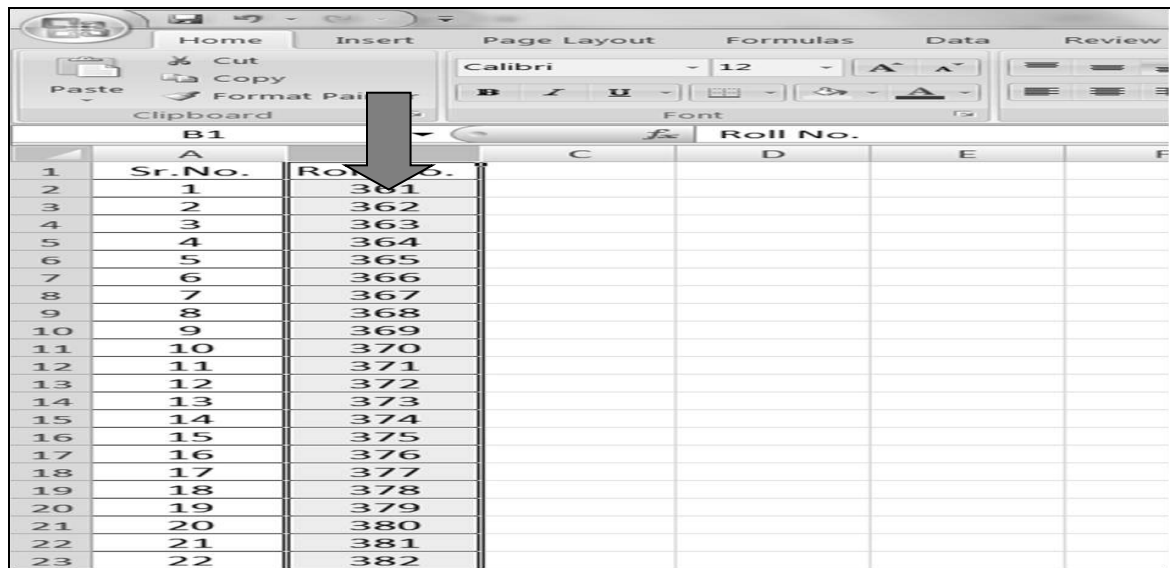


Figure 11.2: Data Selection Options in Excel

Select a Row or Column

To select a row or column Click on the row or column header. The whole column or row will be selected.

Undo and Redo

To undo or redo the most recent actions Click On the Quick Access Toolbar and then Click Undo or Redo (Shown in Figure 11.3)



Figure 11.3: Undo & Redo Options in Excel

11.2 AutoFill

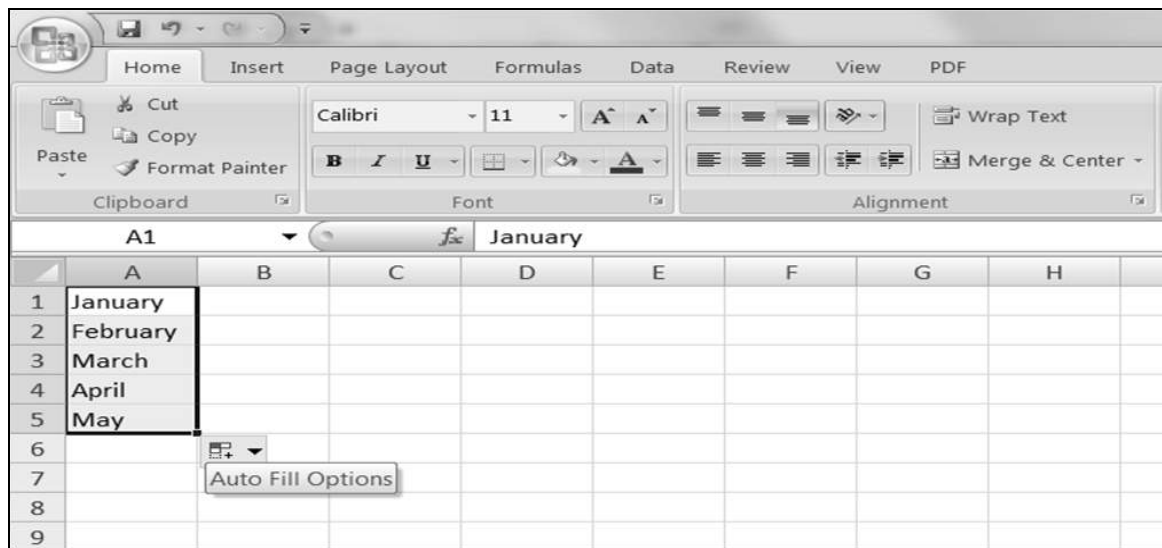


Figure 11.4: AutoFill Feature in Excel

AutoFill allows to quickly fill data in a series (e.g. months, days of the week or a numeric series) into adjacent cells. To use the Autofill function with text, type in the first word of the series (e.g. January), then press the left mouse button on the bottom right corner of that cell. The cross will switch from white to black. Click and drag the series down or across the number of cells we would like to fill with this series. Here the month names are created using autofill option of Excel. The Auto Fill feature fills cell data or series of data in a worksheet into a selected range of cells. If we want the same data copied into the other cells, one only need to complete one cell and then one can use the autofill feature (Shown in Figure 11.4).

11.3 Insert Cells, Rows, and Columns

To insert cells, rows, and columns in Excel, place the cursor in the row below where we want the new row, or in the column to the left of where we want the new column. Click the Insert button on the Cells group of the Home tab and then Click the appropriate choice i.e. Cell, Row or Column (Shown in Figure 11.5)

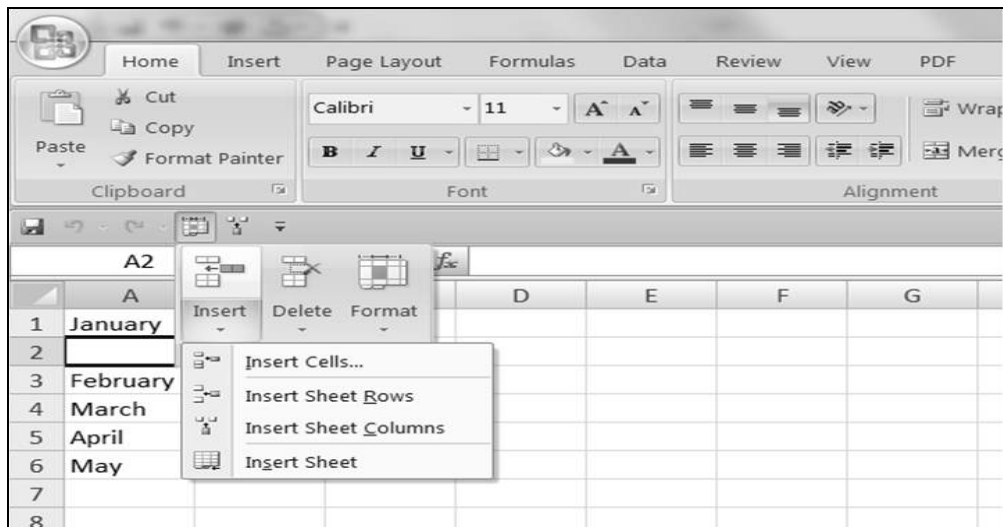


Figure 11.5: Inserting Cells, Rows, and Columns in Excel

11.4 Delete Cells, Rows and Columns

To delete cells, rows, and columns place the cursor in the cell, row or column that we want to delete. Then Click the Delete button on the Cells group of the Home tab and Click the appropriate option Cell, Row or Column (Shown in Figure 11.6).

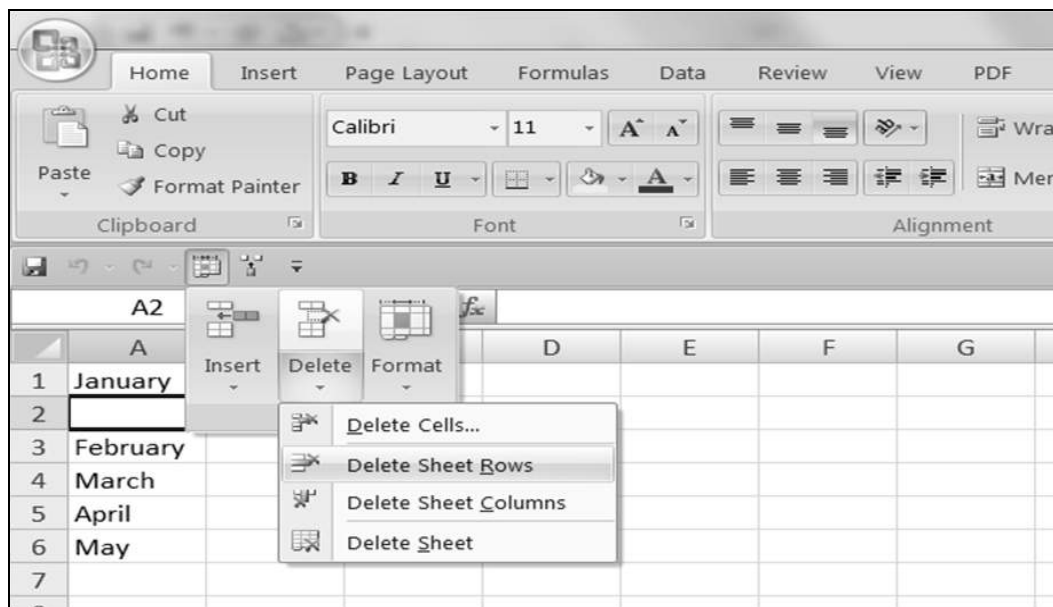


Figure 11.6: Deleting Cells, Rows and Columns in Excel

11.5 Find and Replace

To find data or find and replace data Click the Find & Select button (Shown in Figure 11.7) on the Editing group of the Home tab then Choose Find or Replace. The Find and Replace box open up. Type the data which we want to find in the Find What text box and also type the data which we want to replace. Moreover, Click on Options for more search options

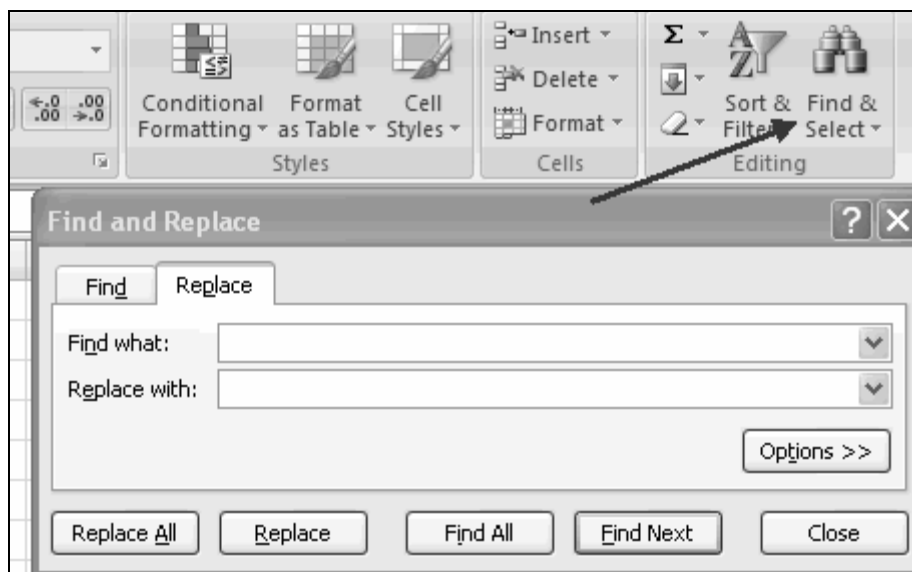


Figure 11.7: Find and Replace in Excel

11.6 Go To Command

The Go To command takes us to a specific cell either by cell reference or cell name. To goto to a specific cell Click the Find & Select button on the Editing group of the Home tab and then Click Go To(Shown in Figure 11.8).

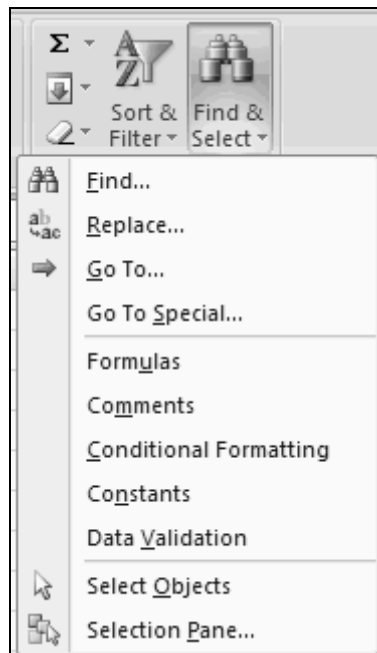


Figure 11.8: GoTo Command in Excel

11.7 Excel Formulas

A formula is a set of mathematical instructions that can be used in Excel to perform calculations. Formulas are started in the formula box with an = sign (Shown in Figure 11.9).

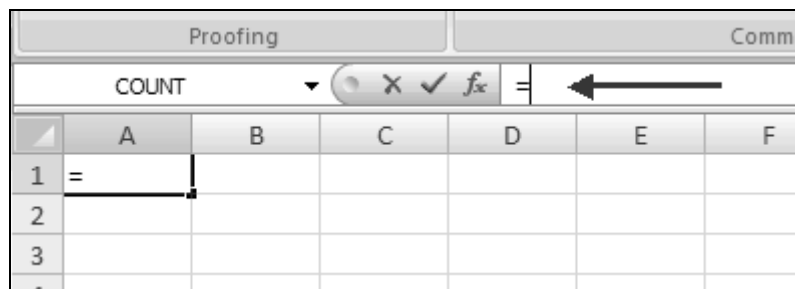


Figure 11.9: Formula Bar in Excel

There are many elements to an excel formula. They are: References, Operators, Constants and Functions.

References: The cell or range of cells that we want to use in our calculations.
Operators: Symbols (+, -, *, /, etc.) that specify the calculation to be performed.

Constants: Numbers or text values that do not change

Functions: Functions are predefined formulas in Excel.

To create a basic formula in Excel, Select the cell for the formula and Type = (the equal sign) and the formula. Then Click Enter(Shown in Figure 11.10).

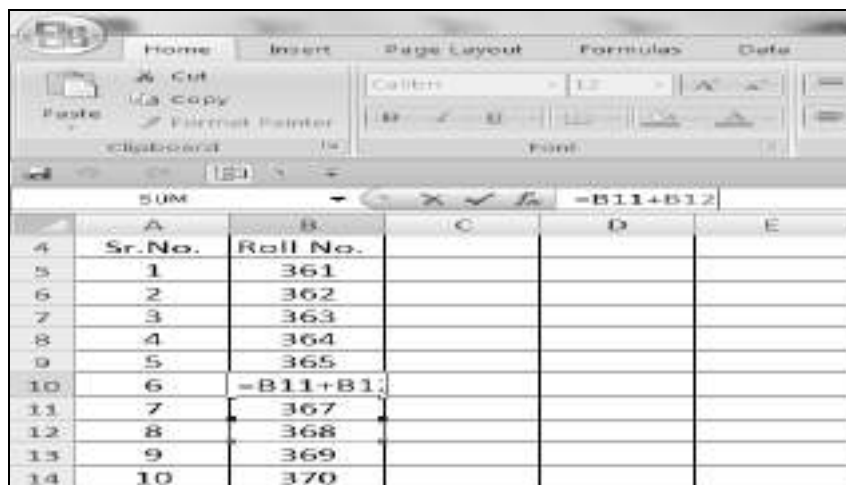


Figure 11.10: Entering Formula in Excel

11.8 Functions in Excel

A function is a built-in formula in Excel. A function has a name and arguments in parentheses. The most commonly used functions in Excel are: Sum, Average, Min and Max. The Sum function adds all cells in the argument. The Average function calculates the average of the cells in the argument. The Min function finds the minimum value whereas the Max function finds the maximum value of among a range of values. To use a function Click the cell where we want the function to be applied then Click the Insert Function button and choose the function. Then Click OK (Shown in Figure 11.11).

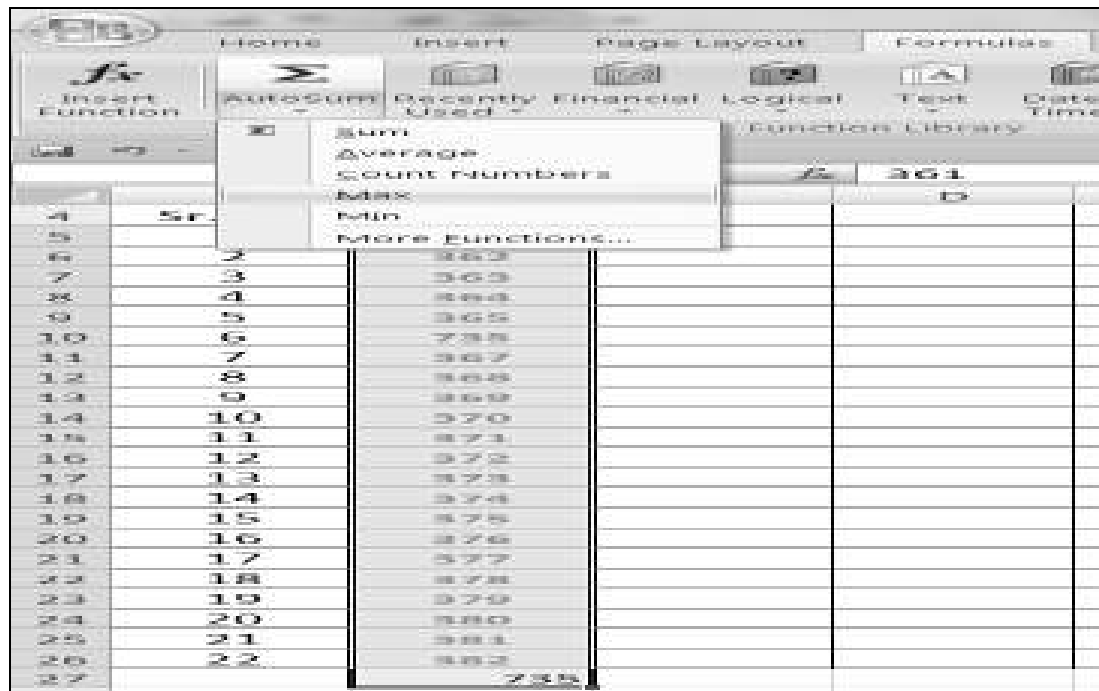


Figure 11.11: Functions in Excel

Categories of Excel Functions

There are many categories of functions in Excel. Each category has specific functions that pertain to that category.

Financial: The financial functions are used to perform common business calculations including accounting and finance.

Logical: This category of function is used to perform what-if analysis to see if a condition is true or false (Shown in Figure 11.12).

Text: The text functions allow text to be manipulated within a calculation that also contains data.

Date & Time: The date & time category is used to perform functions involving date or time data.

Lookup & Reference: Finds values in a corresponding table or list and incorporates the data into the calculation.

Math and trigonometry: Performs simple to complex mathematical functions.

Statistical: Performs statistical analysis on ranges of data.

Information: Performs an analysis on a range of data to determine the type of data contained in a cell.

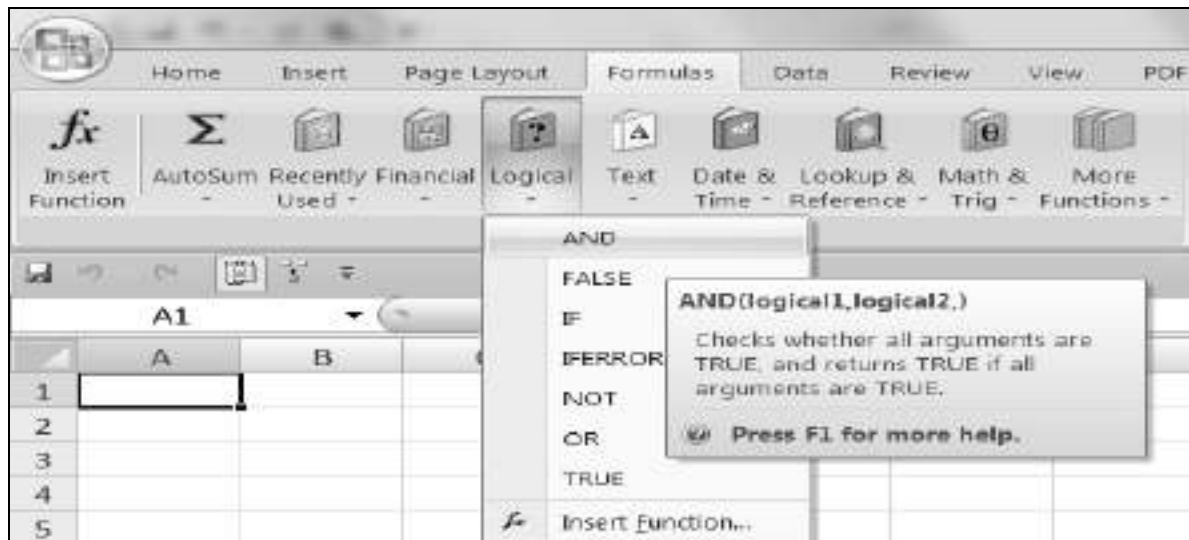


Figure 11.12: Logical Functions in Excel

11.9 Relative, Absolute and Mixed References

There are different sorts of cell references. These are:

- Relative
- Absolute
- Mixed

Relative Reference

Calling cells by just their column and row labels (such as "C2") is called relative referencing. A relative reference will change column and row numbers as it is copied to other cells. When a formula contains relative referencing and it is copied from one cell to another, then Excel does not create an exact copy of the formula. It will change cell addresses relative to the row and column they are copied to. For example:

- ❖ In cell B2, enter 15.
- ❖ In cell C2, enter =B2+2.
- ❖ Press Enter.
- ❖ Cell C2 now returns the value 17.
- ❖ Press Ctrl+C or click the Copy button on the Home tab.

- ❖ Click cell C3.
- ❖ Press Ctrl+V, or click the Paste button on the Home tab.

Cell C3 should be the active cell, but if it is not, just click it once. Look at the Formula bar. The contents of cell C3 are =B3+2, and not the =B2+2 that we copied.

Absolute Reference

An absolute reference is one that does not change. If we refer to a cell in a certain row and column and then copy that reference elsewhere, it will still refer to exactly the same cell or range. An absolute address is defined with the use of the “\$” symbol. This can be typed in at the time of creating the formula, or by editing the cell afterwards.

- ❖ In cell B2, enter 15.
- ❖ In cell C2, enter =\$B\$2+2.
- ❖ Press Enter.
- ❖ Cell C2 now returns the value 17.
- ❖ Press Ctrl+C or click the Copy button on the Home tab.
- ❖ Click cell C3.
- ❖ Press Ctrl+V, or click the Paste button on the Home tab.

Cell C3 should be the active cell, but if it is not, just click it once. Look at the Formula bar. The contents of cell C3 are =\$B\$2+2 and will not change to B3+2 as it was the case in relative reference.

Mixed Reference

A mixed reference is one that is half relative and half absolute. The different cell reference types are given in the formula below.

Reference Type	Formula	What Happens After Copying the Formula
Relative	=A2	Both the column letter A and the row number 2 can change.
Absolute	=\$A\$2	The column letter A and the row number 2 does not change.
Mixed	=\$A3	The column letter A does not change. The row number 3 can change.
Mixed	=A\$4	The column letter A can change. The row number 4 does not change.

Summary

- AutoFill feature allows to quickly fill data in a series (e.g. months, days of the week or a numeric series) into adjacent cells.
- The Go To command takes us to a specific cell either by cell reference or cell name.
- A formula is a set of mathematical instructions that can be used in Excel to perform calculations. Formulas are started in the formula box with an = sign.
- A function is a built-in formula in Excel. A function has a name and arguments in parentheses.
- Calling cells by just their column and row labels (such as "C2") is called relative referencing.
- An absolute reference is one that does not change. If we refer to a cell in a certain row and column and then copy that reference elsewhere, it will still refer to exactly the same cell or range.
- A mixed reference is one that is half relative and half absolute.

Exercise 11

- Q.1 What are the rules to be followed while entering formula?
- Q. 2 What is the procedure to display formulae on the worksheet?
- Q. 3 What is AutoSum?
- Q. 4 Differentiate between the various addressing methods?
- Q.5 Write a short note on AutoFill feature of Excel.

Objectives

- Introduction
- Components of a Chart
- Types of Chart
- Steps for drawing a Chart
- Graphics
- Auto Shapes
- Clip Art
- SmartArt Graphics

12.1 Introduction

One of the best ways to analyze worksheet data is to display the data visually in a Graph or chart. Excel gives tremendous flexibility for creating charts. Charts allow us to present data entered into the worksheet in a visual format using a variety of chart types. Before we can make a chart, we must first enter data into a worksheet. Formatted charts come in various types for diverse goals, ranging from columns to pies, from lines to surfaces, etc. Once we have created a chart and selected the appropriate type of chart, one can enhance the chart's appearance by formatting any of the various chart elements.

12.2 Components of a Chart

The typical chart in Excel 2007 comprises several distinct parts, including the chart title, chart area, data series, axes, legend, plot area, gridlines, data markers, and more. The following list summarizes the parts of a typical chart and is depicted in Figure 12.1:

- ❖ Chart Title: A title given to the whole chart.
- ❖ X-Axis Title: A title given to the X-axis data range.
- ❖ Y-Axis Title: A title given to the Y-axis data range.
- ❖ Y-Axis Value: This is the data range marked to plot the data series.
- ❖ Plot Area: The plot area in a chart or graph in spreadsheet programs refers to that area of the chart that graphically displays the data being charted.
- ❖ Chart Area: Everything inside the chart window, including all parts of the chart i.e. labels, axes, data markers, tick marks, and other elements listed there is called the chart area.
- ❖ Data Labels: The values of the data series plotted.
- ❖ Legends: Specifies the colour, symbol or pattern used to mark data series.
- ❖ Grid Lines: Displays lines at the major intervals on the category (x) axis and/or Y-axis

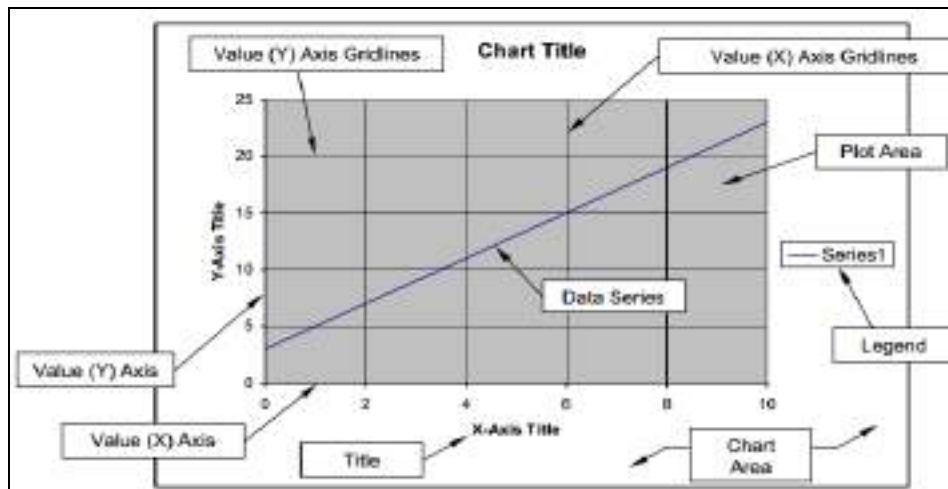


Figure 12.1: Components of a Chart

12.3 Types of Chart

Microsoft Office Excel 2007 provides various types of charts to display data in different ways as per the need of the users. One can create a new chart or can change the existing chart, from the wide range of chart subtypes available for each type. A number of chart types are made available by the Excel to select from to present the data in the best-desired manner. The various Chart Types are: Column, Line, Pie, Bar, Area, Scatter, Doughnut, Radar, Surface, Bubble, Stock, Cone, Cylinder and Pyramid (Shown in Figure 12.2).

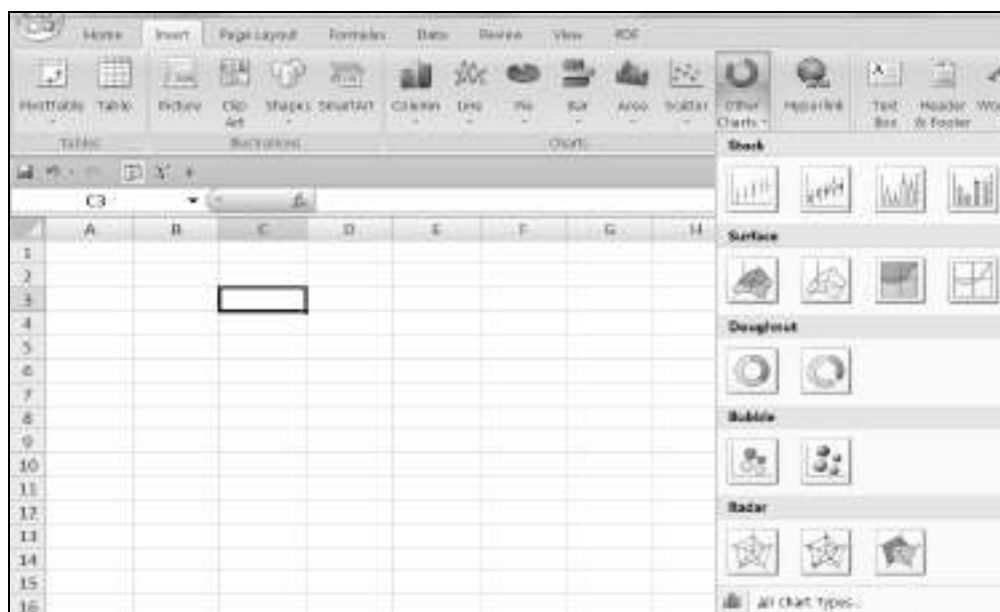
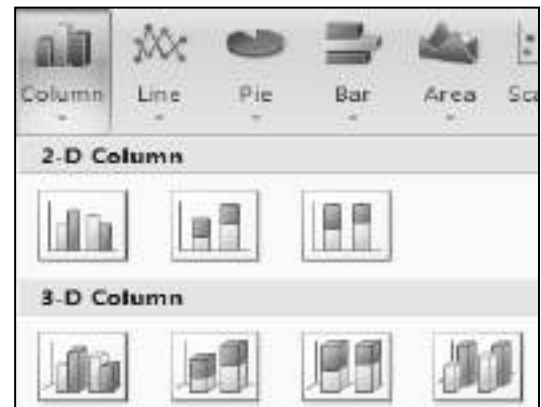


Figure 12.2: Different Types of Excel Charts

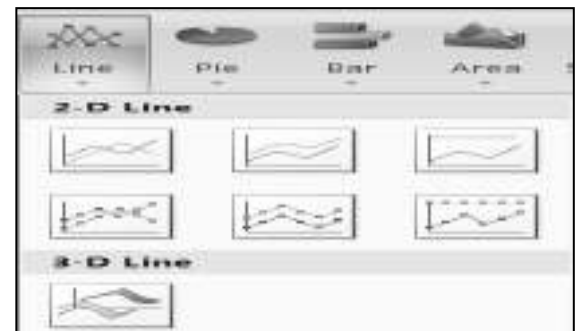
Column Chart

A column chart shows data changes over a period of time or illustrates comparisons among items. Categories are organized horizontally, values vertically, to emphasize variation over time. Stacked column charts show the relationship of individual items to the whole. The 3-D perspective column chart compares data points along two axes.



Line Chart

A line chart uses a line to show trends in data at equal intervals.



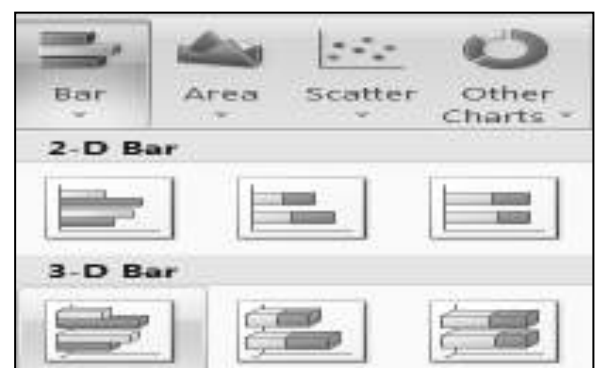
Pie Chart

A pie chart shows the proportional size of items that make up a data series to the sum of the items. It always shows only one data series and is useful when we want to emphasize a significant element.



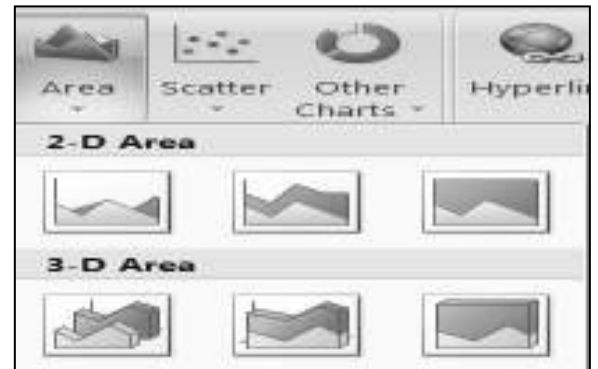
Bar Chart

A bar chart illustrates comparisons among individual items. Categories are organized vertically, values horizontally, to focus on comparing values and to place less emphasis on time. Stacked bar charts show the relationship of individual items to the whole.



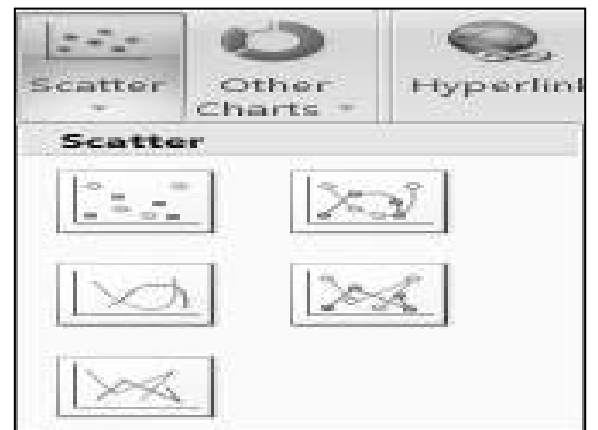
Area Chart

An area chart emphasizes the magnitude of change over time. By displaying the sum of the plotted values, an area chart also shows the relationship of parts to a whole.



Scatter chart

A scatter chart either shows the relationships among the numeric values in several data series or plots two groups of numbers as one series of XY coordinates. It shows uneven intervals or clusters of data and is commonly used for scientific data. When we arrange your data, place x values in one row or column and then enter corresponding y values in the adjacent rows or columns.



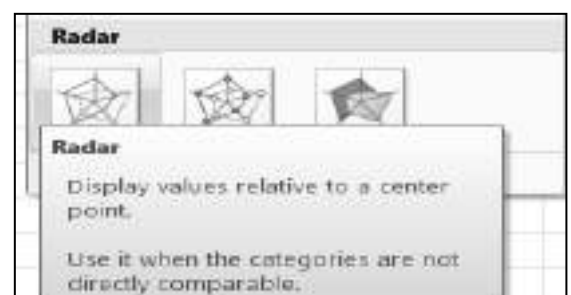
Doughnut Chart

Like a pie chart, a doughnut chart shows the relationship of parts to a whole, but it can contain more than one data series. Each ring of the doughnut chart represents a data series.



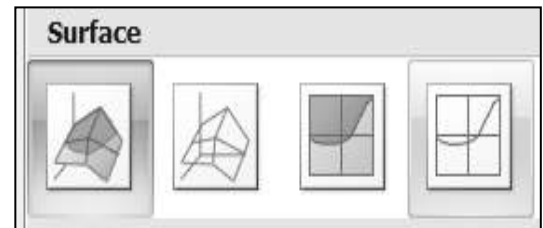
Radar Chart

In a radar chart, each category has its own value axis radiating from the center point. This type of the chart is used when the categories are not directly comparable.



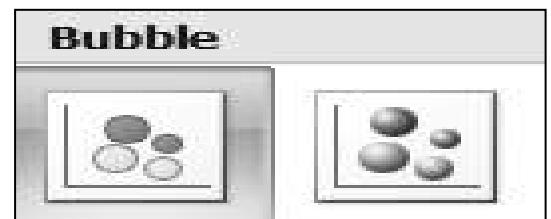
Surface Chart

Such type of chart is used in situations where both categories and data series are numeric values. This type of chart is useful in situations where the optimum combinations are found among the two sets of data.



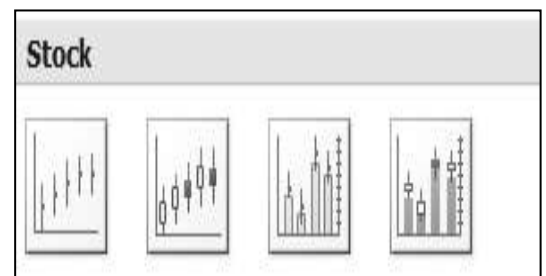
Bubble chart

Bubble chart is a type of xy (scatter) chart. The size of the data marker indicates the value of a third variable.



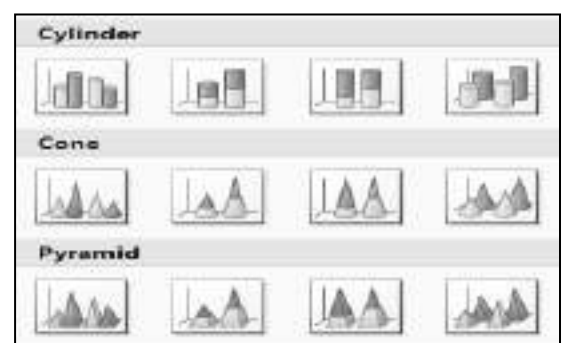
Stock charts

Stock chart can be used to plot data arranged in columns or rows in a particular order on a worksheet. As the name is self explanatory, this chart is used to demonstrate the fluctuations with respect to stock market prices. Even scientific data can be plotted by stock chart i.e. the fluctuation of daily or periodic temperature.



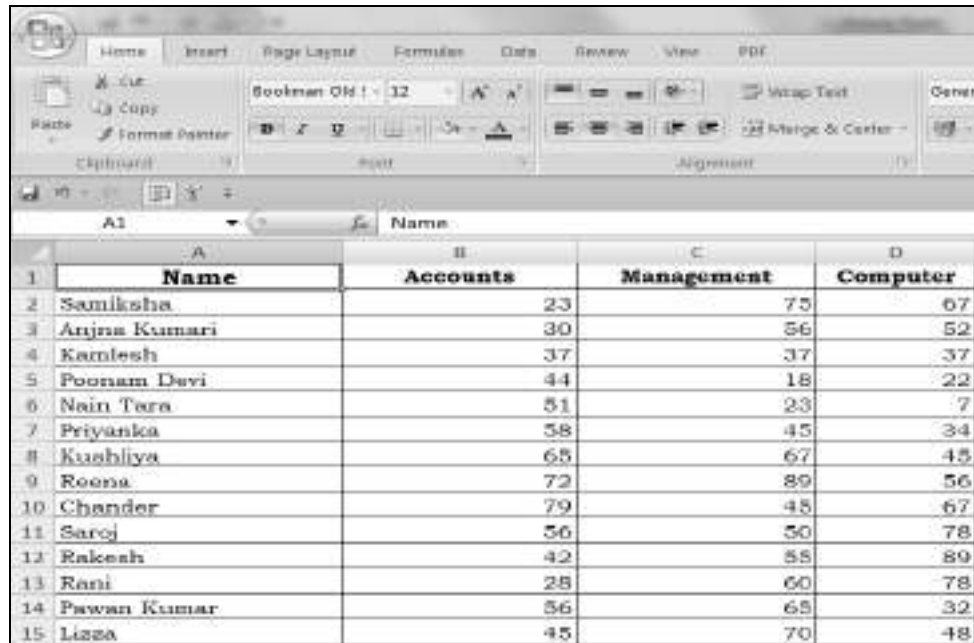
Cone, Cylinder and Pyramid Charts

The cone, cylinder, and pyramid data markers can lend a dramatic effect to 3-D column and bar charts.



12.4 Steps for Drawing a Chart

1. Enter data in the work sheet: Suppose we entered data as given in Figure 12.3.



	A	B	C	D
1	Name	Accounts	Management	Computer
2	Samiksha	23	75	67
3	Anjna Kumari	30	56	52
4	Kamlesh	37	37	37
5	Poonam Devi	44	18	22
6	Nain Tara	51	23	7
7	Priyanka	58	45	34
8	Kushliya	65	67	45
9	Reena	72	89	56
10	Chander	79	45	67
11	Saroj	56	50	78
12	Rakesh	42	55	89
13	Rani	25	60	78
14	Pawan Kumar	56	65	32
15	Lizza	45	70	48

Figure 12.3: Entering Data for Chart

2. Now select the range of data we want to consider for making chart.
3. Click Insert Tab and select a chart type from the chart group (See Figure 12.4). For example in this case we selected the column chart option and then 2-D sub-option.

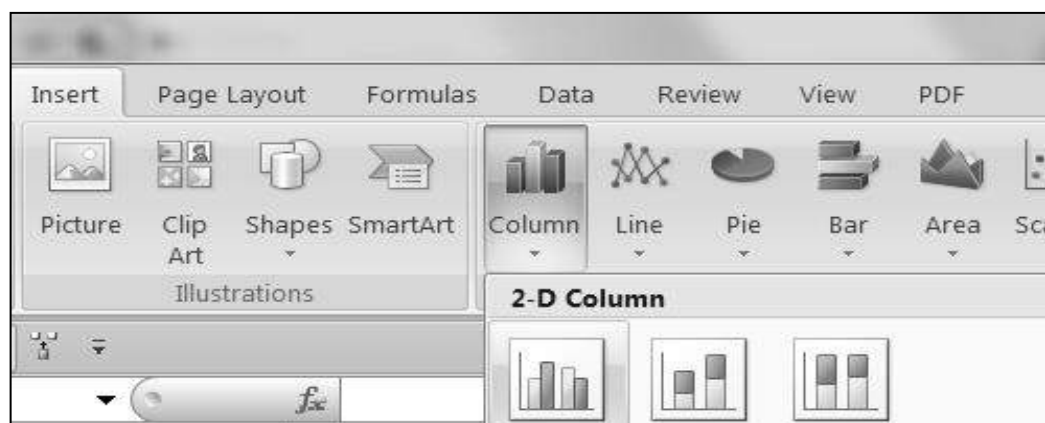


Figure 12.4: Selecting Chart Type

The output chart is shown in Figure 12.5.

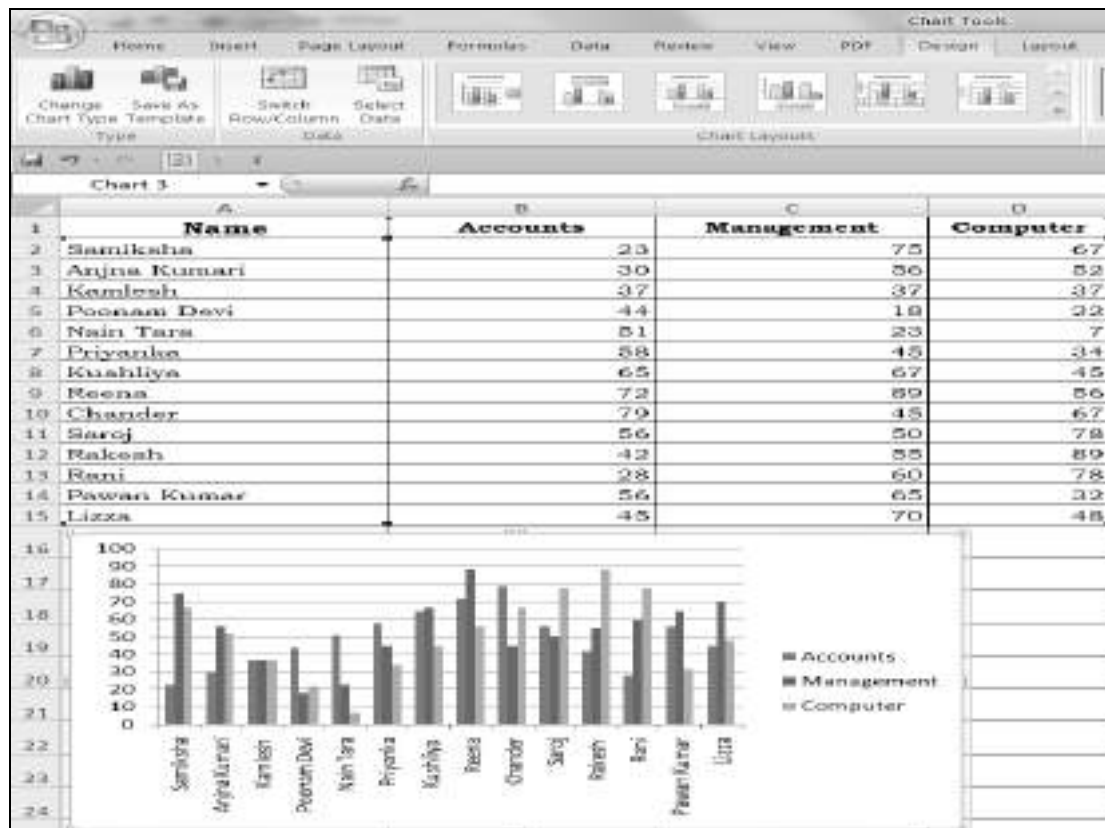


Figure 12.5: Output of 2-D Column Chart

4. Select the Chart Title, Axis Title, Legends, data labels etc. of the chart.
 - a. To give a title to a chart, click on the chart. Now we can see layout tab available. Click on Layout tab (Shown in Figure 12.6).
 - b. Choose(click) on chart title option available in the Label group and write the chart title.
 - c. Similarly, Axis Title, Legends, data labels etc. can also be written using the layout tab.

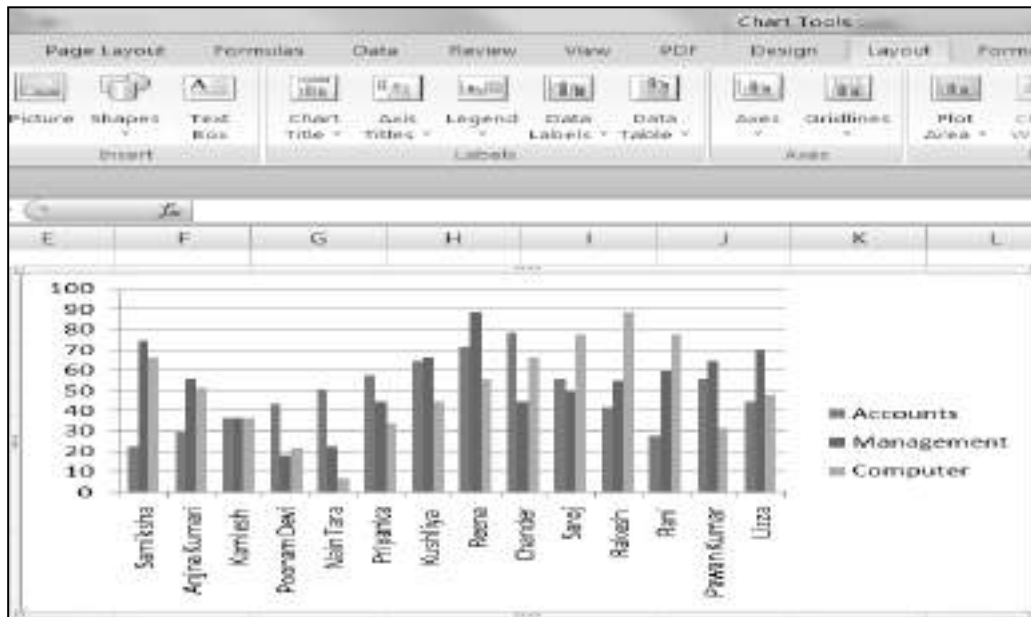


Figure 12.6: Editing Axis Title, Legends and Data Labels

12.5 Graphics

The Graphics feature of Excel 2007 consists of AutoShapes, ClipArt and Smart art. The AutoShapes feature allows to draw a number of geometrical shapes, arrows, flow chart elements, stars and more on the worksheet. The ClipArt includes drawings, movies, sounds or photography. However, the SmartArt graphic is a visual representation of the information and ideas. One can create SmartArt graphics by choosing from among many different layouts to quickly, easily and effectively communicate the message.

12.6 AutoShapes

The steps to activate and use AutoShapes are:

1. Click on Insert Tab.
2. From Illustrations Group, Click on Shapes.

Different categories of AutoShapes available in Excel 2007 are: Lines, Basic Shapes, Block Arrows, Flow charts, callouts and Star & Banners(See Figure 12.7).



Figure 12.7: Drawing AutoShapes

Lines

After clicking the Lines button on the AutoShapes toolbar, draw a straight line, arrow, or double-ended arrow clicking the respective button. Click in the worksheet where you would like the line to begin and click again where it should end. To draw a curved line or freeform shape, select curved lines from the menu.

Basic Shapes

To draw basic shapes Click the Basic Shapes button on the AutoShapes toolbar to select from many two- and three- dimensional shapes, icons, braces and brackets. Use the drag-and-drop method to draw the shape in the worksheet.

Block Arrows

To draw block arrows select Block Arrows to choose from many types of two and three-dimensional arrows. Drag & drop the arrow in the worksheet and use the open box and yellow diamond handles to adjust the arrowheads.

Flow Chart

To draw a flowchart, choose from the flow chart menu to add flow chart elements to the worksheet and use the lines menu to draw connections between the elements.

Stars and Banners

To draw stars and banners click the button to select stars, bursts, banners and scrolls.

Call Outs

Select from the speech and thought bubbles and line call outs. Enter the call out text in the text box that is made.

12.7 Clip Art

Clip art is a form of electronic graphic art that consists of simple media file including sound, animation, art or movie. The different ClipArt object are shown in Figure 12.8. To insert a clipart object the following steps are used:

1. Click on Insert Tab.
2. From Illustrations Group, Click on Clip Art
3. Then Select a Collection and press Go Button
4. Click on a clip from the collection.

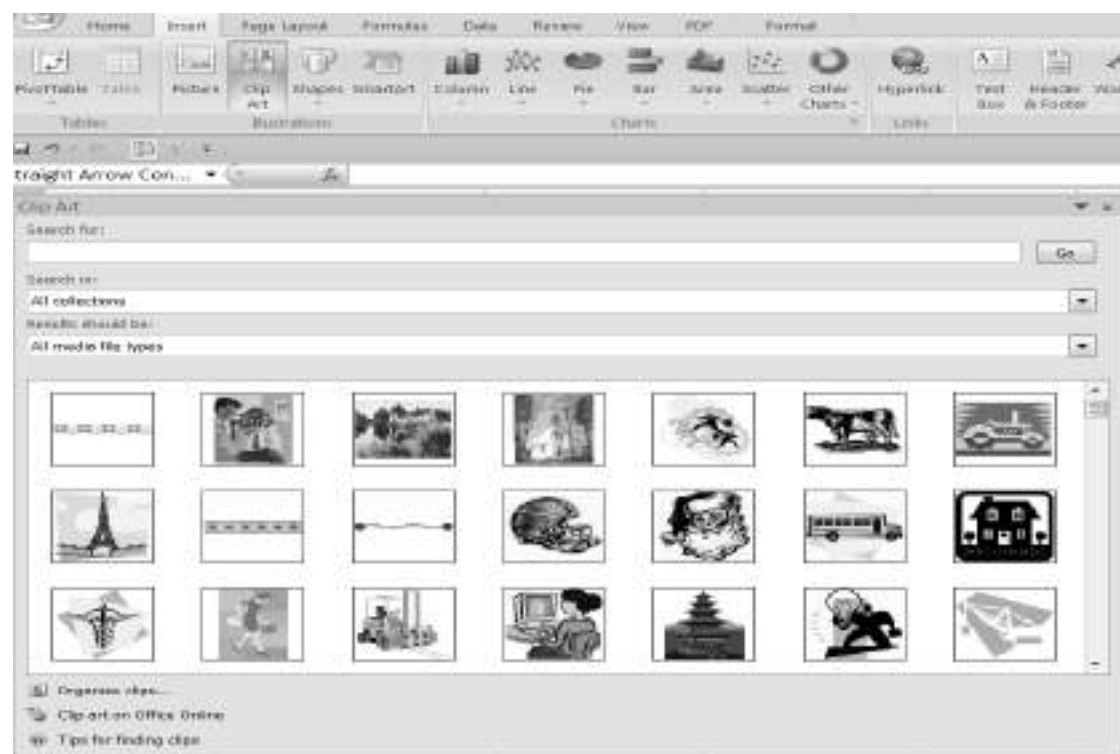


Figure 12.8: Screenshot of Clip Art

12.8 SmartArt Graphics

Visual representation of information and ideas is called SmartArt Graphics. To create a SmartArt graphic, one has to choose a type of SmartArt Graphics. For example, Process, Cycle, Hierarchy or Relationship. A type represents a category of SmartArt graphic. Each type is having several different types of layouts. The following steps are used to create SmartArt Graphics(Figure 12.9):

1. Click on Insert Tab.
2. From Illustrations Group, Click on SmartArt.

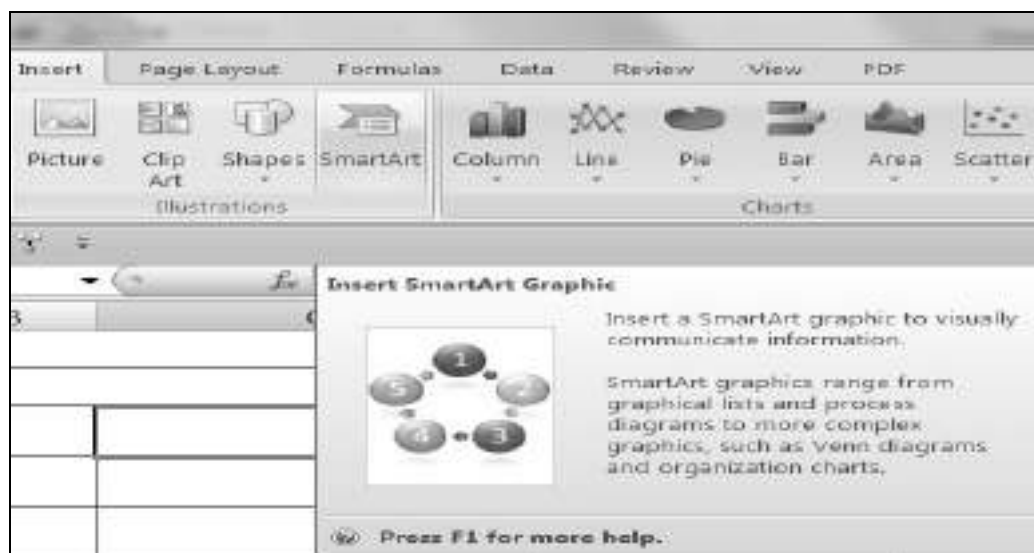


Figure 12.9: Inserting SmartArt Graphics

3. Now choose a category (e.g. Cycle) as shown in Figure 12.10 and click OK.

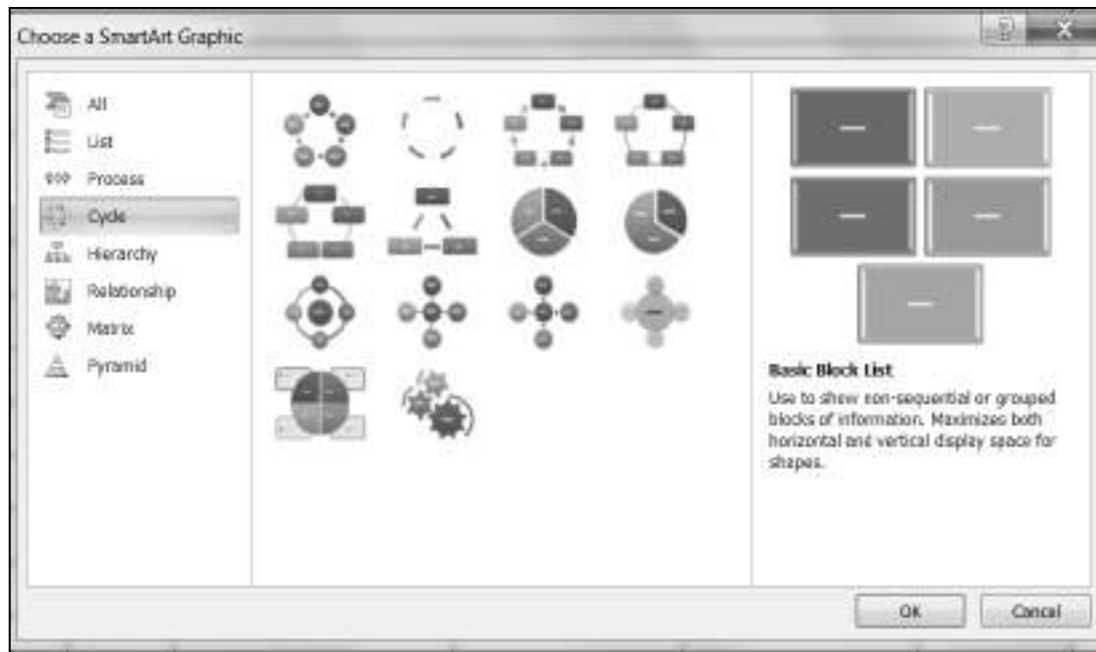


Figure 12.10: SmartArt Graphics Categories

4. Click for a particular option of your choice from the list of Cycle SmartArt Graphics.
5. Now we can enter the values as shown below in Figure 12.11. To enter values just click on the component where we want to enter text and write the text.

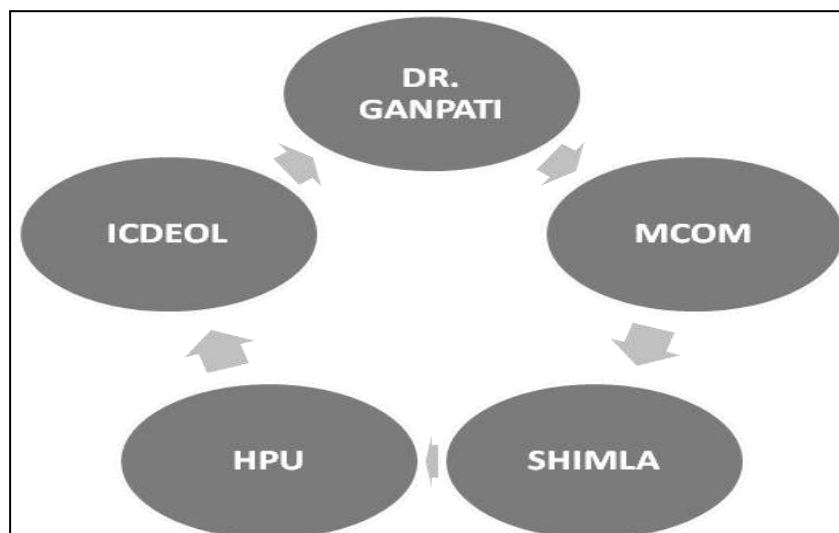


Figure 12.11: SmartArt Graphics Circle Category

Summary

- Charts allow us to present data entered into the worksheet in a visual format using a variety of chart types
- The typical chart in Excel 2007 comprises several distinct parts, including the chart title, chart area, data series, axes, legend, plot area, gridlines, data markers, and more.
- The various chart Types are: Column, Line, Pie, Bar, Area, Scatter, Doughnut, Radar, Surface, Bubble, Stock, Cone, Cylinder and Pyramid.
- The Graphics feature of Excel 2007 consists of AutoShapes, ClipArt and Smart art.
- The AutoShapes feature allows to draw a number of geometrical shapes, arrows, flow chart elements, stars and more on the worksheet.
- The ClipArt includes drawings, movies, sounds or photography.
- The SmartArt graphic is a visual representation of the information and ideas. One can create SmartArt graphics by choosing from among many different layouts to quickly, easily and effectively communicate the message.

Exercise 12

- Q.1 Define chart in Excel.
- Q.2 Explain the different components of a chart.
- Q.3 Discuss different types of chart available in Excel.
- Q.4 What are the steps for drawing a chart?
- Q.5 Write a short note on AutoShapes.
- Q.6 What is meant by Clip Art?
- Q.7 Discuss SmartArt Graphics.

Objectives

- Introduction
- Starting PowerPoint
- Creating a New Presentation
- Save a Presentation
- Slide Layout
- Views in PowerPoint 2007
- PowerPoint 2007 Toolbars

13.1 Introduction

Microsoft PowerPoint is widely used for making professional quality presentations in a variety of formats, including on-screen computer slide shows, black-and-white or colour overheads and 35mm slides. One can also use it for speaker's notes and audience hand-outs. In addition, PowerPoint can be used as a drawing package for preparing pictures, forms, posters and leaflets.

PowerPoint also called as Microsoft PowerPoint, is a program that allows the user to design a presentation that consists of multiple slides. These slides may contain images, text, video clips and related types of information. PowerPoint is useful for delivering a speech, because the user can utilize text on the screen to remind him or herself of the information to be conveyed to the audience.

13.2 Starting PowerPoint

To use PowerPoint Click the Start button and select All Programs, then from the sub-menu, select Microsoft Office, then select Microsoft Office PowerPoint 2007. When PowerPoint loaded, the screen shown in Figure 13.1 is displayed.

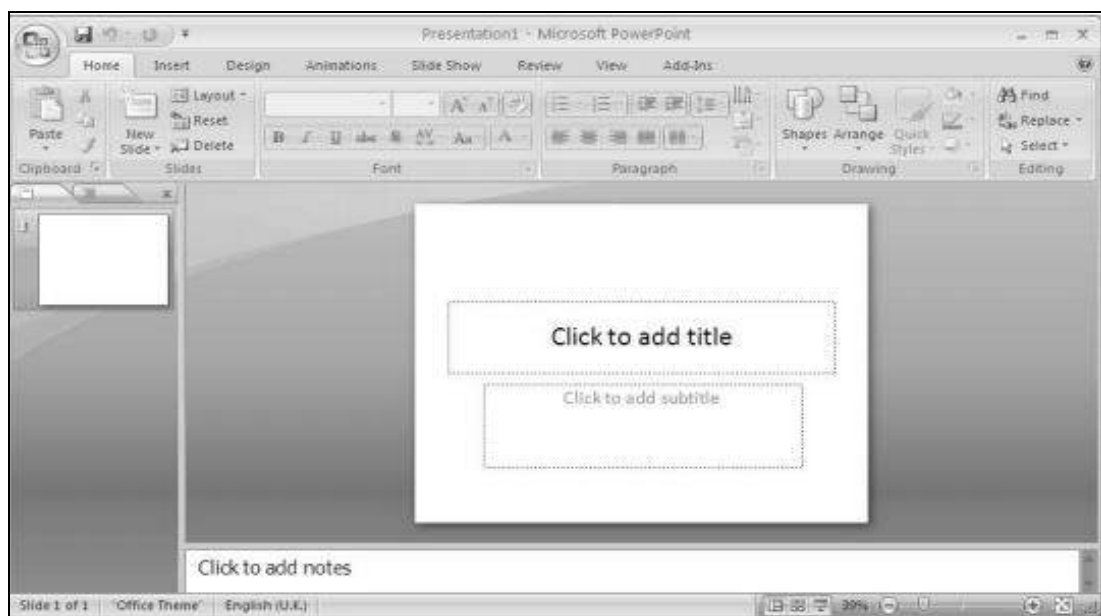


Figure 13.1: PowerPoint Screen

13.3 Creating a New Presentation

Every PowerPoint presentation involves the creation of a series of slides with text or objects displayed on them. One can create a new presentation using several options offered by PowerPoint 2007. A dialog box that appears when we start PowerPoint2007 to create a new slide offers the following options for creating a new presentation under template option:

- Blank and recent
- Installed Templates
- Installed Themes
- My templates..
- New from existing..

To Create New Presentation from Blank Slide

To create a new presentation from a blank slide Click the Microsoft Office Button then Click New. From the blank and recent option click the blank presentation (See Figure 13.2).

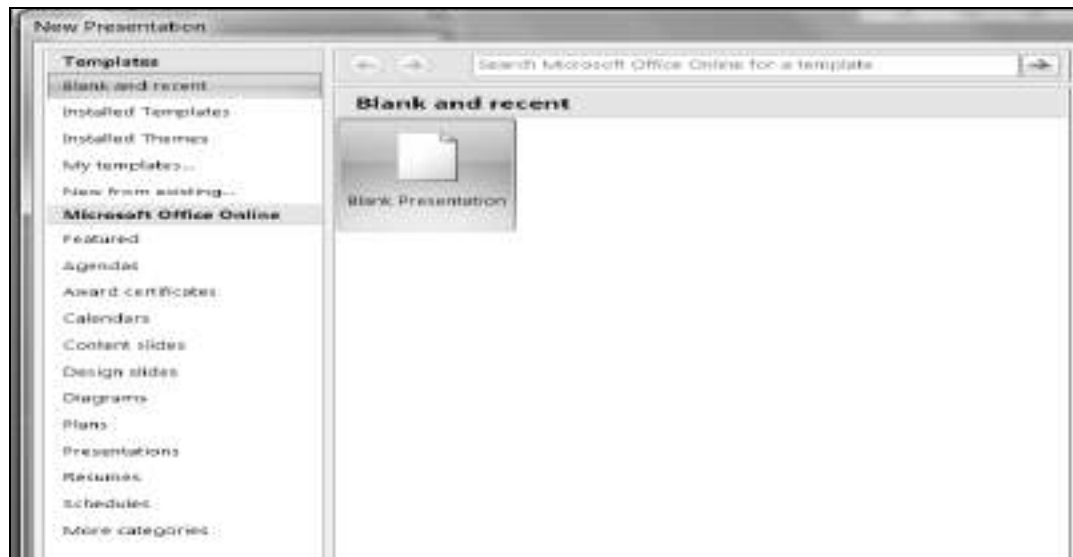


Figure 13.2: New Presentation from Blank Slide

To Create a new Presentation from a Template

To create new presentations from a template click the Microsoft office button and click New. Then click Installed Templates or browse through my Templates and click the template we want to choose. For example in this case, the Quiz show (Figure 13.3) is selected from the installed templates.

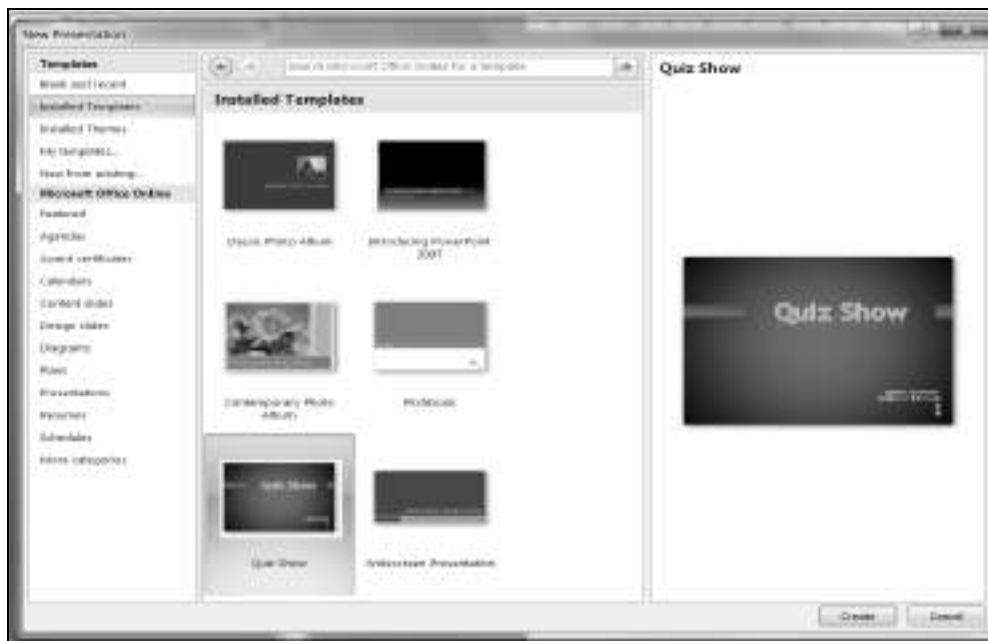


Figure 13.3: New Presentation from a Template

To Create a new Presentation from a Theme

To create new presentations from a theme click the Microsoft Office Button and click New. Then click Installed Themes and click the template we want to choose. For example in this case, the Civic is selected from the installed themes(Figure 13.4).

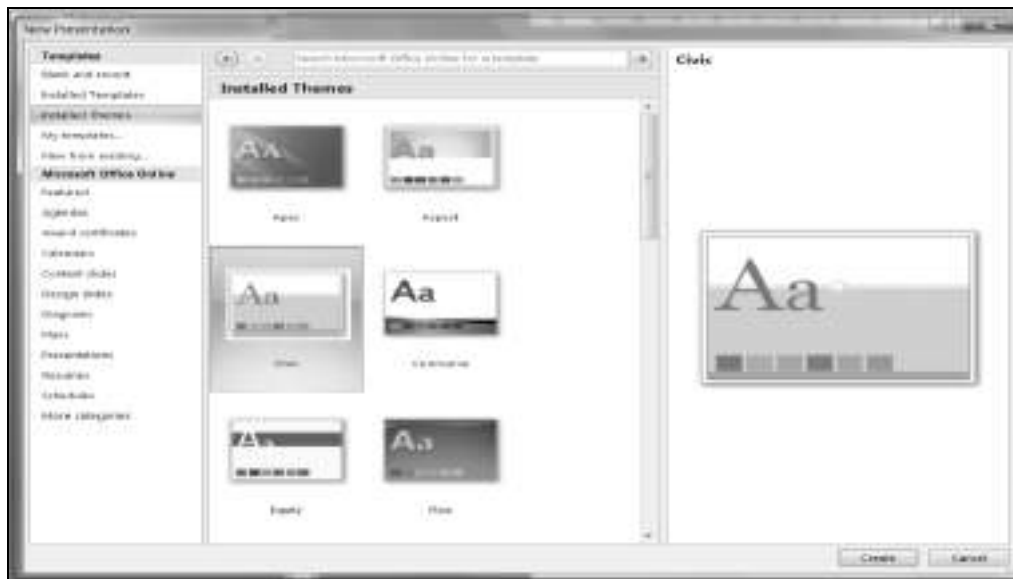


Figure 13.4: New Presentation from a Theme

To Create a New Presentation from an Existing Presentation

To create new presentations from an existing presentation click the Microsoft Office Button then click New. Now, Click from Existing and browse the existing presentation and click the desired presentation and then click Create New. In The Figure 13.5, the green it presentation is chosen from existing presentation to create new presentation.

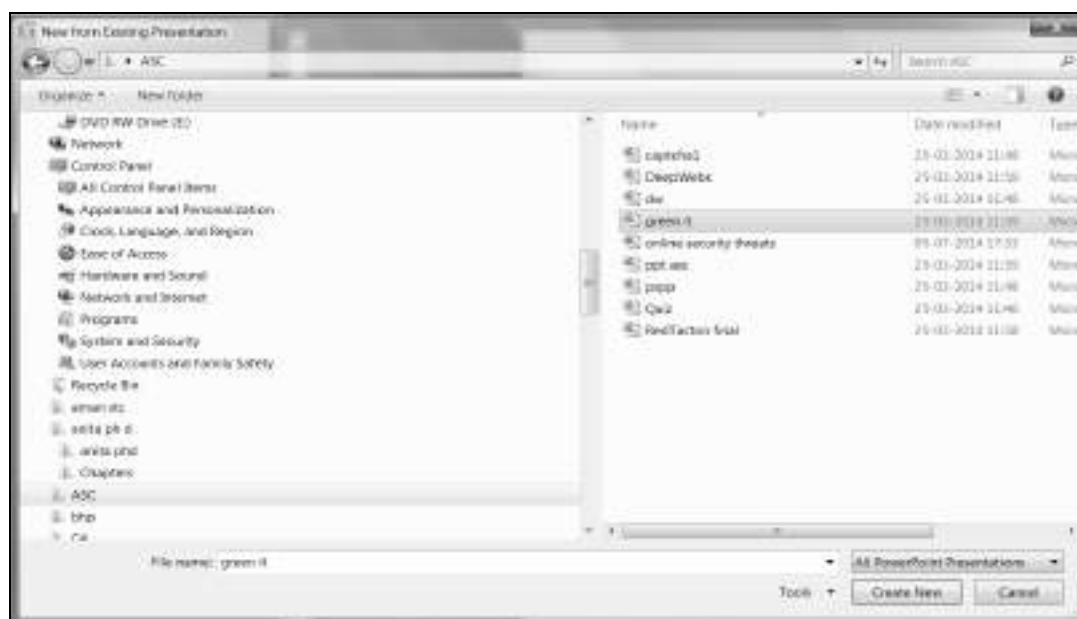


Figure 13.5: Create a New Presentation from an Existing Presentation

13.4 Save a Presentation

To save a PowerPoint presentation, there are two choices available: Save or Save As. To save a document Click the Microsoft Office Button and Click Save (Figure 13.6).

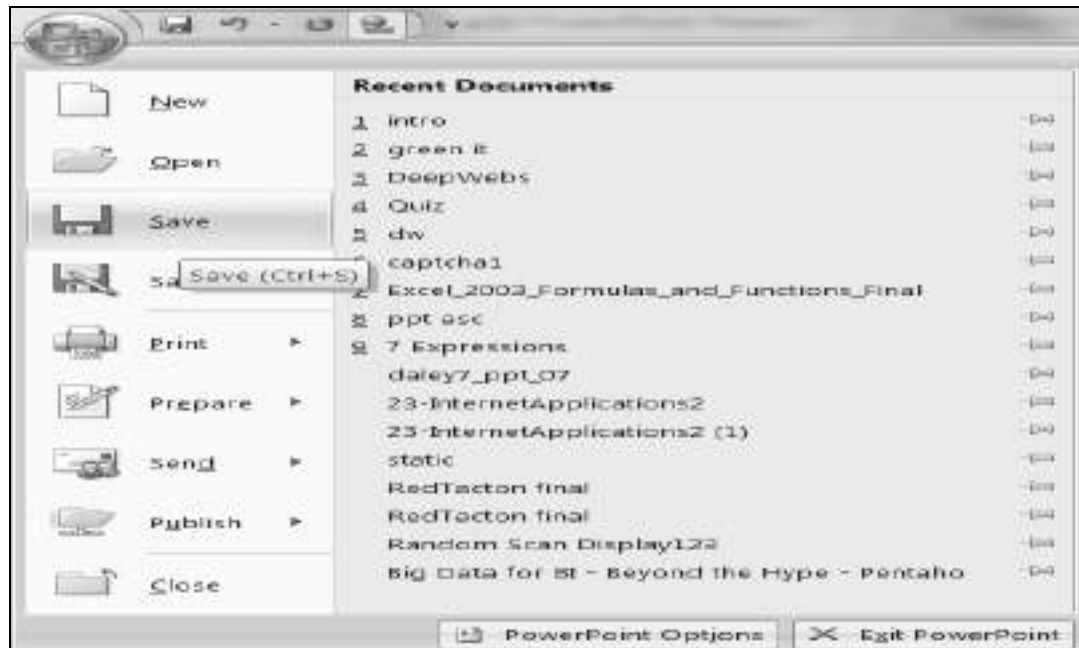


Figure 13.6: Saving a Presentation

We can use the Save As feature when we need to save a presentation under a different name or to save it for earlier versions of PowerPoint. The older versions of PowerPoint will not be able to open PowerPoint 2007 presentation unless we save it as a PowerPoint 97-2003 Format. To use the Save As feature Click the Microsoft Office Button and then Click Save As. Now type in the name for the presentation and in the Save as Type box, choose PowerPoint 97-2003 presentation (Figure 13.7).



Figure 13.7: Using Save As for Saving a Presentation

13.5 Slide Layout

Slide layouts define containers, positioning and formatting for all of the content that appears on a slide. Placeholders are the containers in layouts that hold such content as text (including body text, bulleted lists, and titles), tables, charts, SmartArt graphics, movies, sounds, pictures, and clip art. When we create a new slide, we can select from the different slide layouts. The different layouts available in PowerPoint are: Title Slide, Title and Content, Two Content, Comparison, Title Only, Blank, Content with Caption and Picture with Caption. Changing of layout of a slide results in all objects remains on the slide, but you might need to rearrange them to fit in the new layout.

Changing a Slide Layout

To change the slide layout Click on the Home menu bar tab then from the Slides section, select the Layout button. From the drop-down menu that appears, select the desired layout (Figure 13.8).

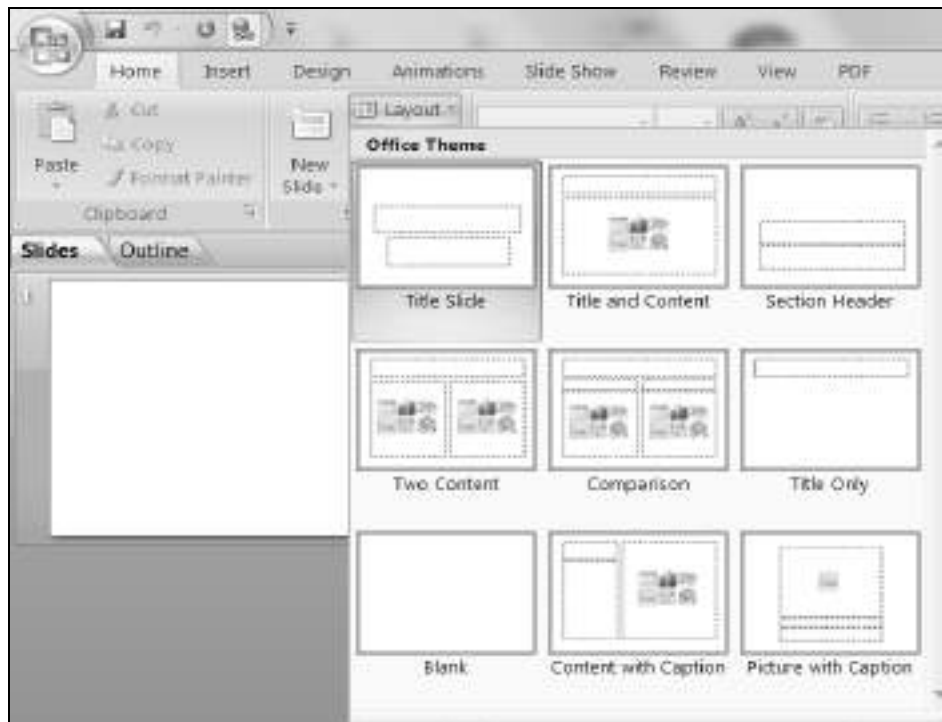


Figure 13.8: Slide Layouts in PowerPoint

13.5 Views in PowerPoint 2007

The three buttons in the bottom right corner of the document window allow us to change the way we view our presentation. The different views to view a presentation are: Normal view, Slide Sorter view and Slide Show view and are shown in Figure 13.9.

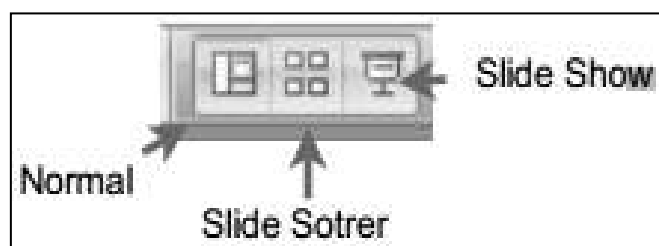


Figure 13.9: Different Views in PowerPoint 2007

Normal View

Normal View contains three panes: the outline pane, the slide pane and the notes pane. The outline pane gives the largest pane for text. The outline pane is most comfortable for working on text. The standard and formatting toolbars are available for editing text. One can therefore work on the text as if we are

working in word. One can even check spellings and use find and replace features to modify text. In this view the slides are visible. One can use the buttons on the outlining toolbar to move slides or text and change the indent level of titles and text. Even a summary slide can be added. In the slide pane, it is convenient to add as well as edit both text and art on a slide-by-slide basis. To switch to slide pane, click the slide view button. One can see the whole slide or change the zoom to magnify a portion of the slide for detailed work. The notes pane displays the notes page for the selected slide, where one can create speaker notes for the slide to be used during the presentation. A copy of the notes can be printed for reference. One can move or resize the slide image and the notes box.

Slide Sorter View

The Slide Sorter view shows the slides in the presentation in numerical order. Slide Sorter view displays miniature versions of a slide for changing the order, transition and timing of the slide show.

Slideshow View

Slideshow View shows the presentation from the beginning slide. Note that the slideshow button at the bottom right corner of the document window shows the presentation from the current slide. The Slide Show view shows the presentation on the full screen, either from the current slide or from the first slide. The shortcut key for the slide show view is F5. The Escape (ESC) key is used to go back to the previous view from the full screen slide show.

13.6 PowerPoint 2007 Toolbars

The Home bar

This toolbar has features that allow us to edit slides, fonts, paragraph, drawing and editing (Figure13.10).

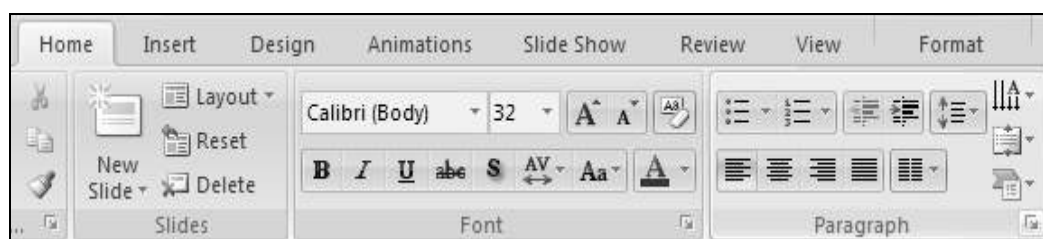


Figure 13.10: Home Tab

The Insert bar

This toolbar has features that allow us to add tables, illustrations, links, text and media clips (Figure13.11).



Figure 13.11: Insert Tab

The Design bar

This toolbar has features that allow you to edit how your presentation will look. It includes features such as Page Setup, Themes, and Background (Figure13.12).

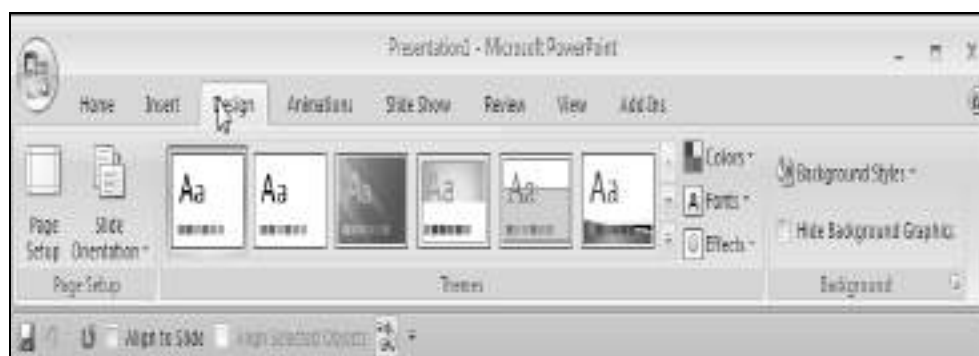


Figure 13.12: Design Tab

The Animations bar

This toolbar has features that allow us to add custom animations to the presentation. One can select from preview, animations and transitions. By selecting custom animation in the animations box, one can apply effects to individual elements in the presentation (Figure13.13).



Figure 13.13: Animations Tab

The Slide Show bar

This toolbar has features that allow us to select how the presentation will be displayed. From this bar, one can start the slide show, set up the slide show and adjust monitor settings (Figure13.14).

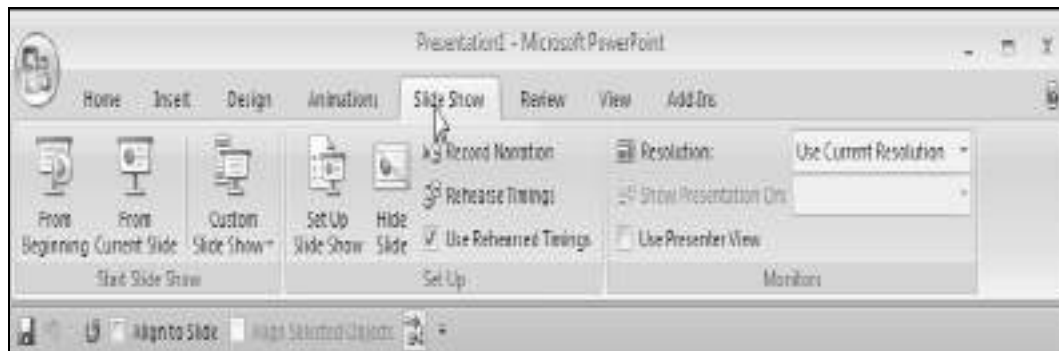


Figure13.14: Slide Show Tab

The Review bar

This toolbar has the features that allow us to proofread, comment slides and protect (lock) our presentation (Figure13.15).



Figure 13.15: Review Tab

The View bar

This toolbar allows us to set the view of the presentation, show/hide features, zoom, switch from colour to gray scale, adjust windows and add macros (Figure13.16).



Figure 13.16: View Tab

Summary

- Microsoft PowerPoint is widely used for making professional quality presentations in a variety of formats, including on-screen computer slide shows, black-and-white or colour overheads and 35mm slides.
- Creating a new presentation can be done by using: Blank and recent, Installed Templates, Installed Themes, My templates and New from existing.
- The different views to view a presentation are: Normal view, Slide Sorter view and Slide Show view
- This toolbar allows us to set the view of the presentation, show/hide features, zoom, switch from colour to gray scale, adjust windows and add macros

Exercise 13

Q.1 What is meant by PowerPoint?

Q.2 Write a short note on Slide Layout.

Q. 3 Write a short note on different views in PowerPoint 2007.

Q.4 Define the term slide show.

Q. Discuss the different toolbars available in PowerPoint 2007.

Objectives

- Inserting Graphics
- Transitions
- Animations

14.1 Inserting Graphics

The Graphics feature of PowerPoint consists of AutoShapes, ClipArt and Smart art. The AutoShapes feature allows to draw a number of geometrical shapes, arrows, flow chart elements, stars and more on the worksheet. The ClipArt includes drawings, movies, sounds or photography. However, the SmartArt graphic is a visual representation of the information and ideas. One can create SmartArt graphics by choosing from among many different layouts to quickly, easily and effectively communicate the message. Objects like clip arts, WordArt, tables and charts can also be inserted on all slides or to selected slides. For instance, if we want to introduce our company logo in our presentation, we may like it to appear on all slides. One may need to present a picture or chart to graphically represent some idea we are explaining. This picture or chart would have to appear only on a particular slide. One can add objects to all slides using the Slide master. The object we may want to introduce could be text, clip art, a table, chart, a video clip, a sound clip or some other object.

Inserting a Picture

To insert a picture on a slide open the PowerPoint presentation and select the slide where we want to insert the picture. Then, click on the Insert menu and select Picture, then select From File. Navigate to the specific picture file and select the file and click insert. The picture appears on the slide. We can resize the picture, position the graphic on the slide by dragging it to where we want it to appear. Select the picture to display the Picture toolbar. Use the toolbar buttons to crop the picture, add a border and sharpen contrast.

14.2 Transitions

PowerPoint offers several special effects and features that can enhance the work of a presentation i.e. when the presentation is executed on a computer or on a LCD projector. One can use features such as slide transitions, timings, movies, animation and so on. One can set transitions by using the Transitions To This Slide in the Animation tab.

In an online presentation, the different slides keep on changing from one to another. The transitions feature is used to set the way each slide appears on the screen. The transitions are the special effects while moving from one slide to another. One may want the next slide to appear from the right or gradually dissolve from the screen, or that it should box in or box out etc. On individual slides, one may also include animation. For instance, one may like the text to appear from left to right while we introduce a picture or chart from the left to catch the audience attention. The different transitions are shown in Figure 14.1.

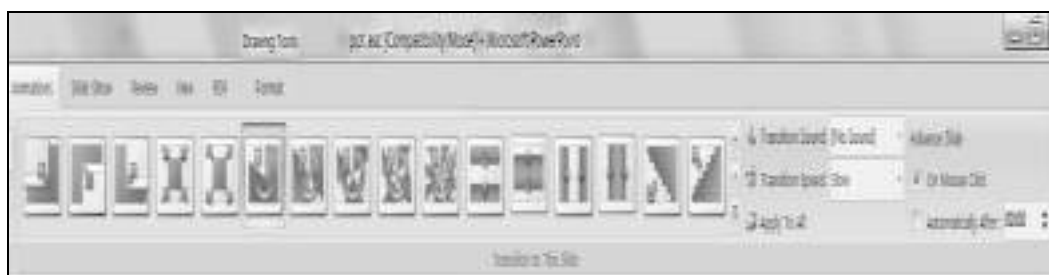


Figure 14.1: Transitions Screenshot

After we set the transition, we can use the transition toolbar to set transition of our choice and view the effect on each slide. One can also change transitions by selecting the slides for which we want slide transitions and choose from the Transition effects drop down menu. One can even adjust the speed of the transition by selecting the option buttons. The default setting is Medium. After we select a transition, we can have a preview of the new transition to see its effect. Slide transitions can also be accompanied by special sound effects to enhance the presentation. One can choose from the dropdown list of sounds in Transition Sound dialog box(See Figure 14.2).



Figure 14.2: Different Transitions in PowerPoint

14.3 Animations

Animation is a set of effects which can be applied to objects on a slide. The effects can be visual or sound effect. For example, one can have the text bullet points fly in from the left, one word at a time, or hear the sound of applause when a picture is uncovered. One can set animation for individual objects, pictures or text in slides. The preview of the effects can be seen by clicking preview form Animation Tab. A miniature slide will display the animation feature selected. The individual items on the slides can be customized to have special effects by using the Animation dialog box as shown in Figure 14.3.

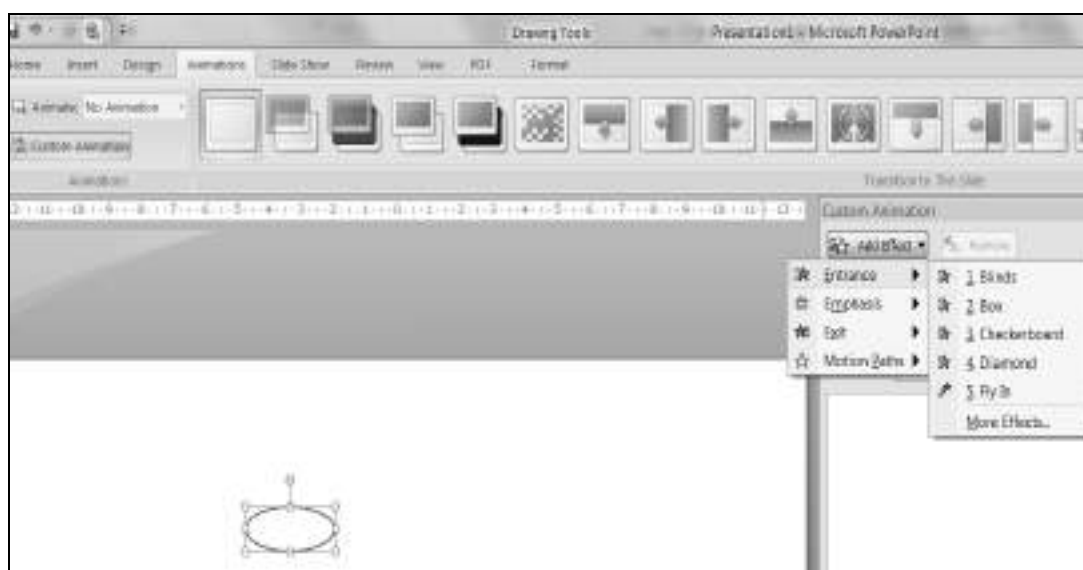


Figure 14.3: Different Animation Schemes in PowerPoint

There are several options to animate slide objects (See Figure 14.3). One can animate the title, text, charts and any other graphics on a slide. For instance, instead of introducing a chart at once on a slide one can have the elements of the chart appear by category, data series or individually. Moreover, the animation effects may be assigned at Entrance of the text i.e. when it appears on the screen, or at the Emphasis stage, or at the exit point i.e. when the object is about to leave the screen. Plenty of animation effects are available.

Summary

- The Graphics feature of PowerPoint consists of AutoShapes, ClipArt and Smart art.
- The AutoShapes feature allows to draw a number of geometrical shapes, arrows, flow chart elements, stars and more on the worksheet.
- The transitions are the special effects while moving from one slide to another.
- Animation is a set of effects which can be applied to objects on a slide. The effects can be visual or sound effect.

Exercise 14

Q.1 What is meant by Animation?

Q.2 Discuss the various steps for applying animations on objects.

Q. 3 Discuss the various steps for applying transitions.

Q.4 Write a short note on transitions.

INTRODUCTION TO LOTUS SMARTSUITE

- Introduction
- Structure of Spreadsheet
- Opening Lotus 1-2-3
- Components of Lotus Window
- Basic Terms and Definition
- Structure of Lotus 1-2-3 Window

15.1 Introduction

SmartSuite is an office suite from Lotus Software. The office suite has two versions: one for windows and other for OS/2. SmartSuite is not officially supported by IBM on versions of windows after XP, but it does work well on both the 32 bit and 64 bit versions of windows vista and windows 7.

Components of Lotus SmartSuite:

The following applications are included in SmartSuite for Microsoft windows:

1. Lotus word pro – word processor
2. Lotus 1-2-3 – spread sheet
3. Lotus freelance Graphics – presentation software
4. Lotus approach – relational database
5. Lotus organizer – personal information manager
6. Lotus Smart center – a toolbar to quickly access programs
7. Lotus Fast Site – web design software
8. Lotus ScreenCam – screen recording software

Package Components	Working of component	Min. space required (in MB)	Max. space required (in MB)
Word Pro	Word processor	16	38
1-2-3	Spreadsheet	12	22
Approach	Relational Database	8	19
Freelance Graphics	Presentation software	9	19
Organizer	Personal Organizer	7	11

Screen Cam	Screen Capture	3	3
Screen Capture	One click icons	1.5	1.5
Total Space Required		56.5	118

System Requirements

- IBM Compatible System.
- VGA Monitor
- Min. 8 MB RAM
- DOS 3.1 and DOS 4.x
- Min. space required: 56.5 MB
- Max. Space required: 118 MB

Word Pro

Earlier known as AmiPro, WordPro is word processing software. "Take a tour" is a feature, which allows getting complete knowledge about software. "Take a tour" option is available in toolbar. It shows following options: Starting WordPro, Frames, Graphics, Tables, Help, Text Formatting, Share Document, Spell Check & Format Check, Arrange document, Review & Comment Tool, and printing.

15.2 Lotus 1-2-3

Spread sheet software is used to save information to be processed. Spreadsheet allows users to work with numbers and apply formulae on that numeric data. Spreadsheet allows users to arrange and organize data as per requirements.

Lotus 1-2-3 is a member of spread sheet family of software. It is integrated with Lotus SmartSuite which is an office suite. It is capable of doing three specific functions:

1. Electronic spreadsheet/worksheet: allows analysis of numeric data.
2. Database management: allows handling great amount of data and querying on that data
3. Graphics/Charting: allows the user to represent data in pictorial form

15.3 OPENING LOTUS 1-2-3

Double click on application icon of Lotus 1-2-3 to open or launch the application.

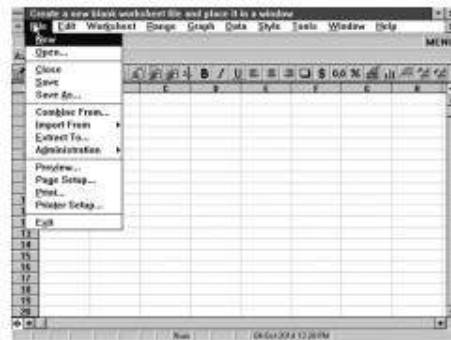


Figure 15.1

Closing Lotus 1-2-3

To quit Lotus 1-2-3, click on file menu, and then choose exit.

15.4 COMPONENTS OF LOTUS WINDOW

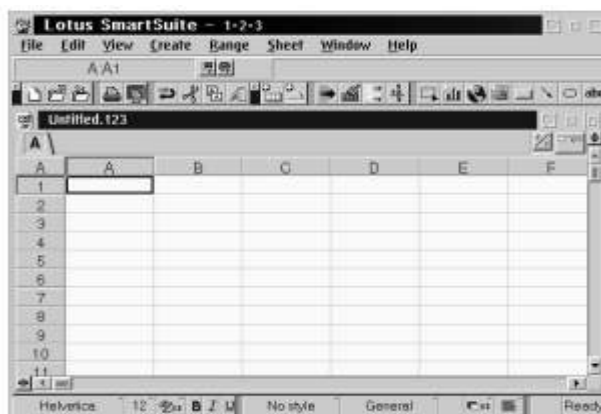


Figure 15.2

When we launch Lotus 1-2-3, the main window is visible which include control panel at the top of screen, a document window called work area at bottom and status line below that work area. The control panel consists of 3 rows: title bar followed by menu bar and the edit line.

Title bar



Displays the name of application “Lotus 1-2-3”, the control menu box on the far left and minimize, maximize and close button on far right.

Menu bar



Displays main commands

The commands can be clicked by mouse left button or by pressing keyboard shortcuts.

Edit Line



This row contains four parts, which are:

- a) Selection indicator: displays current cell address
- b) Navigator: allows moving around worksheet
- c) Function selector: lets you choose functions
- d) Content box: displays text you enter in a cell

Status bar



This bar is located at very bottom of document window. It displays the information about the current state of the program. It displays the properties of selected object, the current file, current mode and status of lotus. The status line also contains button controls that let you change the following:

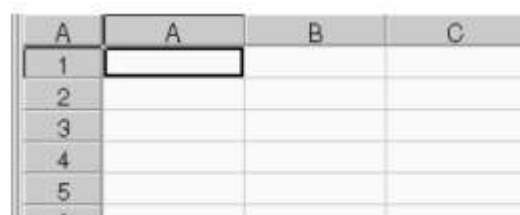
- a) Number format
- b) Font face of current selection
- c) Point size of current selection
- d) Smart icon bar

When you point to these items and click the left mouse button, additional menu items appears.

15.5 BASIC TERMS AND DEFINITIONS

Cell

It is the basic unit of any spread sheet. It is the place where information is actually stated. Cell is defined by its row and column. For example, C6 means a cell in third column and 6th row.



	A	B	C
1			
2			
3			
4			
5			

Figure 15.3

Active cell

Active or selected cell is the cell that which has highlighted outline box around it. This is the cell ready for inserting or editing the data.

Range

Range is referred to a cell or a group of adjacent cells forming a rectangle. A range is defined by the addresses of two cells that are in opposite corners of

the rectangle area. A range can be selected to work upon a group of data values.

Worksheet

In Lotus 1-2-3, a file may have one or many worksheets. Each worksheet may have different type of information contained in it. Worksheets are used for data management and numerical calculations.

Workbook

Lotus for windows allows you to work with a collection of worksheets/spreadsheets at a time. This collection of worksheets are called workbook. Workbook allows you to keep related spreadsheets together and make global changes.

Applications of worksheet/Spreadsheet

1. Worksheets can be used for accounting purpose. Data can be represented using rows and columns. User can create database using worksheets. Database charts and Pivot tables can be created within the spreadsheet also.
2. Worksheets can be used for creating marketing plans.

Type of data in Lotus 1-2-3

- a) Label: text information is referred as label
- b) Value: this can be number, cell reference, formula or function.

15.6 STRUCTURE OF LOTUS 1-2-3 WINDOW

Info Box

This is the place where we can change and modify the properties of any object. Properties of object include name, color, size and security features. Select an object and click on Range menu → Range Properties. It will open info box for the object. Here, we can change the properties of the object.

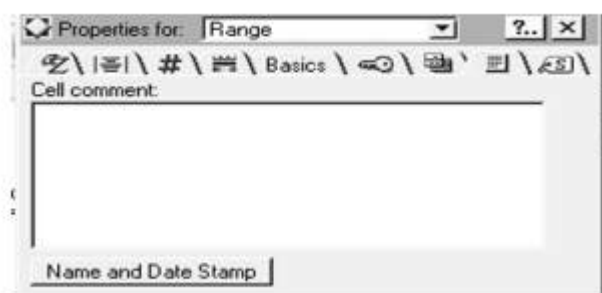


Figure 15.4

Tabs in INFO BOX Info

Info box contains a series of tabs. Every tab has a set of specific properties. Use of smart icons: These are the shortcut icons of commands in LOTUS 1-2-3 which are frequently used by the user. These icons are above the workspace. When we mouse over these icons, LOTUS 1-2-3 shows their workings.

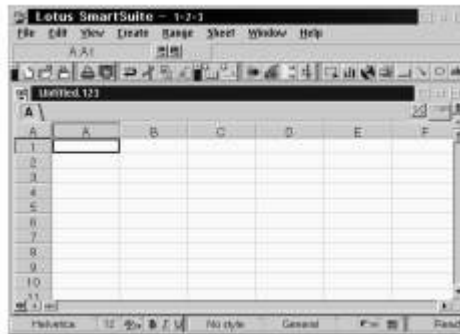


Figure 15.4

Cell Referencing in Worksheets

Each cell has a unique address formed by combination of its row and column address. When a cell address is referred to in a formula, its writing style determines how that cell will be referenced during calculations. There are three referencing styles in a worksheet:

- a) Relative referencing
- b) Absolute referencing
- c) Mixed referencing

Relative referencing

In a formula copied from one column to another, a reference to a range in the first column becomes a reference to an adjacent range in the second column. For example, when copying a formula from column C to column D, a reference to range C1..C3 becomes a reference to adjacent range D1..D3. The range address in this copy operation is relative reference. A similar adjustment occurs when we copy a formula from one row to another.

Absolute referencing

When we want all or parts of cell address not to get adjusted as it is copied, we need absolute referencing. This means that cell address is referencing a fixed location and does not adjust as it is copied. To make a formula absolute, put a dollar sign (\$) in front of row/column reference that should not change as the formula is copied.

Mixed referencing

A cell address contains two parts – column letter and row number. If we put a \$ sign before both parts, the cell address becomes absolute. If we do not put \$ sign before any, it is relative address. And if we put \$ sign before any one part, it is mixed reference.

SUMMARY OF THE LESSON

You learnt the following in this lesson:

- LOTUS Smart suit is a professional package for office automation. It consists of many components like word pro, LOTUS 1-2-3 etc.
- Spreadsheet is a data sheet which looks like a normal sheet like on paper. It contains rows and columns which makes cells. A cell is a place where data can be entered.
- LOTUS 1-2-3 is a kind of spreadsheet. This component is a part of LOTUS SmartSuite which is an office suite.
- LOTUS 1-2-3 is an electronic spreadsheet used to process data, analyze it and perform calculations over it.

SELF ASSESSMENT QUESTIONS AND EXERCISES

1. What do you mean by LOTUS SmartSuite? Describe the components of SmartSuite.
2. What is LOTUS 1-2-3? Discuss the system requirements of LOTUS 1-2-3.
3. Discuss the components of LOTUS Window?
4. Explain the concept of referencing. What are the types of referencing?

Answer to self-assessment questions and exercises

1. Refer to section 15.1
2. Refer to section 15.1
3. Refer to section 15.4
4. Refer to section 15.6

INTRODUCTION TO LOTUS SMARTSUITE-II

- 16.1 Built in Functions
- 16.2 Using Graphics
- 16.3 Sharing Data with other Desktop Applications
- 16.4 Strategies of Creating Error Free Worksheet
- 16.5 Spreadsheets and their uses in business

16.1 BUILT IN FUNCTIONS

A function is a shortcut for formula. A formula is that which is seen on one side of equation. For example,

=3+ (7-4)

=B4+G7 A formula works well for small range of data. But say we have a list of 50 values, that would be one long formula. Here the concept of function is used.

@SUM(B1..B50)

A function consists of @ sign, then the name of function (e.g. SUM) followed by arguments within the parentheses (e.g. B1..B50).

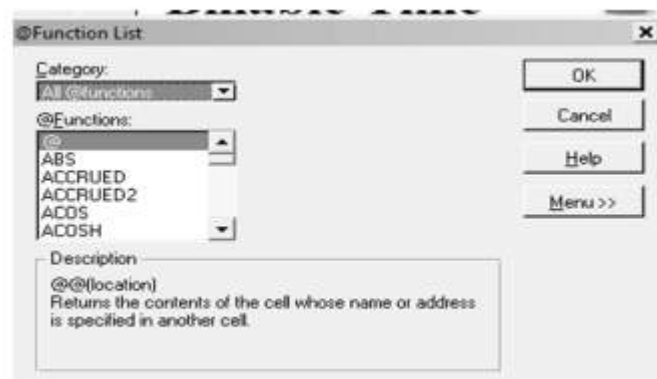


Figure 16.1

Type of Functions

Various functions available in Lotus can be categorized as:

1. **Financial Functions.** They analyze investments, annuities and securities; determine depreciation; and calculate cash flows and loans.
2. **Logical.** They Calculate the results of logical formulas
3. **Mathematical.** They, simplify various Mathematical operations such as calculating square roots and replace complex trigonometric calculations.
4. **Statistical.** They, performs calculations on lists of values.
5. **String.** They, provides information about text in cells and perform other operations on text.

Financial Functions

S.No.	Function Name	Syntax
1	@FV (Future Value)	@FV(payment amount, periodic interest rate, no. of items)
2	@PMT (Payment)	@PMT(principal, periodic interest rate, no. of terms)
3	@PV (Present value)	@PV(payment, periodic interest rate, no. of terms)

Mathematical Functions

S.No.	Function Name	Syntax
1	@ABS (Absolute Value)	@ABS(Value)
2	@EXP (Exponent Value)	@EXP(Value)
3	@INT (Integer Value)	@INT(Value)
4	@LN (Natural Logarithm)	@LN(Value)
5	@LOG (Base 10 Logarithm)	@LOG(Value)
6	@MOD (Reminder from division of two integers)	@MOD (Numerator, Denominator)
7	@ROUND (Rounded Value)	@ROUND (Value)
8	@SQRT (Square Root)	@SQRT(Value)

Statistical Functions

S.No.	Function Name	Usage
1	@AVG	To find the average of a range
2	@COUNT	To count number of cells in a range
3	@MAX	To find the largest value of a range
4	@MIN	To find the smallest value of a range
5	@SUM	To find the sum of values of a range

String Functions

S.No.	Function Name	Syntax
1	@LEFT	@LEFT(String, n)
2	@LENGTH	@LENGTH(String)
3	@LOWER	@LOWER(String)
4	@MID	@MID(String;pos;n)
5	@RIGHT	@RIGHT(String, n)
6	@UPPER	@UPPER(String)

Logical Functions

S.No.	Function Name	Usage
1	@FALSE	Returns the logical value 0 (false)
2	@TRUE	Returns the logical value 1 (true)
3	@IF	To evaluate condition and returns true or false

e.g, @IF(A4>500;@TRUE;@FALSE)=0

Goal Seek

It is also a part of Lotus 1-2-3 commands. It is also called what-if analysis tool. Goal seek allows the user to use the desired result of a formula to find the possible input value necessary to achieve that result. The goal seek command is a process of calculating an output by performing various what-if analysis on a given sets of input. E.g., we know the total profit to be gained and number of units to be sold and we want to know what should be the cost of per unit so that desired profit can be gained.

Backsolver Tool

Backsolver tool is selected from Range ♦ Analyze ♦ Backsolver. When we click on Backsolver, a dialog box appears. This tool is used when we know the result of the formula, but we do not know how to get it.

What-If Solver : What-If solver can be used to solve linear and non-linear both types of problems. This feature is added to Lotus 1-2-3 in 1990.

16.2 USING GRAPHICS

One of the important features of Lotus 1-2-3 is that it represents tabular data in pictorial form which is easily understandable. This pictorial form could be in form of charts or graphs.

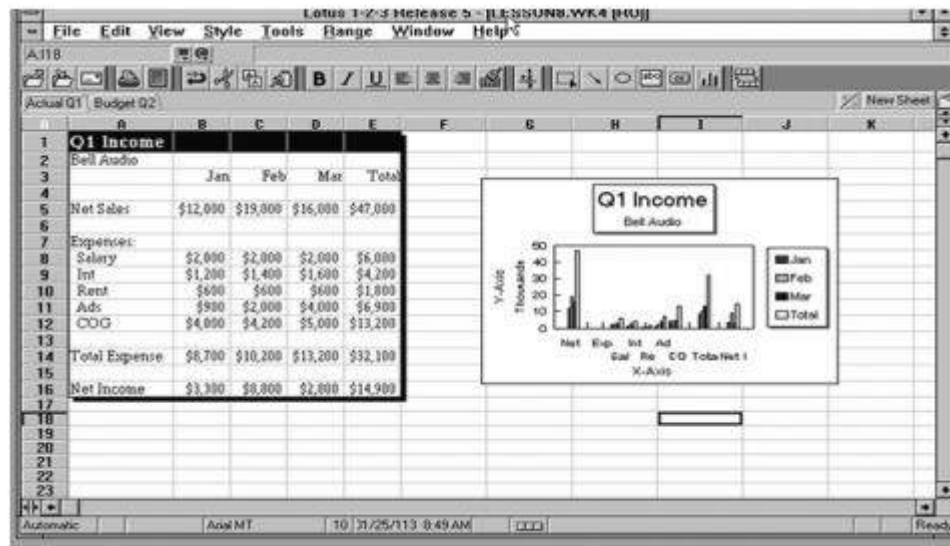


Figure 16.2

16.3 SHARING DATA WITH OTHER DESKTOP APPLICATIONS

One of the important features of Lotus 1-2-3 is Lotus notes which is client in client server architecture. This feature allows other applications to link data with other applications. The Text field is used to make OLE object. Linked data is directly associated with real data of other application. Therefore we can see changes are reflected at both places. By double clicking on OLE object the link is opened up with original application.

16.4 STRATEGIES OF CREATING ERROR FREE WORKSHEET

A Worksheet is used for numerical calculation which must be error free for every business organisation it is important to have accurate output. A small error can affect many business decisions. While creating a worksheet user must be careful about following errors:

1. Syntax Error:

This kind of error means we have written formula by wrong way.

2. Run Time Error:

This kind of errors are difficult to find e.g. a value is divided by zero.

3. User Error: Errors created by user e.g. wrong entry in a cell. It is not necessary that user make errors, errors are performed by mistake also. Therefore, such kinds of errors are very difficult to find. For example, a wrong entry in cell may change entire output.

Therefore, it becomes important for us that we must try to make error free worksheet. If errors are there, they should be found and rectified. One method of creating error free worksheet is to lock those cells where critical data or formulae are saved.

Using LOOKUP for data entry and avoiding errors

In LOTUS 1-2-3, we can use lookup functions to minimize the chances of errors. Following are the lookup functions:

1. HLOOKUP:

By using @HLOOKUP(X; range; row-offset) we can see the value of a special cell in a row. The output will be a horizontal table.

X: X could be any value but it should be equal to or greater than values of range. Otherwise output would be the last value of range. Range: The range could be any specific row or the first row labels.

2. VLOOKUP:

By using @VLOOKUP(X; range; row-offset) we can see the value of a special cell in a row. The output will be a vertical table.

16.5 Spreadsheet and their uses in Business

Spreadsheet is a datasheet that contain cells which are used to specify the rows and columns. Each cell consist different types of data such as alphanumeric, numeric and formula etc. Formula shows how calculations are done in cells. In financial matters, spreadsheet is mostly used due to change in whole spreadsheet on the basis of change in one cell.

Uses of spreadsheets in a business organization come in handy. Typically, spreadsheets are meant to store data sets, however, they have been helpful in so many different ways such as providing a wide range of utilities to aid in management. That makes them one of the most useful tools in a business organization. Spreadsheets perform organizational, financial, mathematical and statistical transformations on sets of data.

Furthermore, the can be used in data representation in a unique and organized way hence aids in future planning decisions. Since businesses offer different services, they can customize their spreadsheets in order to suit their needs. Some spreadsheet programs are designed to work together with other programs such as presentation software and word processing.

Uses of spreadsheets in business

1. Storing Data

One of the main uses of spreadsheets in business is storing data. If you have a business organization, you will need a spreadsheet to store almost any type of information. Examples of information to the store include a list of clients, contact information, employee timesheets, sales, and purchases. All this information remains relevant and useful for many years. Since spreadsheets consume very little space you can save a lot of information without facing any storage difficulties. Searching for information on a spreadsheet is easy. You can search using a file name or the data that it contains.

2. Manipulate and analyze data

Apart from storage, you can use spreadsheets to manipulate and analyze data. For example, it contains a feature that allows you to enter custom formulas. You can use them to perform different functions such as addition, subtraction or calculating percentage. In addition, these formulae sets can allow you to sort your data. Additionally, you can customize it by adding filters until you get the results that you desire. Spreadsheets also hold a feature that provides conditional processing. Using

formulas you can make one cell to be dependent on the results of another cell. This is a helpful feature for calculating profit and losses.

3. Presentation/Visualization

Spreadsheets are used often for visualization purposes. They contain different tools and features that make it possible. For example, you can present your data in charts or graphs. There are various types of these charts and graphs to choose from according to your needs. Managers can present data in a graphical way to potential investors making it easy for them to grasp the information. The presentations can also be used to teach clients or show employees on how the business is performing. You can control anything that you want to display from the colors or table sizes.

4. Modeling and Planning

Spreadsheets play a huge role when it comes to planning. You can use them in two ways. First is by analyzing and visualizing data hence getting a clue of how your business is doing in various fields. Next, you can highlight areas that need more attention to growth or reconsideration. The second way to use spreadsheets in planning is by calculating the potential results due to changes in your company. You can test various forms of data and determine if it works or not.

5. Inform the Decision Making Process

Decisions that a business makes determines whether it will be successful or not. Spreadsheets help managers and investors to make well-informed decisions. Through data visualization, management can easily identify the areas of weaknesses. Having this information at hand all the time it will lead the manager into making decisions that can make more profits. With well-represented data, potential investors will have a humble time when deciding whether to invest in your business or not

6. Business Accounts and Budgeting

Coming up with a budget is not an easy task without the use of spreadsheets. You can create a table and list the most important things followed by the least important. There are features that will show you the sectors that need the most attention. This information is very important, especially when purchasing items. Spreadsheets also assist accountants in managing business accounts. So funds are released easily because some calculations are automated.

7. Invoices

Most spreadsheet platforms will allow you to integrate the invoice template. It speeds up the process of receiving or dispatching products. The invoice template can easily fetch data from the spreadsheet hence making the whole process automated. In addition, it produces very accurate results. Handling invoices manually or with other external applications is a slow process. The production of invoices for customers' needs to be fast and accurate so as to realize more profits. Customers are very sensitive and can easily be turned off by a slow process or one with a lot of errors.

8. Wages

Managing wages is now easy thanks to the spreadsheets. You can set up a formula that automatically calculates the number of hours an individual employee has worked. It makes payment of wages a fast and easy task hence you get to work with happy employees. It also cuts the costs of paying employees extra money that they have not

worked for. However, it makes them work hard because they know that they will get paid what they deserve. Furthermore, it also cuts the costs of using any external software to handle the wages.

9. Predictions / Simulations

Spreadsheets are important in simulation and prediction in business organizations. Because organizations store all financial data in the spreadsheets they can easily predict the form in which the business will be in the next few years. Visualization tools such as graphs and tables make the predictions easy. For example, if a business wants to know the average number of customers they will have by increasing employees they just need to check the graph.

10. Statistical analysis and reports

By the use of spreadsheets, business organizations are able to carry out analysis easily and first. For example, they use formulas that calculate all the data for the whole financial year. Making these calculations manually is a very tiresome process. The reports show how the company is progressing. It can also be released to attract potential investors and customers to the company. Spreadsheets are the best platforms for organizations to manage and store data.

SUMMARY OF THE LESSON

You learnt the following in this lesson:

- Info Box is a place where object properties can be modified according to user requirements.
- Goal seek feature is used when we know the final value but we do not know what would be the input to get that final output.
- Errors are the mistakes in a worksheet which could be of any type and can cause the unexpected output.
- Uses of spreadsheets in business.

SELF ASSESSMENT QUESTIONS AND EXERCISES

1. What do you understand by functions? What are the types of functions available in LOTUS 1-2-3?
2. Explain the strategies of creating an error free worksheet.
3. Define the uses of Spreadsheets in Business?

Answer to self-assessment questions and exercises

1. Refer in section 16.1
2. Refer in section 16.4
3. Refer in section 16.5

Objectives

- Introduction
- Features of Tally.ERP 9
- Installing Tally.ERP 9
- Tally Licenses
- Tally Screen Overview

17.1 Introduction

Tally.ERP 9 is the fastest and powerful multi-lingual business accounting and inventory management software. Tally.ERP 9 is designed to meet the needs of small and medium businesses. It is a fully integrated, affordable and highly reliable software.

Tally.ERP 9 is easy to install, and easy to learn & use. Tally.ERP 9 is designed to automate and integrate all the business operations, such as sales, finance, purchasing, inventory and manufacturing. The powerful new features combined with enhanced MIS, Multi-lingual, data synchronization and remote capabilities help the business organizations to manage all the business processes easily and cost-effectively.

17.2 Features of Tally.ERP 9

Leading Accounting Package

The first version of Tally was released in 1988 and, through continuous development, is now recognised as one of the leading accounting packages across the world, with over a quarter million customers.

Complete Business Solution

Tally.ERP 9 provides a complete solution to the accounting and inventory needs of a business. The package comprises financial accounting, book-keeping and inventory accounting. It also has various tools to extract, interpret and present data.

Integrated/ Non-integrated Accounting and Inventory

With Tally.ERP 9, the user is able to choose between accounting and accounting with inventory. If accounting with inventory is opted, the user can choose whether it should be integrated or not.

Speed

Tally.ERP 9 provides the capability to generate instant and accurate reports, which assists the management to take timely and correct decisions for the overall productivity and growth of the company.

Power

Tally.ERP 9 allows the user to maintain multiple companies and with unlimited levels of classification & grouping capabilities. It also allows drill down facility from report level to transaction level.

Flexibility

Tally.ERP 9 provides flexibility to generate instant reports for any given period or at any point of time besides providing the facility to toggle between accounting & inventory reports of the same company or between companies.

Concurrent Multi-lingual Capability

Tally.ERP 9 offers the exclusive capability of maintaining the accounts in any Indian language, viewing them in another language and printing them in yet another Indian language.

Real Time Processing

Tally.ERP 9 provides immediate posting & updation as soon as the transactions are entered, thereby facilitating instant statements & reports. It also facilitates real-time multi-user environment

Versatility

Tally.ERP 9 is suitable for a range of organisations, from small grocery stores to large corporations with international locations and operations.

Multi-platform Availability

Tally.ERP 9 is available on Windows 95, 98, ME, 2000 and NT. It can run on a single PC or on a network. On a network, it supports access via any combination of platforms.

Online Help

The Tally.ERP 9 Online Help (Alt+H) provides instant assistance on basic and advanced features or any other relevant topics of Tally.ERP 9.

Simple and Rapid Installation

Tally.ERP 9 has a simple, menu-driven installation procedure. The user can install the program files on any drive by following the easy steps.

Internal Backup/ Restore

Tally.ERP 9 has an in-built, user-friendly backup and restore option. It helps the user to take a backup of one or more companies or all companies, in a single directory, in the local hard disk or in any external media.

Data Reliability

Tally.ERP 9 offers reliable data. It uses a flexi-field, flexi-length, self-indexed, weighted file structure for an extremely compact and fast database. Tally.ERP 9 is robust and even if there is a power failure or the computer is incorrectly shut down, data is not lost. Tally.ERP 9 uses signalling quality data integrity checks, at regular levels to ensure the complete reliability of data.

User-defined Security Levels

Tally.ERP 9 offers high levels of security. Users can define multiple levels of security according to their requirements. Every authorised user in the company can have an individual password, with rights to use specific features only. The user with the administrator level password will have full access and can set controls for other users.

Data Security

Tally.ERP 9's data integrity checks ensure that there are no external changes to the data. Tally.ERP 9 also uses a binary encoding format of storage to prevent devious grouping of information.

Tally Audit

The Tally.ERP 9 audit feature provides the user with administrator rights and the capability to check the entries made by the authorised users and alter these entries, if necessary. Once the entries are audited, Tally.ERP 9 displays the altered entries, if any along with the name of the user, who has altered the entry and the date and time of the alteration.

Import/ Export of Data

Any transaction can be exported and imported to other software after suitably altering the current structures to accept the Tally.ERP 9 data structure. Data can also be imported to Tally.ERP 9 by writing a TDL program. The data which is to be exported from Tally.ERP 9 can be in XML, HTML or ASCII format.

Point of Sale (POS)

POS is an acronym for Point of sale. Point of Sale can be a retail outlet, a check out counter in a shop or any other location where a sales transaction takes place. It is a computerised cash register which adds up the sales totals, calculates the balance to be returned to buyer and automatically adjusts the inventory level to reflect the quantity sold. The equipment required for POS to work effectively are cash registers, card readers, bar-code scanners and so on.

e-mail Facility

Tally.ERP 9 facilitates the mailing of any Tally.ERP 9 report or document.

Graphical Analysis of Data

Tally.ERP 9 provides graphical analysis of data which helps the user to perform deeper analysis. The user can generate graphical analysis reports such as sales register, purchase register, ledgers, funds flow, cash flow, stock item registers and so on. This helps the management to quickly judge performance and be better prepared for difficult times.

17.3 Installing Tally.ERP 9

1. To install tally first Double click on the Install.exe to execute the installer. The Tally.ERP 9 Installation Wizard screen is displayed as shown in Figure 17.1.



Figure 17.1: Installing Tally

2. Click Next to continue with the installation. The Tally.ERP 9 Setup screen appears as shown in Figure 17.2. Tick Single User to install Tally.ERP 9 Single User Edition on the computer. Then Click Next.

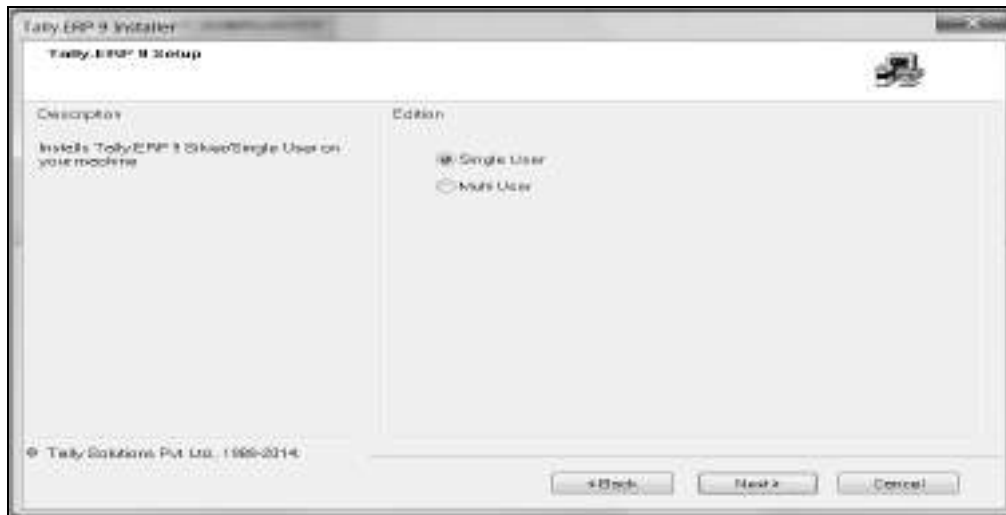


Figure 17.2: Installing Tally

3. The Tally.ERP 9 Setup screen appears where one can see the current location of default directories as shown. One can change the path of Application directory, Data directory, Configuration directory, Language directory and License directory (Shown in Figure 17.3).

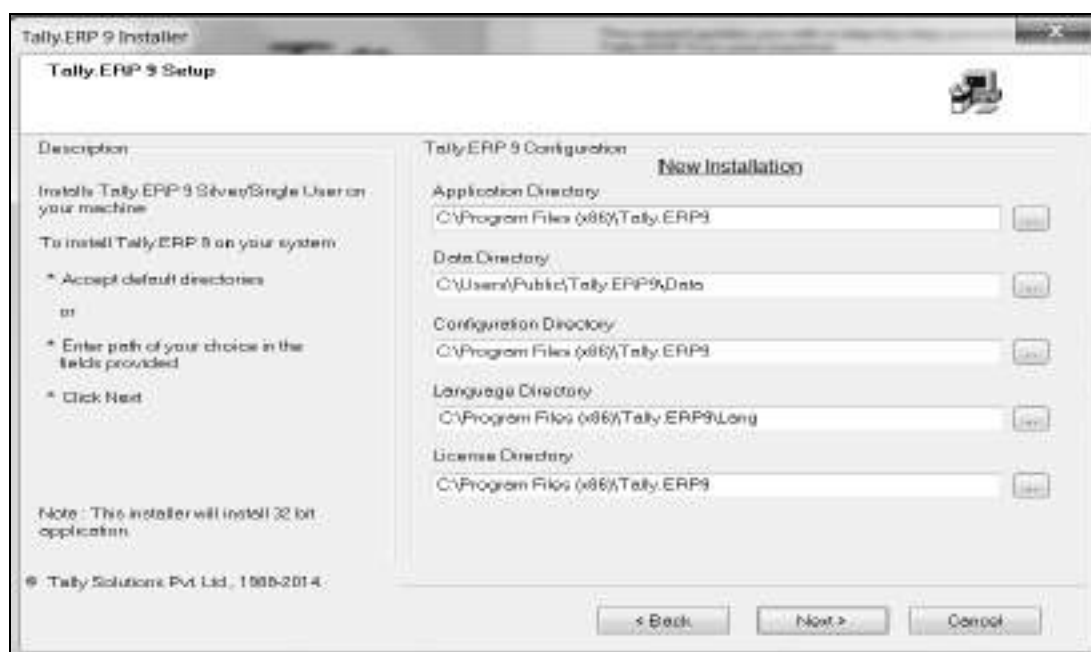


Figure 17.3: Changing the Directory Path

- * The Application directory is the directory where program files are stored by default.
- * Data directory is the directory where Tally.ERP 9 data is stored by default.
- * Configuration directory is the directory where the configuration files reside. By default, configuration directory is stored in the application directory.
- * Language directory is the directory where language files with the extension .dct are stored. By default, this directory is stored in the application directory.
- * License directory is the directory where the license file with extension .lic resides. By default, this directory is stored in the application directory.

4. Now Click Next. In the Country/Language Selection screen un-check Install Operating Systems Language Support to use Tally.ERP 9 in English. By default, India/SAARC appears in the Country Selection. One can Select Others, if one is not residing in India or any of the SAARC countries(See Figure 17.4).



Figure 17.4: Country/Language Selection

5. Click Install. The Setup Status screen is displayed as shown in Figure 17.5.

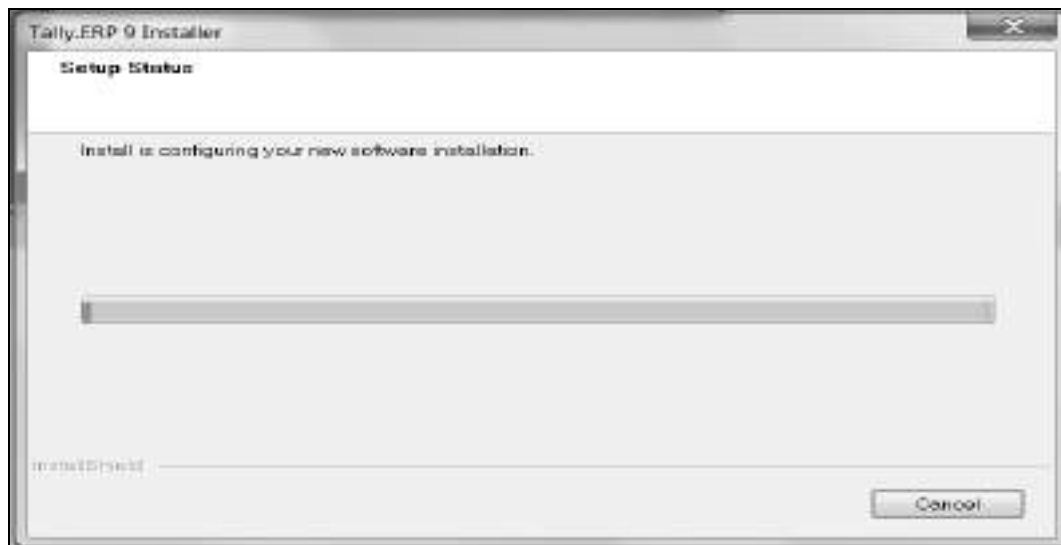


Figure 17.5: Setup Status Screen

Once the installation process is completed, the messages Tally.ERP9 Installed Successfully and Installer has installed 32 bit application will be displayed. Click Finish to complete(Shown in Figure 17.6).



Figure 17.6: Finished Installation Screen

17.4 Tally Licences

Tally.ERP 97.2 provides you with two specific classification Licensing. They are:

1. Tally Single User
2. Tally Multi User

Tally for Single User

The single user licensing allows to use Tally on only one computer with an option of activating it online or offline. However, one can use the same Tally license on another computer, by granting the license activated on the first and reactivating it on the other.

Tally for Multi User

The multi user licensing feature allows the use of Tally on any number of computers connected to a local area network (LAN) with a provision of activating the license online or offline.

17.5 Tally Screen Overview

The screen can be divided into five main parts namely as: Product information, Work area, Button toolbar, Gateway of Tally and Calculator area (Shown in Figure 17.7).

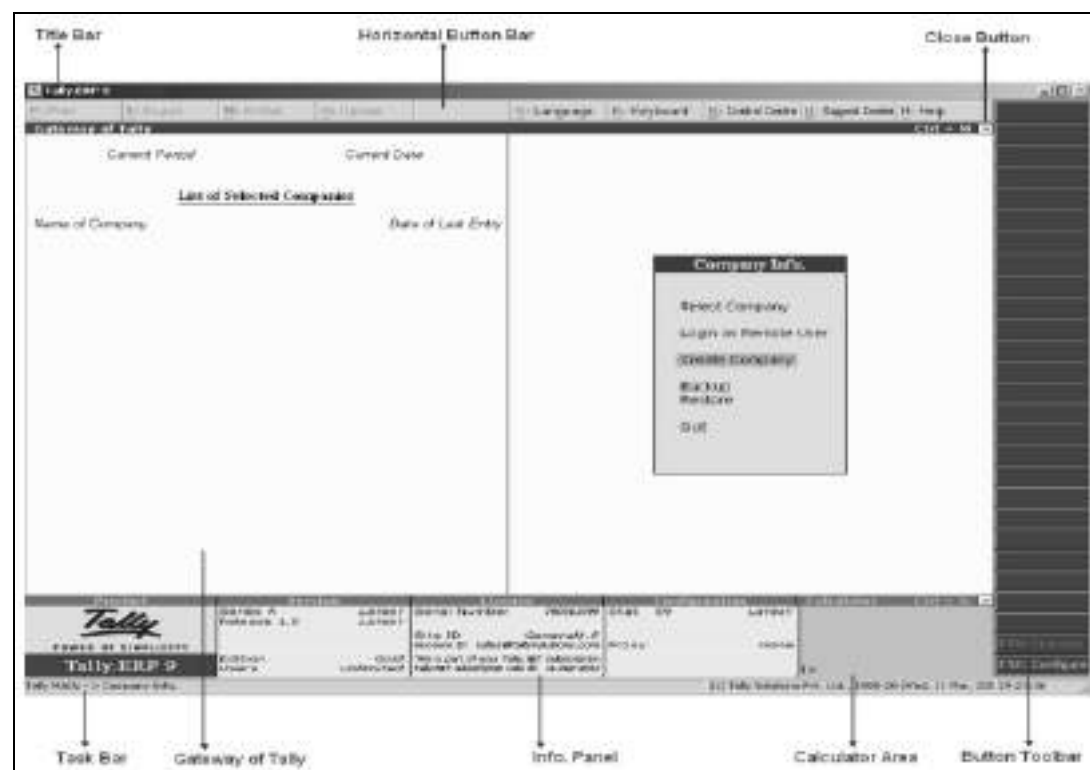


Figure 17.7: Tally Screen Parts

Product Information

Product info displays information about software version & release, developer company, system day and date, product brand name, single or multi user indicator, software serial number, and system time. every time a new release of tally is made, it is identified with a different release name. Tally would rewrite data created in earlier release to make it compatible with the current release of software.

Work Area

The work area at Gateway is broadly separated into two sections . The right hand side contains the menu, where you would select your instructions to Tally and left hand side displays List of Selected Companies, Current Period and Current Date you are working with tally screen. In current date option have not the calendar date but the date you worked last during the current period. In list of selected companies displayed the name of all selected or loaded companies with last date voucher entry information. Suppose you select more than one company, the active company is shown at top of list in bold letters and others appear next in normal font.

Button Toolbar

Button Bar consisting of numerous buttons appears at right of the screen. Buttons provide quick access to different options, which varies from screen to screen. Active buttons are shown in solid colour and inactive buttons are showed in grayed colour.

Gateway of Tally

The Gateway of Tally displays menus, screens, reports and accepts the choices and options which we select to view data as required.

Calculator Area

While working with Tally one can either work at Work Area (where menu, reports and entry screens etc appear) or with Calculator. By default work Area becomes active and Calculator remains inactive. Press Ctrl+N to activate Calculator. One can enter values and operators e.g., +, -, /, *, in the calculator and on pressing Enter key, computed results would be displayed in next line. To return to Work Area, press Ctrl+M.

Summary

- Tally.ERP 9 is the fastest and powerful multi-lingual business accounting and inventory management software.
- Tally.ERP 9 is designed to meet the needs of small and medium businesses.
- Tally.ERP 97.2 provides you with two specific classification Licensing. They are: Tally Single User and Tally Multi User
- The screen can be divided into five main parts namely as: Product information, Work area, Button toolbar, Gateway of Tally and Calculator area.

Exercise 17

Q.1 Discuss the different parts of Tally screen.

Q.2 Write a short note on Tally.

Q. 3 Write a short note on different types of licences in Tally.

Q.4 Write different steps for installing the Tally.

Objectives

- Company Information
- Company Features in Tally.ERP 9
- Account Information

18.1 Company Information

The first step towards understanding Tally.ERP 9 is to create a company in Tally.ERP 9. Create a company using the Company Creation screen.

Creation of a Company

In the Gateway of Tally, click on Company Info. and then select Create Company. The Company Creation screen displays as shown in Figure 18.1.

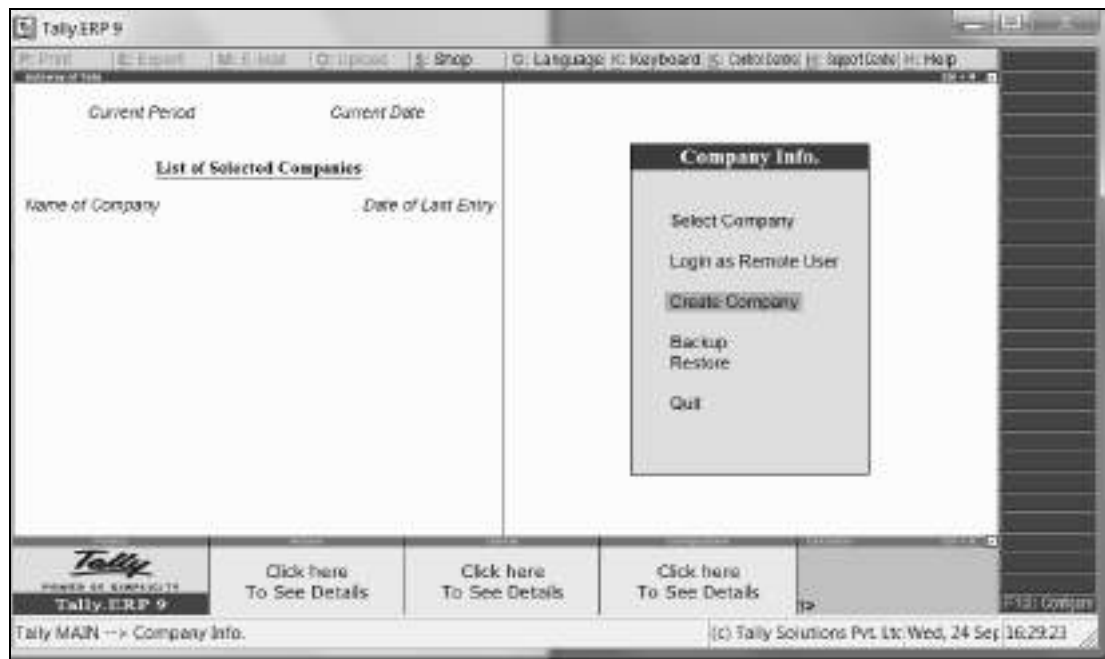


Figure 18.1: Company Creation Screen

Each field in the Company Creation screen is explained below. To navigate between the fields, use the enter key or the tab key or arrow keys or the mouse.

Fields Description of Company Creation Screen

The different components of company creation screen are: Directory, Name, Mailing Name, Address, Statutory Compliance, Pin Code, Telephone No., E-Mail, Mobile No., Currency Symbol, Financial Year, Books Beginning, TallyVault Password Use Security Control and enable auto backup. The different components of company creation screen are depicted in Figure 18.2.

Directory
Name: C:\Users\Public\Tally.ERP9Data

Mailing & Contact Details
Mailing Name: [Blank]
Address: [Blank]

Company Details
Currency Symbol: ₹
Financial Year from: 1-4-2014
Books beginning from: 1-4-2014

Security Control
TallyVault Password (if any): [Blank]
Repeat Password: [Blank]
Use Security Control: No

Base Currency Information
Base Currency Symbol: ₹
Formal Name: INR
Number of Decimal Places: 2
Symbol SUFFIXED to Amounts: No
Symbol for Decimal Portion: paise

System Information Table:

Product	Version	License	Serial Number	Scale	Staff	Staff ID	Staff ID
Tally.ERP 9	9.0	Full License	702029416	233	234	234	234

Figure 18.2: Different Fields of Company Creation Screen

Directory

Tally.ERP 9 assumes that the company is to be created in the data path given in the Tally.INI file, which is displayed by default. This field is skipped by default. However, one can change this path by using the backspace key, so that Tally.ERP 9 saves the data to a different directory specified by us .

Name

This specifies the name of the company as it appears in Tally.ERP 9. The company name given in the Name field automatically appears in this field. This can be changed according to our requirements. The correct name of the company for mailing purposes should be entered.

Mailing Name & Address

In addition to the Company Name, Tally.ERP 9 provides the facility to enter the Mailing Name field. It displays the Company Name by default. One may change it as required, if the mailing name is different from the Company Name. The mailing name and address details are picked up for inclusion in any report that needs the company name and address as heading e.g. Balance Sheets, Statement of Accounts and so on.

Statutory Compliance

Select the Country from the List of Countries. The Statutory Features and Base Currency Symbol are enabled in accordance with the country selected. For example, if the accounts belong to a company in India, the base currency would be Indian Rupees. The Base Currency will appear with respect to the Country selected. Select India from the list of countries.

State

Select the appropriate State from the list of States.

Pin Code

Enter the PIN code of the specified address.

Telephone No.

Enter the telephone number of the company.

E- Mail

E-mail address will be used to e-mail documents, reports and data from Tally.ERP 9.

Mobile No.

Enter the mobile number of the company.

Currency Symbol

This refers to the currency symbol Tally.ERP 9 will use for monetary values. By default, Tally.ERP 9 displays Rs.

Maintain

Select the nature of the company i.e. Accounts only or Accounts with Inventory.

Financial Year

Specify the Financial Year (FY) for the company. Tally.ERP 9 considers 12 months from the date we enter here as the Financial Year.

Books Beginning

The date given for 'Financial Year From' is automatically displayed. However, we can specify the actual date on which the books of accounts start. In case our accounts are opened mid-way during the financial year specified, we can enter the required date and start the books of accounts accordingly.

TallyVault Password

TallyVault is an enhanced security feature utilised to protect company data in an encrypted form by means of a password. The TallyVault password entered ensures that the data is maintained permanently in an encrypted form without

retaining information of the password used. Data is not accessible without the TallyVault password.

Use Security Control

Tally.ERP 9 has a range of security controls, which can define the authority of various users to access the information and to enter/ alter/delete the vouchers.

Select a Company

In the Gateway of Tally, press Alt + F3 to activate Company Info. In the company information Select Company or press F1. Tally.ERP 9 displays the list of Companies screen. All the companies created are displayed in an alphabetical order. Select the company name from the list given (Shown in Figure 18.3).

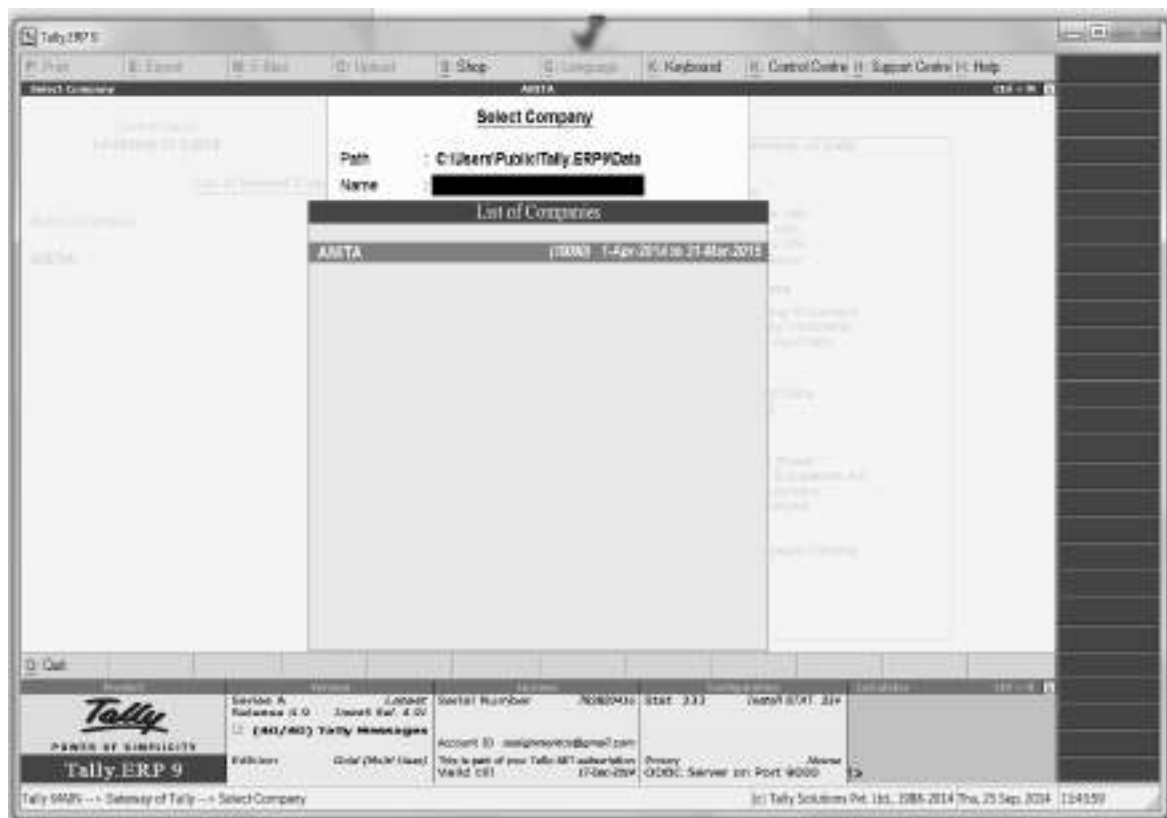


Figure 18.3: Select a Company

Alter Company/Create New Company

This option allows you to alter information about the existing company, one can modify any information at any time that is set while creating a company. After pressing “Alt-F3”, the company info screen is displayed, in which options for Select company, Altering company, Shut company are seen given. Select

the company from the List of Companies and press enter to view the Company Alteration screen. Make the necessary changes in the required fields and accept the screen (Shown in Figure18.4).

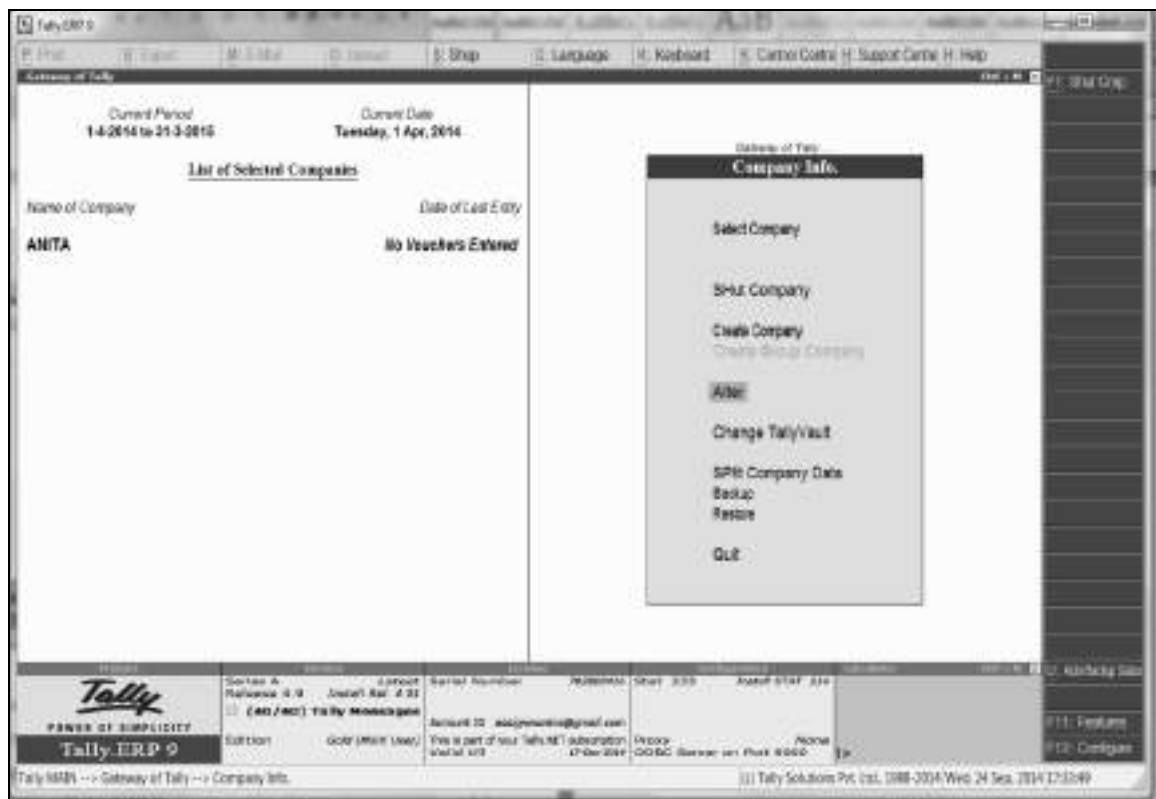


Figure 18.4: Alter a Company

Delete a Company

This option allows you to delete an existing company. To delete a company, one have to load the company first. Press ALT+F3 from the Gateway of Tally to proceed to the Company Information menu.



Figure 18.5: Delete a Company

Select Alter and press Enter. Select the company to be deleted. The Company Alteration screen is displayed. Use Alt + D to delete. Tally.ERP 9 will prompt for a confirmation on deleting the company (Shown in Figure 18.5).

Shut a Company

Shut a Company is to unload it. It does not mean that we have deleted it. Simply select it again to load and work on it again (Shown in Figure 18.6).



Figure 18.6: Shut a Company

18.2 Company Features in Tally.ERP 9

Different features of a company can be selected or modified by using the Company Features button. This button is available in almost all the screens of Tally.ERP 9. This feature allows the user to modify it as and when the requirements change. The different features are: Accounting, Inventory, Statutory & Taxation, Tally.NET, Add-On and Quit (Shown in Figure 18.7).

Company: ANITA

Inventory Features

General		Invoicing	
Integrate Accounts and Inventory	? Yes	Allow Invoicing	? Yes
Allow Zero valued entries	? Yes	Enter Purchases in Invoice Format	? Yes
Storage & Classification		Use Debit/Credit Notes	? Yes
Maintain Multiple Godowns	? No	Use Invoice mode for Credit Notes	? Yes
Maintain Stock Categories	? No	Use Invoice mode for Debit Notes	? No
Maintain Batchwise Details (not Expiry Dates for Batches)	? No	Separate Discount column on Invoice	? No
Use different Actual & Billed Qty	? No	Purchase Management	
Order Processing		Track additional costs of Purchase	? No
Allow Purchase Order Processing	? No	Sales Management	
Allow Sales Order Processing	? No	Use Multiple Price Levels	? No
Allow Job Order Processing (Note : Enables Maintain Multiple Godowns and Use Material In/Out)	? No	Other Features	
		Use Tracking Numbers (Delivery/Receipt Notes)	? No
		Use Rejection Inward/Outward Notes	? No
		Use Material In/Out	? No
		Use Cost Tracking for Stock Item	? No

F1: Accounts F2: Inventory F3: Statutory F6: Add Ons

Figure 18.9: Different Inventory Feature

Statutory & Taxation

This feature enables you to set the Statutory Features required for the transactions(Shown in Figure 18.10).

Company: ANITA

Statutory & Taxation

Enable Excise	? No	Enable Tax Deducted at Source (TDS)	? No
Set/Alter Excise Details (Note : 'Enable Maintain Multiple Godowns' for Multiple Excise Units)	? No	Set/Alter TDS Details	? No
Follow Excise rules for Invoicing	? No	Enable Tax Collected at Source (TCS)	? No
Enable Value Added Tax (VAT)	? No	Set/Alter TCS Details	? No
Set/Alter VAT Details	? No	Enable Fringe Benefit Tax (FBT)	? No
Enable Service Tax	? No	Set/Alter FBT Details	? No
Set/Alter Service Tax Details	? No	Enable Payroll Statutory	? No
		Set/Alter Payroll Statutory Details	? No
		Enable MCA Reports	? No

Tax Information

Local Sales Tax Number :

Inter-state Sales Tax Number :

PAN / Income - Tax No :

Corporate Identity No. (CIN) :

F1: Accounts F2: Inventory F3: Statutory F6: Add Ons

Figure 18.10: Different Statutory & Taxation Feature

Tally.NET Features

Tally.ERP 9 provides a new capability Tally.NET which is available by default. Tally.NET is a framework which works in the background and provides a broad range of services using the Internet (Shown in Figure 18.11).

Company: Abc Company	
Tally.NET Features	
Connection Details	
Connect Name	Abc Company
Connect Person Name	Rajesh
Connect Number	990568008
Connect for Remote Access	
Allow to Connect Company	? Yes
Connect on Load	? Yes

Accept? Yes No

F1: Accounts F2: Inventory F3: Statutory F4: Tally.NET

Figure 18.11: Different Tally.NET Feature

Add-On Features

Customers, to meet their accounting requirements may purchase customised solutions from Tally Partners or from any solution provider. Depending on the customer requirement solution provider formulates the solution. In some cases, a solution may require the introduction of New Feature in Tally.ERP 9 to support the functionality. So Add-On Features is a place holder for the features provided in the Add-Ons(Shown in Figure 18.12).



Figure 18.12: Different Tally.NET Feature

18.3 Account Information

Accounts Information menu lists the masters like Groups, Ledgers and Voucher Types through which one can provide the details of the company's accounts (Shown in Figure 18.13).

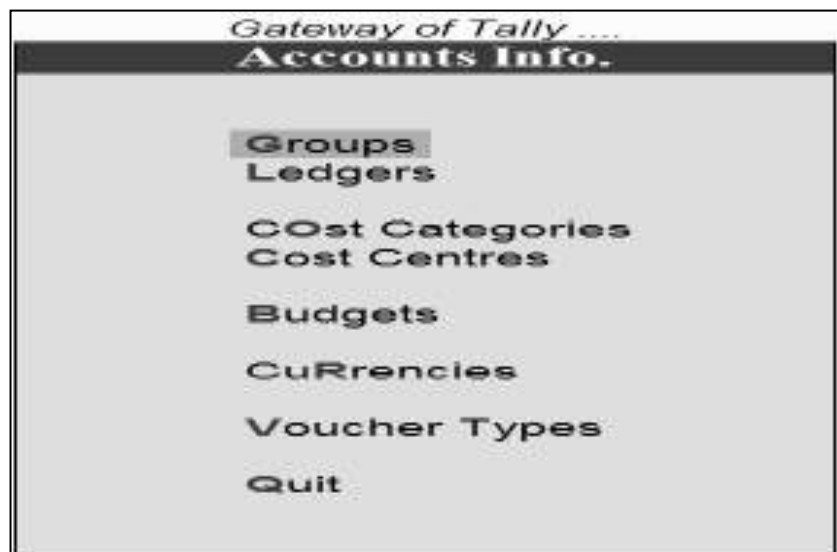


Figure 18.13: Account Information

Groups

Groups are collection of Ledgers of the same nature. Account Groups are maintained to determine the hierarchy of Ledger Accounts which is helpful in determining and presenting meaningful and compliant reports. Tally.ERP 9 has the flexibility of setting user required chart of accounts. One can group

the Ledger accounts under the required Groups at the time of creating the chart of accounts or you can alter them at any time (Shown in Figure 18.14).

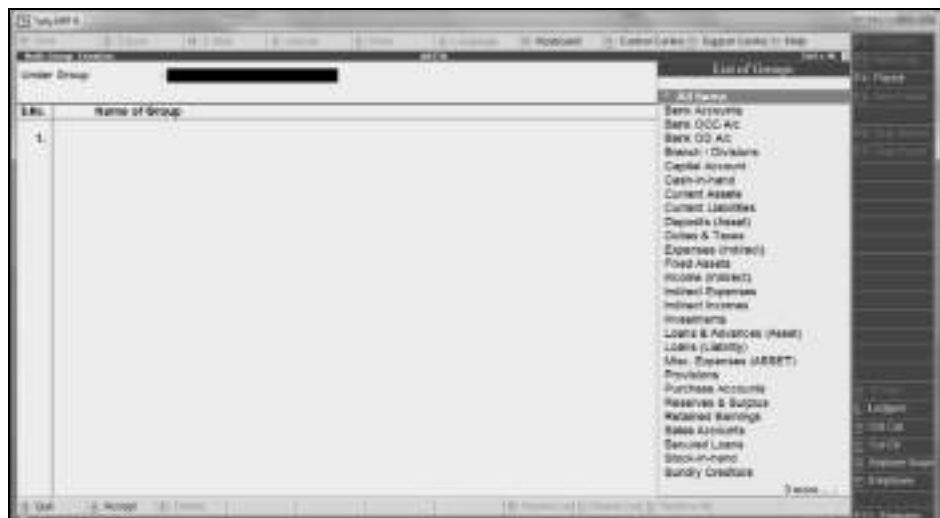


Figure 18.14: List of Groups

To Create a group in the Account information Click on Groups (Shown in Figure 18.15).



Figure 18.15: Creating Groups

Ledger

A Ledger is the actual account head to which you identify a transaction and must be used in all Accounting Vouchers. Without a ledger we cannot record any transactions e.g. Purchase, payments, sales, Receipts, etc, all these accounts heads are ledger Accounts. All Ledgers have to be classified into Groups. Classification of Ledgers to the appropriate groups is very important.

These Groups and Ledgers are classified to Profit & Loss or Balance Sheet. To create a ledger Go to Gateway of Tally > Accounts Info. > Ledgers(Shown in Figure18.16)

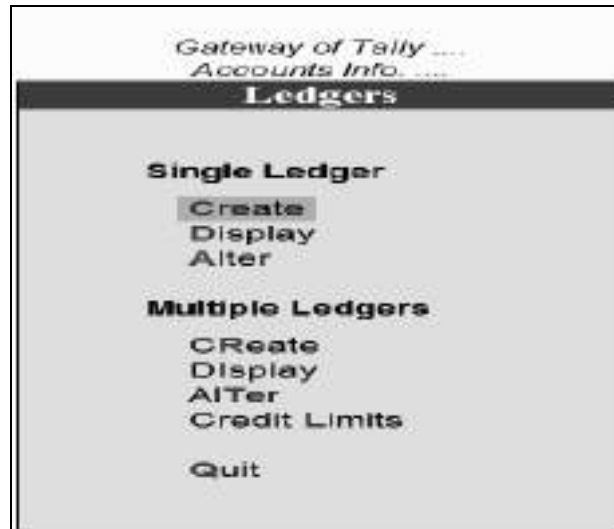


Figure 18.16: Creating a Ledger

Vouchers

By default in Tally.ERP 9, there are 18 different pre-defined voucher types. Voucher type pertains to Accounting, Inventory and Payroll. These are used for recording various transactions according to the user needs. Examples include Cash Payment Vouchers and Bank Payment vouchers where the relevant predefined voucher is Payment Voucher. One may have two or more sets of Sales Vouchers for different kinds of sales transactions e.g. Credit Sales, Cash Sales, etc. To create a Voucher Type in the Gateway of Tally select Accounts Info./Inventory Info. and then select Voucher Type and click Create(Shown in Figure 18.17).



Figure 18.17: Creating a Voucher

Summary

- In the Gateway of Tally, click on Company Info. and then select Create Company.
- The different components of company creation screen are: Directory, Name, Mailing Name, Address, Statutory Compliance, Pin Code, Telephone No., E-Mail, Mobile No., Currency Symbol, Financial Year, Books Beginning, TallyVault Password Use Security Control and enable auto backup.
- The different features are: Accounting, Inventory, Statutory & Taxation, Tally.NET, Add-On and Quit.
- Accounts Information menu lists the masters like Groups, Ledgers and Voucher Types through which one can provide the details of the company's accounts.

Exercise 18

Q.1 Write the various steps to create a Company.

Q.2 What are the different components of company creation screen?

Q.3 Discuss different company features in Tally.

Q.4 Write a short note on the following:

- o Groups
- o Ledgers
- o Vouchers

INTRODUCTION TO STATISTICAL PACKAGES

- Introduction
- Usefulness of Statistical analysis tools
- Capabilities that make statistical software indispensable
- Factors in choosing a statistical software
- Importance of Statistical Analysis in Business
- Significance of statistical software in data analysis: SPSS & STATA

19.1 INTRODUCTION

Statistical package is a computer program that has the capability to perform statistical analysis. This package specifies the results of statistical techniques. There are a number of statistical packages available in market such as ADMB, DAP, JAGS, SOFA statistics, SYSTAT, SPSS etc.

Statistical software is a program or package that carries out various calculations, analyses, and reporting tasks using methods and concepts of statistics. It is nearly impossible to perform calculations manually beyond a small data set. Additionally, manual statistical analysis requires a lot of time, and there are high chances of errors. Statistical software programs are an integral part of almost every academic and commercial field today and are growing in importance with time. Engineering firms, health sciences, research, marketing, and every conceivable modern-day profession heavily rely on statistics for operations, competitive advantage, and profitability. Statistical software plays a crucial role in decision making, supporting the management to identify significant trends and make strategies based on projections for the future.

19.2 The statistical analysis tools are helpful for:

Data validation

With vast volumes of input data available from multiple sources, the statistical package must validate the data points to minimize errors and inaccuracies in the downstream processes. This process includes checking data formats and removing outliers, among other steps.

Analysis

It is the most widely used feature of statistics and, consequently, statistical software programs. Statistical calculations and analysis involve simple concepts like mean, median, and mode to complex ones like multiple linear regression. The appropriate usage of these concepts results in the data that feeds a lot of information flow, business intelligence, and, finally, decisions.

Forecasting

The statistical software can use historical data and trends to predict the weather, sales, commodity prices, GDP, stock market volatility, etc. The forecasting model generally uses one or more of the following techniques: time series analysis and projection, qualitative techniques, and causal models.

Reporting

Statistical packages offer various types of data visualization options. The basic ones generate simple graphics and have fewer options for customization. On the other hand, the most advanced ones have interactive visualizations and provide powerful and personalized graphical outputs. This variation can become an important selection criterion.

Business intelligence

Organizations and businesses use business intelligence driven by statistical methods and algorithms to plan for the future and form and modify a detailed roadmap. The BI features enable top management and analysts to analyze the company's performance and compare it to that of its competitors.

19.3 Capabilities that make statistical software indispensable

Processing large amounts of data

There is no shortage of data in today's technology-driven era. These software tools help crunch massive volumes of data. A capable statistical program can handle it easily when the data points run into millions, billions, or even more.

Accuracy with efficiency

Specialized computer programs can perform statistical calculations efficiently without errors. As an organization's operations and decision-making processes depend on these factors, the importance of the speed and reliability that these analytical tools provide can't be overstated.

Advanced presentation features

Statistical analysis packages come with visual dashboards and interactive graphical capabilities to present at-a-glance results and drill-down analyses. It makes for quick and efficient analysis and decision-making based on data.

19.4 Factors in choosing a statistical software

Cost

Statistics analytical tools range from free software to massive fees or prices per license. It is vital to budget for the statistical software and to choose it accordingly to obtain maximum value for money.

Compatibility

For an individual, the software should run on the computer operating system. It must easily integrate with the existing hardware and software ecosystem like the ERP and CRM solutions for organizations and businesses.

Scalability

It is one of the most important but often underestimated aspects of selecting a statistical software. At the enterprise level, switching from one software package to another can cost a considerable amount. It, thus, makes sense to perform the due diligence required to select the software in line with the projected growth in function and scale.

Ease of use

If the users of a statistical software find it difficult to use, it would likely result in low motivation and performance. Additionally, the training cost for complicated software can be a big part of the total cost of ownership.

Features

As the features offered by different statistical suites vary in capabilities and application, a careful evaluation of their suitability to the nature of business and its intricacies is a must-do exercise.

Domain specialization

Some popular statistical software is more suited to a particular domain or industry. It is so due to a design that leans heavily towards providing analysis and functionality specific to one or more industries.

Support

Reliable support by the software company is a much-desired factor in selecting any product. For an individual, it translates to peace of mind. For businesses, it ensures business continuity and minimal disruption of operations. An extended warranty period or free support duration is always a bonus.

19.5 Importance of Statistical Analysis in Business

1. Identifying Opportunities

Having access to data can help you gain insights into future opportunities that may arise in your business. Statistics should be used to find new markets, promote better customer retention, increase sales, and identify sales opportunities.

This information can help you make intelligent decisions that will help your company grow and thrive over time.

The analysis of data can also be used to increase efficiency by finding duplication in the market or pinpointing areas that you want to eliminate from your current strategic plan.

2. Understanding customer behavior

The success of a business depends on the relationships established with its customers. Statistical analysis can help improve customer behavior by looking at their buying patterns and how they use your products or services.

With this information, you can make decisions on the type of products or services you should offer to your customers.

It also helps to identify new opportunities for product development by looking at areas that may require further research and study.

By understanding what they are looking for, you can provide the services or products that will benefit both parties.

3. Determining the correct target market

As a business, you must have a targeted audience that you are trying to sell your products or services. It is important to identify the best possible choice for your business because all decisions must be made around this key area.

Statistical analysis can help determine whether your current target market is as profitable as it should be. This information allows you to make decisions based on your customer base, which ultimately decides the success of your company.

4. Evaluating products or services

Statistical analysis provides companies with information about what is being bought and used by consumers. This knowledge can be useful in finding new ways to improve or alter a product or service you offer.

If you are able to determine what your customers are using or how they are accessing your products, you can make the changes that need to be made.

Understanding what features are most important to consumers can help companies create new ideas for upcoming services or products.

5. Making better decisions

Statistical analysis can provide real evidence of what works and what does not work for your business. This information allows you to make better decisions about business changes, hiring new employees, or how the company should be run.

It also helps with marketing and advertising strategies by giving a better understanding of consumers and what will work best for your company.

All decisions made in a business should be based on the information provided by statistical analysis to ensure that the outcome is positive. The analysis of data will showcase areas that require improvement so you can take action before it becomes too late.

It is always beneficial to have the correct information that can guide you into making the right decisions for your company.

With the advancement of technology, businesses are now able to utilize statistical analysis software tools that allow them to obtain vital information in a shorter amount of time.

Implementing this tool allows business owners and managers the opportunity to make more informed decisions on what they should be doing to increase their efficiency.

Statistical analysis has become a key tool for companies that are trying to grow and thrive in today's market.

Identifying opportunities, understanding customer behavior, determining the correct target market, evaluating your product or service, and making better decisions are just a few of the benefits that companies receive when using statistical analysis.

19.6 Significance of statistical software in data analysis: SPSS & STATA

Statistical software, or statistical analysis software, refers to tools that assist in the statistics-based **collection and analysis of data** to provide science-based insights into patterns and trends. They often use statistical analysis theorems and methodologies, such as regression analysis and time series analysis, to perform data science.

Business intelligence is the practice of gathering and analysing data and then transforming it into actionable insights. Statistical software helps business intelligence in many different ways. It adds more value to your business' proprietary data.

Statistics can be challenging, but with the right BI tools, they can be easy. Hence it is always necessary to select an appropriate tool for analysis. If you find difficulty with statistical analysis, you can get help from Online data collection statistics tutoring services.

STATA and its Importance in Data Analysis

Stata is one of the most common and widely used statistical software among researchers in the world. Researchers use Stata in the field of economics, biomedicine, and political science. It's powerful statistical software that permits users to manage, analyze, and generate graphical visualizations of data. Researchers use researchers in various fields like biomedicine, economics, and political science to

inspect data patterns. It supports both a graphical user interface and command-line, making the use of the software more intuitive.

Over the past few years, STATA programs of scholarly articles indexed in Google Scholar have raised over 55 per cent. Regardless of industry and field, this software tool's value increased, it becomes one of the most important future employment assets. It becomes one of the necessary qualifications which employers look, among their candidates. Our **Statistics Tutoring Services help** you with all aspect of understanding and working in particular software.

Because of its rising popularity, the Department of Economics at American University has chosen Stata as the primary statistical software used among core and elective economics courses. Among its numerous capabilities, it comprises some built-in commands to clean and manage data. It engages with fundamental statistical analysis, executes advanced econometric procedures, including time-series regression models and panel, and creates visually stunning graphs and tables.

Stata enables one to write their own code or use menus to achieve their analysis. It supports importing data in various formats, including CSV and spreadsheet (including Excel) formats. Its file formats are platform-independent, allowing users of various operating systems to share their datasets and programs easily. Four different versions of Stata in the market. They are

- Stata/MP- for multiprocessor computers
- Stata/IC – This is the slandered and commonly used version
- Stata/SE – which support large databases
- Small Stata- which is a smaller version used for educational purpose. (Which helps students, using this software throughout the program) .If you are unfamiliar with this particular software, you can get help from **Stata Tutor Online**.

Applications of Stata

- Stata has a user-friendly graphical user interface. The best feature of its user interface is, it can be easily adapt among various users regardless of their experiences.
- It also has data management features. With the help of Stata, you can easily connect the data sets and reshape them.
- Stat's graphical user interface (GUI) includes menus and dialogue boxes. Through these dialogue boxes, users can access various useful features, such as data management, data analysis, and statistical analysis. The details, graphics, and statistical menus are all easily accessible.

SPSS importance in Research & Data Analysis

- **SPSS -Statistical Package** for the social sciences is a software program combined in a single package. The main application of SPSS is analyzing data. They are widely used in a social science-related research project to analyze enormous data. That can be used in surveys, market research, data mining, etc.; with the help of this, researchers can easily identify the particular product's demands in the market. Based on the result, they can change the business or research strategy work. Generally, SPSS is like a store or organize the provided data, which can be used later to produce the desired output. It is designed in a way to handle a huge set of data.

- **SPSS Helps in Research & Data Analysis Programs:**
SPSS is innovative software that researchers majorly use, which helps them process complex data in simple steps. Working with complex data is a time-consuming process, but SPSS software can easily handle and easily operate with some techniques (provided by the software). These techniques help analyse, transform, and produce a characteristic pattern found between different data variables. It also assists in getting a quality output through graphical representation to understand the result easily. It is always necessary to learn from the best **Online SPSS Programming Tutors** to understand and get familiar with particular software. Here, some of the factors that is answerable for the process of data handling and its execution.
- **1. Data Transformation:**
The technique is used to transform the format of the data. Once changed particular data type, it integrates the similar data type in one specific place, which becomes easy to manage. You can introduce various kind of data into SPSS, and it helps in changing the structure base on its system specification and requirement. It means that even after you change the operating system, SPSS can still work on old data.
- **2. Regression Analysis:**
It helps understand the relationship between dependent and interdependent variables, which are stored in a particular data file. It also describes how changes in the interdependent variable can affect the dependent data. The fundamental need of regression analysis is to understand the type of relationship which is found among various variables.
- **3. ANOVA (Analysis of variance):**
A statistical approach that helps compares the events, groups or processes, and finds out the variation between them. It enables one to understand which method is more appropriate for executing a particular task. By looking at the outcome, you can find the feasibility and effectiveness of the particular method. If you find difficulty with the SPSS function you can get help from Online SPSS Programming Tutors.
- **4. MANOVA (Multivariate analysis of variance):**
It is used to compare random variables whose value is unknown. **MANOVA** technique can also be used to analyse different populations and what factors can affect their choices.

Summary of the lesson

- Statistical software is a program or package that carries out various calculations, analyses, and reporting tasks using methods and concepts of statistics.
- Importance of statistical analysis in business
- STATA and its Importance in Data Analysis
- SPSS importance in Research & Data Analysis

SELF ASSESSMENT QUESTIONS AND EXERCISES

1. Explain the usefulness of statistical analysis tools?
2. Describe the Importance of Statistical Analysis in Business?
3. Explain the significance of statistical packages in business decision making?

Answer to self-assessment questions and exercises

1. Refer to section 19.2
2. Refer to section 19.5
3. Refer to section 19.6

- Introduction
- Version History
- Opening SPSS
- Layout of SPSS
- Exiting SPSS

20.1 SPSS (STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES)

SPSS, (the Statistical Package for the Social Sciences) has been developed by three students at the University of Stanford (Norman H. Nie, C. Hadlai (Tex) Hull and Dale H. Bent). Initially not meant for distribution outside their home university, the publication of the first manual made SPSS widely known and used. Initially developed for IBM mainframe computers, versions for most other important mainframe brands (Univac, CDC, Honeywell...,) and later for so-called minicomputers (like DEC, PR1ME) were available. SPSS Inc. was founded in 1975. In 2009 IBM acquired SPSS; it is now fully integrated into the IBM Corporation Business Analytics Software portfolio.

The software name originally stood for Statistical Package for the Social Sciences (SPSS), reflecting the original market, although the software is now popular in other fields as well, including the health sciences and marketing. SPSS is a Windows based program that can be used to perform data entry and analysis and to create tables and graphs. SPSS is capable of handling large amounts of data and can perform all of the analyses. SPSS is commonly used in the Social Sciences and in the business world. SPSS is a widely used program for statistical analysis in social science. It is also used by market researchers, health researchers, survey companies, government, education researchers, marketing organizations, data miners, and others. In addition to statistical analysis, data management (case selection, file reshaping, creating derived data) and data documentation (a metadata dictionary was stored in the data file) are features of the base software.

Statistics included in the base software:

- Descriptive statistics: Cross tabulation, Frequencies, Descriptives, 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 Statistics 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, although the default settings have to be changed to make the syntax visible to the user. They can also 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. A Python programmability extension can access the information in the data dictionary and data and dynamically build command syntax programs. SPSS Statistics places constraints on internal file structure, data types, data processing, and matching files, which together considerably simplify programming. SPSS datasets have a two-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 two 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 Statistics 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 mark recognition software, or by direct capture from online questionnaires. These datasets are then read into SPSS.

SPSS Statistics can read and write data from ASCII text files (including hierarchical files), other statistics packages, spreadsheets and databases. SPSS Statistics 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, PDF, Excel, and other formats. 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). SPSS Statistics Server is a version of SPSS Statistics 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.)

20.2 VERSION HISTORY

- SPSS 6 (1968), 7, 8, 9
- SPSSX (1983) (the X standing for version 10) was a major revision, SPSSX 2 and 3 followed, then the X was dropped and numbering of new versions continued SPSS 4,5,6
- SPSS 7, 8, ... 15: Version 7, at least on some computers, had an interactive user interface

- SPSS Statistics (2008) 16, 17.0: major revision, user interface rewritten in Java (solved the problem of having different versions on different platforms, now the Windows, Mac and Linux versions are published at the same time. SPSS also added "Statistics" to the name of the product formerly simply called SPSS.
- PASW Statistics (2009) 17.02 and version 18:: name change to Predictive Analytics Software Statistics [note that on the SPSS Website PASW and SPSS Statistics are used interchangeably]
- IBM SPSS Statistics (2010): After SPSS Inc. has been acquired by IBM, the new official name is IBM SPSS Statistics

20.3 OPENING SPSS

We can open SPSS in one of two ways.

1. If there is an SPSS shortcut icon on the desktop, simply put the cursor on it and double click the left mouse button.
2. Click on the start button, then All Programs. Select SPSS for Windows.

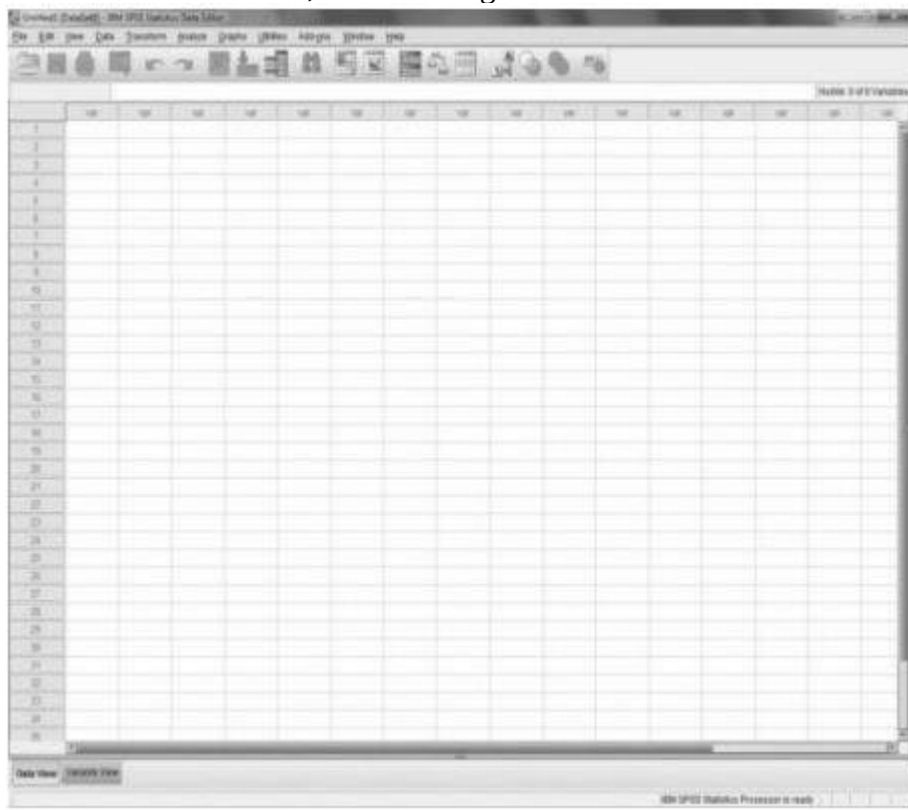


Figure 20.1

File: includes all of the options we typically use in other programs, such as open, save, exit.

Utilities: allows you to list file information which is a list of all variables, there labels, values, locations in the data file, and type

Edit: includes the typical cut, copy, and paste commands, and allows to specify various options for displaying data and output.

View: allows you to select which toolbars you want to show, select font size, add or remove the gridlines that separate each piece of data, and to select whether or not to display your raw data or the data labels.

Data: allows you to select several options ranging from displaying data that is sorted by a specific variable to selecting certain cases for subsequent analyses.

Transform: includes several options to change current variables.

Analyze: includes all of the commands to carry out statistical analyses and to calculate descriptive statistics.

Graphs: includes the commands to create various types of graphs including box plots, histograms, line graphs, and bar charts.

Add-ons: are programs that can be added to the base SPSS package.

Window: can be used to select which window you want to view (i.e., Data Editor, Output Viewer, or Syntax).

Help: has many useful options including a link to the SPSS homepage, a statistics coach, and a syntax guide.

20.4 LAYOUT OF SPSS

The Data Editor window has two views that can be selected from the lower left hand side of the screen. Data View is where you see the data you are using. Variable View is where you can specify the format of your data when you are creating a file or where you can check the format of a preexisting file. The data in the Data Editor is saved in a file with the extension .sav. The other most commonly used SPSS window is the SPSS Viewer window which displays the output from any analyses that have been run and any error messages. Information from the Output Viewer is saved in a file with the extension .spo.

One of the primary ways of looking at data file is in Data View, so that you can see each row as a source of data and each column as a variable (e.g., characteristic or property of each data source).

We click on the Data View tab so that we can enter and edit the data points themselves. Typically, we enter the data (and certainly edit the data) after establishing the names and other properties of the variables in a data set explained below under Variable View.



Figure 20.2

SPSS Data in Variable View

We click on the Variable View tab to define or change the names and other properties of each variable in the data set:

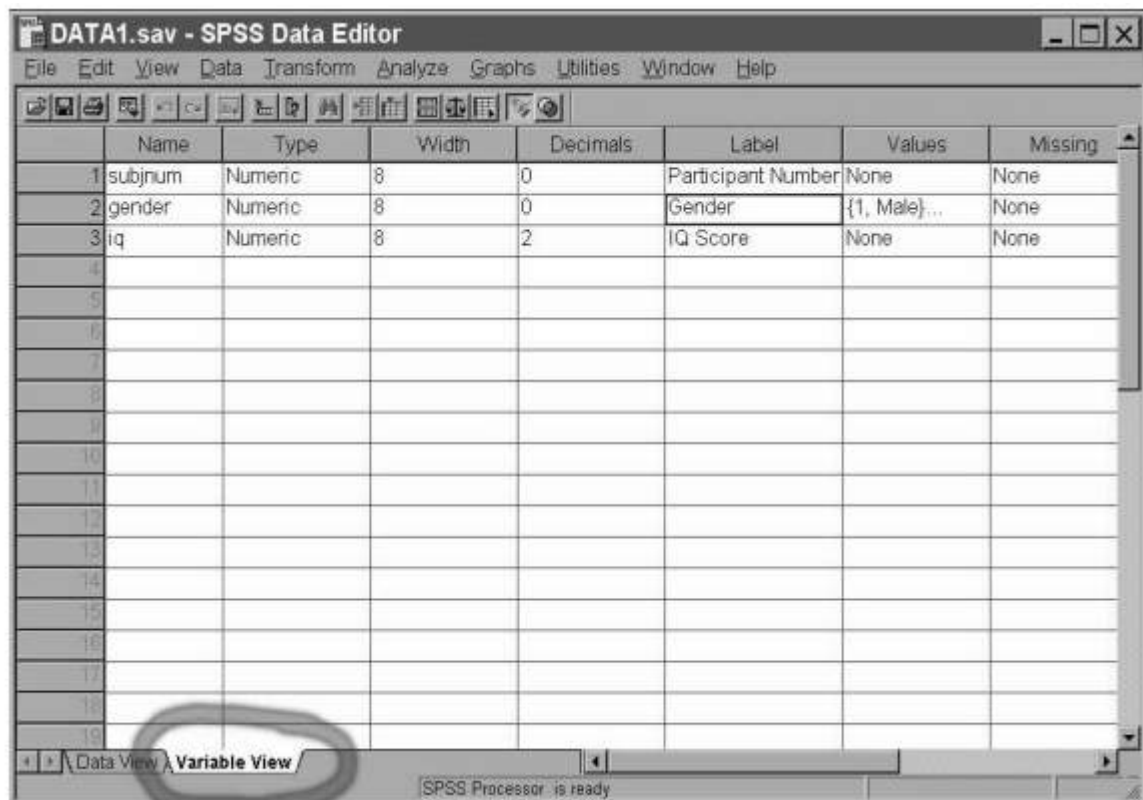


Figure 20.3

In this view, each variable is represented as a row, and various properties of the variable are represented as columns, allowing us to change the properties of existing variables or establish properties for new variables.

The variable properties and their functions are:

- Name -- the unique variable name
- Type -- the kind of data to be recorded (e.g., strings of characters, numeric values, or special numbers like dates)
- Width -- the number of characters used to display the data
- Decimals -- the number of decimal places displayed
- Label -- a text entry to describe the data provided by the variable, which can be much longer than the variable name and may include spaces. With questionnaires, for example, the label is usually the text of the question.
- Values -- if specific numeric values have a non-intuitive meaning, these values can be labeled (e.g., 1 = male and 2 = female)
- Columns -- determines how wide the variable column should be in Data View mode
- Align -- determines whether the data should be left-justified, right-justified, or centered
- Measure -- describes the level of measurement (e.g., nominal, ordinal, or scale)

Navigating SPSS Output

The SPSS output window is split into two frames. There is a navigation frame on the left and the output itself in a frame on the right.

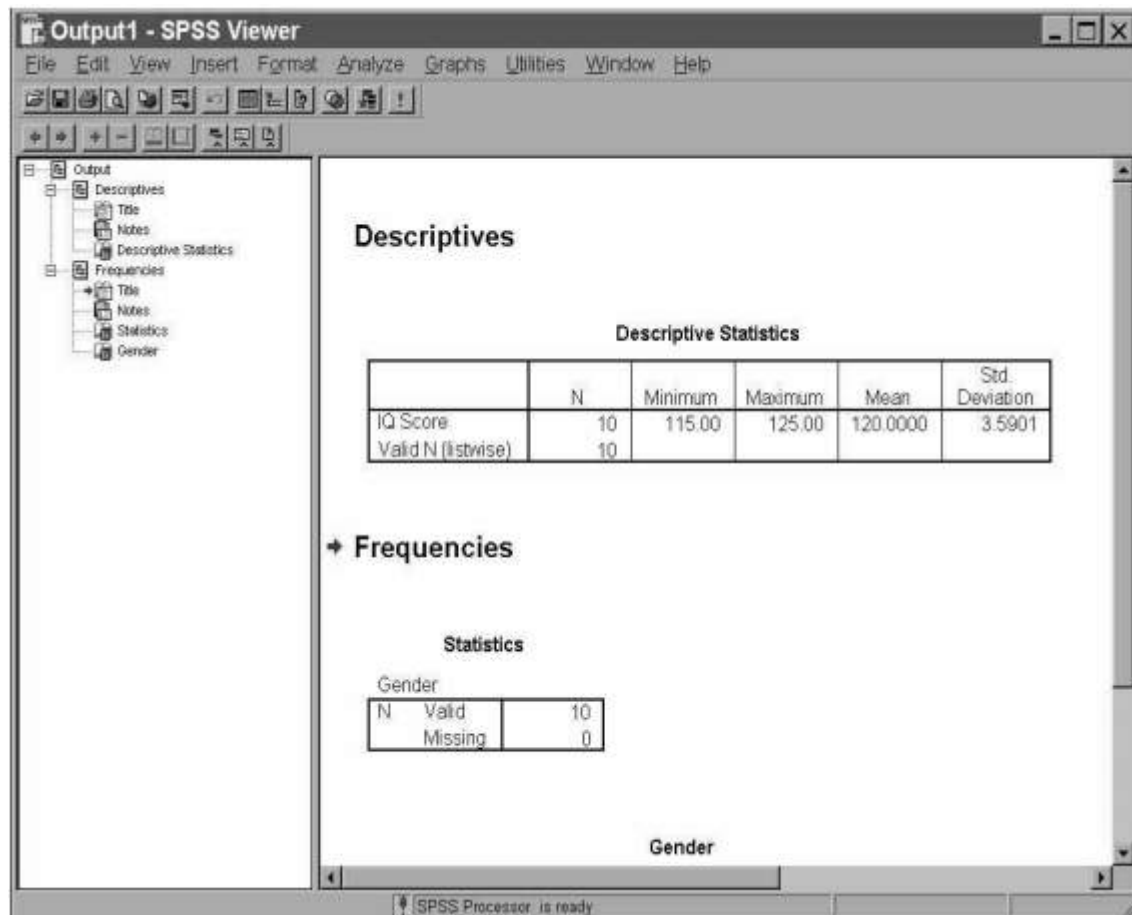


Figure 20.4
20.5 EXITING SPSS

To close SPSS, we can either left click on the close button located on the upper right hand corner of the screen or select Exit from the File menu.

SUMMARY OF THE LESSON

You learnt the following in this lesson:

- SPSS, (the Statistical Package for the Social Sciences) has been developed by three students at the University of Stanford (Norman H. Nie, C. Hadlai (Tex) Hull and Dale H. Bent
- SPSS base software includes Descriptive statistics, bivariate statistics, Prediction for numerical outcomes and Prediction for identifying groups.
- SPSS Statistics can read and write data from ASCII text files (including hierarchical files), other statistics packages, spreadsheets and databases.
 - SPSS Statistics can read and write to external relational database tables via ODBC and SQL.
- The data in the Data Editor is saved in a file with the extension .sav.
- SPSS supports many statistical features for data processing.

SELF ASSESSMENT QUESTIONS AND EXERCISES

1. What are the statistics included in SPSS base software?
2. Explain different ways to open SPSS.
3. What is the functionality of variable view?

Answer to self-assessment questions and exercises

1. Refer to section 20.1

2. Refer to section 20.3
3. Refer to section 20.4

SYSTAT

- SYSTAT
- Starting SYSTAT
- Using GUI in SYSTAT

21.1 SYSTAT

SYSTAT is a statistics and statistical graphics software package, developed by Leland Wilkinson in the late 1970s, who was at the time an assistant professor of psychology at the University of Illinois at Chicago. SYSTAT was incorporated in 1983 and grew to over 50 employees.

In 1995 SYSTAT was sold to SPSS Inc., who marketed the product to a scientific audience under the SPSS Science division. By 2002, SPSS had changed its focus to business analytics and decided to sell SYSTAT to Cranes Software in Bangalore, India. Cranes formed Systat Software, Inc. to market and distribute SYSTAT in the US, and a number of other divisions for global distribution. The headquarters are in Chicago, Illinois.

By 2005, SYSTAT was in its eleventh version having a revamped codebase completely changed from FORTRAN into C++. Version 13 came out in 2009, with improvements in the user interface and several new features.

System requirements

- Windows 32 bit (Vista, XP, 2000)
- Pentium-level 32 bit processor
- 128 MB RAM (512 recommended)
- 220 MB free disk space (inclusive of manual PDFs, 85 MB)
- CD-ROM drive
- SVGA adapter and monitor
- Internet Explorer 6

21.1 STARTING SYSTAT

To start SYSTAT for Windows NT4, 98, 2000, ME and XP:

Choose: Start → All Programs → SYSTAT 12

Creating Data/Importing/Saving Data To create data, click File->New->Data, and enter the dataset. You can also import data by using File- >Open->Data. The supported file formats for import include Excel, SPSS, SAS, MINITAB, and JMP. Once inputted, data can be saved in the SYSTAT file format.

The SYSTAT user interface

The organization of the user interface is somewhat complicated. The command window is a .syc file

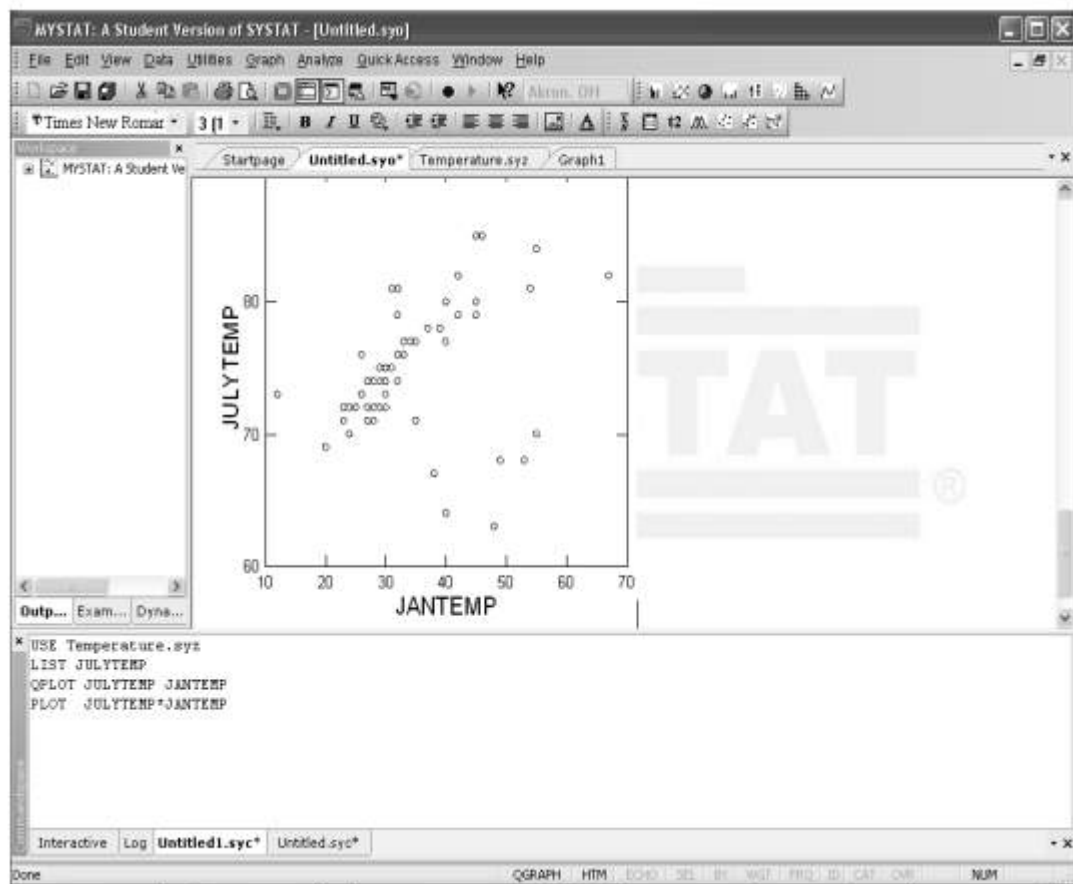


Figure 21.1

that appears at the bottom of the screen. SYSTAT outputs the results of commands in a .syo file, which is accessible by clicking on a tab toward the top of the screen. Any graphics are also outputted to a separate tab. SYSTAT stores the results of user commands in the Workspace window on the left of the screen.

The user has two options for analysis with SYSTAT: using the GUI, or using the command line.

To run a command, right click in the .syz file. You then can choose to run the current line or to run the commands from the current line to the end. To specify a specific data set to use, type “USE Filename. Extension”.

Here’s an example of running commands on the SYSTAT user interface

The SYSTAT user interface

The user interface of SYSTAT is organized into three spaces:

- I. Viewspace
- II. Workspace
- III. Commandspace

Viewspace has the following tabs

Output Editor: Graphs and statistical results appear in the Output Editor. You can edit, print and save the output displayed in the Output Editor.

Data Editor: The Data Editor displays the data in a row-by-column format. Each row is a case and each column is a variable. You can enter, edit, view, and save data in the Data Editor.

Graph Editor: You can edit and save graphs in the Graph Editor

Startpage: Startpage window appears in Viewspace as you open SYSTAT. It has five subwindows.

- i. Recent Files
- ii. Tips
- iii. Themes
- iv. Manuals
- v. Scratchpad

Workspace has the following tabs

Output Organizer: The Output Organizer tab helps primarily to navigate through the results of your statistical analysis. You can quickly navigate to specific portions of output without having to use the Output Editor scrollbars.

Dynamic Explorer: The Dynamic Explorer can be used to rotate 3-D graphs, apply power transformations to values on one or more axes, and change the confidence intervals, ellipses, and kernels in scatter plots.

Command space has the following tabs

Interactive: In the Interactive tab, you can enter commands at the command prompt (>) and issue them by pressing the Enter key.

Untitled: The Untitled tab enables you to run the commands in the batch mode. You can open, edit, submit and save SYSTAT command file (.syc or .cmd)

Log: In the Log tab, you can view the record of the commands issued during the SYSTAT session (through Dialog or in the Interactive mode).

SYSTAT Data, Command and Output files

Data files:

You can save data files with (.SYZ) extension.

Command files:

A command file is a text file that contains SYSTAT commands. Saving your analyses in a command file allows you to repeat them at a later date. These files are saved with (.SYC) extension.

Output files:

SYSTAT displays statistical and graphical output in the output Editor. You can save the output in (.SYO), Rich Text format (.RTF) and HyperText Markup Language format (*.HTM).

The Data Editor The Data Editor is used for entering, editing, and saving data. Entering data is a straightforward process. Editing data includes changing variable names or attributes, adding and deleting cases or variables, moving variables or cases, and correcting data errors.

SYSTAT imports and exports data in all popular formats, including Excel, ASCII Text, Lotus, BMDP Data, SPSS, SAS, StatView, Stata, Statistica, JMP, Minitab and S-Plus as well as from any ODBC compliant application.

21.3 USING GUI IN SYSTAT

Basic statistics can be found under the Analyze tab. To analyze column variables, click Analyze->Basic Statistics. To analyze row variables, click Analyze->Row Statistics. You can also use the Analyze bar to get contingency tables, scatter plot matrices and correlation matrices, and stem-and-leaf plots. To get basic graphs, use the Graph tab. Options include histograms

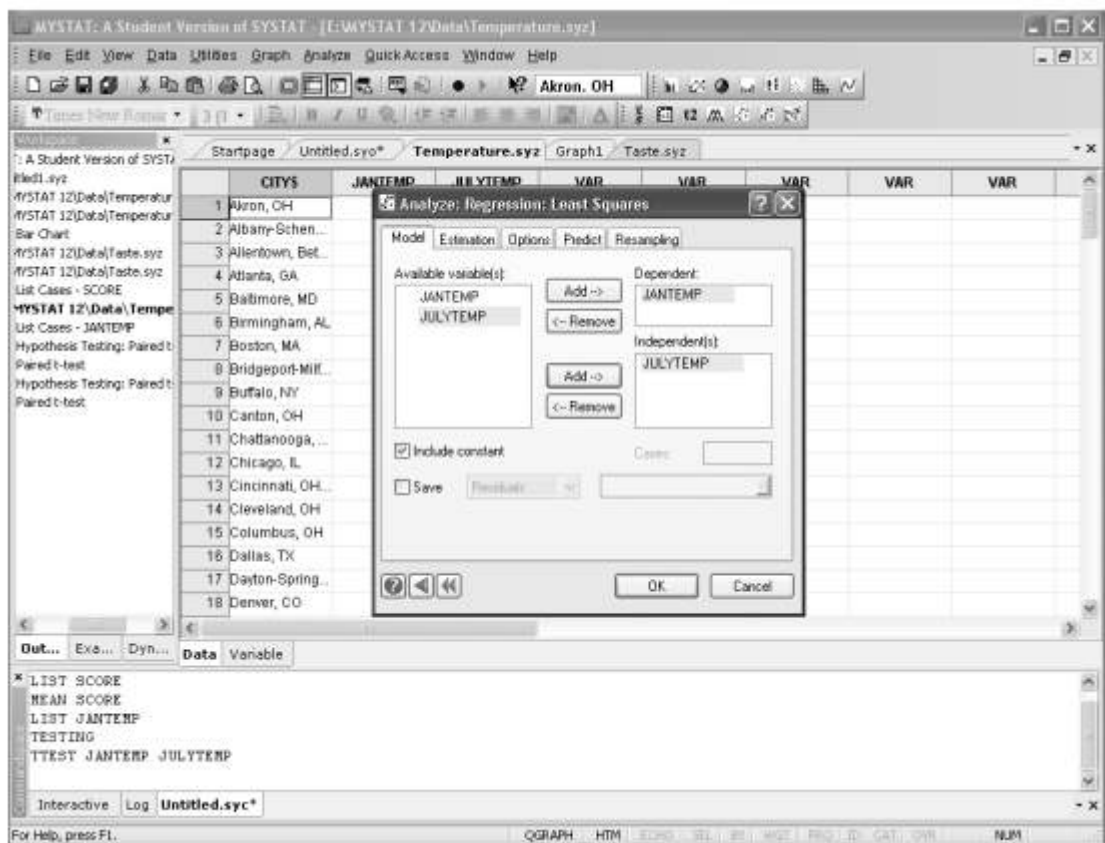


Figure 21.2

We can also do a regression analysis using the GUI. Click Analyze->Regression and choose what type of regression you want to do. Options include least squares and logit regression. SYSTAT will output summary information, including residual plots. Some of the regression output will show up on in the Workspace window toward the left of the screen. Other options include bootstrapping and normality tests.

Using the GUI for Least Squares regression

We can also do ANOVA using the GUI. Click Analyze->Analysis of Variance.

Basic command lines in SYSTAT

Construct a qqplot	QPLOT varname
Plot Y*X	PLOT VarY*VarX
Sort by a variable	SORT varname
Normality test	CSTATISTICS varname/ ADTEST SWTEST
Ttest	TESTING TTEST var1 var2

Bootstrap from a dataset	USE Filename.extension SAMPLE BOOT(nsamples,sample_size)/MEAN MEDIAN CSTATISTICS variable1 variable2
Summary statistics	CSTATISTICS varname

Features of SYSTAT

- **Unmatched Graphics Made Easier to Use**

SYSTAT provides a large variety of scientific and technical graphing types, which helps to produce the right type of graph for every need. Its Interactive Graphics Dialog can be used to change multiple aspects of your graphics using a single integrated dialog. We can compare subgroups, overlay charts, transform coordinates, add geographic projections, change colors, symbols, and more, to create insightful presentations. You can change graph locations, point- and- click to alter axis labels, scales, colors and symbols.

- **Powerful New Data Manipulation Features**

SYSTAT provides innumerable data manipulation features to get data in the right form for the intended analysis. With a simple menu - dialog we can transform, sort, trim, center, standardize, select, rank, label, group, reshape, or weight your data. The data file's value can be enhanced with additional information such as study details, variable information, variable labels, value labels, processing conditions, etc. We can save effort using undo and redo in the Data Editor up to 32 steps in the same session. We can increase data accuracy with widened data field of (23, 15). We can name your variables, including string variables, using up to 256 characters. We can obtain basic variable statistics and histogram from the Variable Properties dialog.

- **Analyze Larger Data Sets with Greater Speed**

When we use SYSTAT, we are allowed to work on very large amount of data. The software does very fast processing of that data in very small amount of time. This saves user time.

- **Less effort and more results**

SYSTAT software saves efforts of user in terms of defining the data and kind of processing to be done. There are many options for statistical processing.

Summary of the lesson

- SYSTAT is computer software used for statistical processing of data.
- SYSTAT base software includes features for data processing, power analysis, creating many types of charts and graphs etc.
 - This software component was basically designed for statistical processing, but now a days it is extended to be used in multiple application areas.
- User interface of SYSTAT is defined in 3 spaces: a. View space b. Work space c. Command space
 - SYSTAT data file is a file which contains data. This file can be created, edited and saved for future reference. The extension of data file in SYSTAT is .syz.
 - The very important feature of SYSTAT is that it includes very high graphics capabilities which allows a user to analyze and process data in any format.

SELF ASSESSMENT QUESTIONS AND EXERCISES

1. What do you mean by SYSTAT software? What are the software requirements of using SYSTAT?
2. How the user interface is designed in SYSTAT?

Answer to self-assessment questions and exercises

1. Refer to section 21.1
2. Refer to section 21.2

