UNIT 5 MY PERSONAL COMPUTER

5.0   INTRODUCTION

A **personal computer** (**PC**) is a general-purpose computer, used for day to day activities in different areas including education, business, administration and health. Due to its size and capabilities, PC is useful for the users. A PC can be   operated directly and may be used for computational, word processing, and data storage purpose.

Depending on the size and processing capacity, PCs are of many types such as, a desktop computer, a laptop tablet PC, a handheld PC /palmtop. Personal computers can be connected to the computer network by wired or wireless media. Generally, for using a PC, computer proficiency is not compulsory.   PCs are being used from a school going children to a business professional for different purposes. A non-professional user may use a PC to listen songs, watching movies, creating some documentation, email etc. A

professional user may use a PC for different business process such as documentation, running business program, creating databases, internet, and emailing, teleconferencing etc. Thus, the scope of a personal computer varies a lot depending on the type of its users. The configuration of a PC matters a lot in terms of its processing quality and cost.

5.1 OBJECTIVES

After reading this unit, you should be able to:

- describe the meaning and purpose of the personal computer;

- distinguish different types of personal computers;

- briefly explain hardware components of personal computer;

- describe software and its types;

- explain operating system installation process;

- to setup network configuration; and

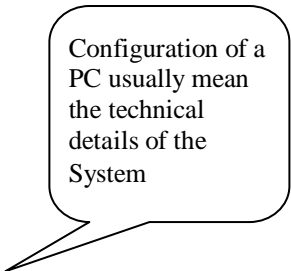- understand different tools and application of personal computer.

In previous units of this block you have learned about basic components of a computer system. This learning will enable you understand the working of a computer system and use computer for different activities in your life. Rest of this unit will teach you about practical aspects.

5.2 TYPES OF PC

In general, basic function of all the computers is same i.e. Computers accept data as input, perform operations on these data and generates the desired output to the user. However there are different kinds of computers available today. These computers differ due to the differences in processing capability, storage capability, looks and sizes. Different types of computers are used for different types and complexity of problems solving. For example for simple internet access or for basic word processing , a simple generic PC may be sufficient but for complex scientific computation such as atomic energy plant control or weather forecasting, specialized computer is required. With the advancement of technology, computers have also witnessed major changes and developments and today computers are more powerful in terms of processing and storage capabilities. To know in detail about a PC hardware components, it is imperative to have knowledge about its configuration.

Configuration of a PC

Generally, when you think of purchasing a Computer, you first try to exactly know what will be the hardware components such as processor, memory etc. of your computer. It depends on several factors such as your computation needs, your budget, your

> Configuration of a PC usually mean the technical details of the System

preferences about brands etc. Before purchasing a PC you should be aware about the different components of a PC and its typical configuration so that you can make a suitable choice. When you visit a PC shop for purchase a PC, you clearly need to state that what will be the storage capacity of your hard-disk, processor speed and its type, the amount of RAM you want to have in your PC, different ports and connector etc. One can either purchase a branded PC or may purchase individual components of PC and assemble them to form a PC.

Configuration of a PC usually mean the technical details of the System. Many softwares require that computer must have some minimum requirements so that the software can run properly on that system, hence we need to check the configuration of the system. Actually the term computer configuration means the technical specification of the computer. In this specification details generally we include speed of the processor, RAM, Hard-Disk Drive, Video card, etc. The configuration of one computer may vary from others. Generally configuration of a computer depends on the user requirement for example, a user who mostly works on multimedia software, graphics software, scientific computation etc, needs more powerful computer rather than a normal PC user.

Clock speed is the speed at which a microprocessor executes instructions. Clock speeds are measured in megahertz (MHz) (also known as, millions of cycles per second) or Gigahertz (GHZ)

Processor plays major role in a computer. One should carefully decide about the type of processor and its speed before making a choice. Currently Core 2 Duo processor are very common in use, in which two processor used to be fit on a single chip. Also there are Core 2 Quad are multi chip processors which offer twice the performance of a Dual Core processors. The current Core processors include the latest Intel Core i7, Intel Core i5 and Intel Core i3 etc. Pentium chip is one of the most popular brands of processor. Now multi-core processors are available. A dual-core processors has two cores, a quad-core processor contains four cores and a hexa-core processor contains six cores. Multi-core processors implement multi-processing which improves performance and speed of executions. Pentium processor is a series of x86 compatible microprocessors manufactured by Intel.

Generally you can find the speed of a processor during booting processes. For example, if you see Intel Pentium (TM) III 1000 MHz, it indicates that the processor is of Intel Pentium III processor and it is running at 1000 MHz or 1 GHz. One clock cycle is the time it takes to perform one instruction. Processor will be faster if the clock cycle is shorter and vice versa. The speed of a processor is directly related to the clock speed which is the speed at which a microprocessor executes instructions. Clock speeds are measured in megahertz (MHz) (also known as, millions of cycles per second) or Gigahertz (GHZ).

If you want to know about the configuration of the computer you are working on, follow these simple steps. There you will find a number of devices attached with the computer with their details:

1. Right Click on my computer, available no your PC desktop,
2. Select Properties,
3. Go to General Tab, this will give you basic information about the computer. If you want detail configuration,
4. Select Hardware Tab,

5.   Select Device Manager Button.

Now let us learn about different types of PCs in terms of size, processing capacity etc.

5.2.1   Workstation

A workstation is a high-performance computer which is used for scientific and technical tasks such as computer graphics, scientific simulation, computer-aided-design (CAD), image processing, engineering calculations etc. It is generally used in such applications which require a moderate amount of computing power. Hence, the configuration of workstation used to be high. UNIX and Windows NT are the most common Operating System for workstations. Workstations are generally single user system however they can be connected together to form a LAN.

In the context of networking, workstations are sometime referred to as any computer/terminal attached to a LAN. In networked workstation, system administrator tracks and controls the activities of the user. The term *workstation* is also used for high capacity mainframe computer terminal or a PC connected to a network and working in client server mode. A workstations has superior processing and storage capabilities than a normal PC , especially with respect to providing multitasking capability.

Typical Configuration of a Workstation

Processor: Intel Core Processor (3.20 GHz)

Memory: 4GB 1333MHz

Hard Disk: 500GB,

RAM – 2GB

Here GHz is known as gigahertz. The speed of the processor is generally measured in gigahertz. 1 GHZ equals to 1 billion cycles per second. Similarly MHz is called as megahertz. 1 MHZ is equal to 1 million cycles per second. GB or Gigabyte is the measurements of the digital data in a computer. 1 GB is equal to 1024 Megabytes (MB).

5.2.2   Desktop Computers

Desktop computer is popularly known as personal computer (PC). As the name suggest, it is generally small in size and fitted on the top of a desk which can be used at a fixed location. Most of modern desktop computer has separate screens and keyboards. Generally in majority of the PCs,   Microsoft Windows, LINUX and Mac OS x are used as operating system. Desktop computers are available in many different forms from large vertical tower cases to small form factor models. Advantages of desktop computer are that it may be used for day to day computational and internet communication activities of office, school etc. A   PC provides more space for heat to escape. Also power consumption of a PC is not very high. There are many brands of PCs are available in Indian market and abroad including HP, HCL, Wipro, Compaq etc. A PC also can be assembled as per specific requirements, instead of a particular brand.

Figure 5.1: Desktop Computer

A Configuration of Desktop computer

Processor: Intel Pentium 4 around 3.0 GHZ

RAM: 1 GB DDR II RAM

Hard Disk: 320 GB SATA hard disk drive

Graphics: Intel Graphics Media Accelerator 950 (Intel GMA 950)

DDR stands for double data rate type 2 RAM which is an enhanced version of DDR. SATA stands for serial advanced technology attachment which is a bus interface to connect host bus adapters to storage device like hard disk. SATA has different generations.

5.2.3   Laptop

Laptop is also a personal computer but intended of using it at a single place , it is small size, portable and can be used anywhere. Portability is one of the main advantage of a Laptop over a table PC. Another advantage of a Laptops is that it contain batteries which are used for power supply. It make a laptop usable even if power is not available. In a laptop almost all the components are attached as a single unit. Although some devices like mouse, can be attached externally through ports. The basic components of laptop are similar in function to the desktop computers. Most of modern desktop computer has separate screens and keyboards. Generally in majority of the PCs,   Microsoft Windows, LINUX and Mac OS x are used as operating system. Laptops are much more power efficient than desktops. The major disadvantage of Laptop is that its upgradeability is limited as compared to desktops. There are many brands of Laptop are available in Indian market and abroad including HP, HCL, Wipro, Compaq, Dell, Lenovo, Toshiba, Sony etc.

Figure 5.2: Laptop

A Configuration of Laptop is given below:

Hard Disk- 320 GB SATA HDD

Processor – Intel Pentium processor P6200 (2.13 GHz, 3 MB) RAM-3 GB

Memory: 1 GB DDR3 RAM (DDR3 RAM can transfer data twice the rate, hence it has higher bandwidth than DDR2 RAM)

5.2.4   Netbook

Netbooks are special type of Laptop which is very light and small. Due to its size and weight it is very portable and one may carry it very easily. Dissimilar to Laptop , it does not require a separate carry bag for it. Netbook are suitable for general purpose computing works and for accessing the Internet. They also use less powerful hardware than most laptops. Due to limited processing capabilities Netbooks are less expensive than laptops. Due to its size and portability Netbooks are becoming very popular for education and business works. Works related to word processing, presentation, internet access, multimedia etc can be easily carried out on a Netbook. Generally in Netbooks, Windows, Linux, and Android operating system are used along with others. There are many brands of Netbook available in Indian market and abroad including Acer, HP, Dell, HCL , Apple, Sony etc.

Figure 5.3 : Netbook

A Configuration of Netbook is given below:

Processor – Intel Atom

Memory: 1 GB DDR2 RAM

Hard Disk- 80 GB

5.2.5   Tablet PC

A tablet PC is similar to a personal computer . It is a portable device which has a touch screen for inputting of the data. A tablet computer can connect to the internet and local computer network through wireless. In general terms, tablet PC refers to a slate shaped mobile computer device, equipped with global positioning system (GPS) System , and a touch screen to operate the computer. It is generally equipped with office suits such as word, excel etc, web browsers, computer games and other similar applications, that generally can be run on a PC. Tablet PC can also use handwriting recognition and virtual keyboards for input of data. In, tablet PCs Microsoft windows, Linux and Apple

operating system are used. There are many brands of Tablet PC available in Indian market and abroad including Acer, Lenovo , Panasonic, and Toshiba etc.

Figure 5.4: Tablet PC

Typical Configuration of a Tablet PC

Processor: Intel Core 2 Duo ULV processor SU9300 (1.20GHz)

Memory: 5GB (1x1GB on board, 1x4GB DIMM) DDR3 1066MHz

Hard Drive: 80GB 5400RPM SATA HDD

If we elaborate the detail of the processor mentioned above, SU9300 is the processor number, number of cores in this processor is 2 and number of threads is also 2. Clock speed is 1.2 GHz, ULV is a feature of some processors. ULV stands for Ultra low voltage. ULV processors require less power.

In previous units of this block you have learned about CPU, I/O Devices and Memory system of computer/PC. Now let us look into some other major hardware components such as motherboard and video card of a PC.

The physical components of a computer which can be seen and touched are known as hardware of a computer system

5.3 HARDWARE COMPONENTS OF A PC

Hardware is an essential component of any computer system. A computer is made up of several different components. All these components work together in order to produce desired result. The physical components of a computer which can be seen and touched are known as hardware of a computer system. Each of these parts are designed for a specific purpose. Central Processing Unit (CPU), Memory, Input / Output devices like mouse, keyboard, Monitor, CPU, Memory etc. are different hardware components of a computer system. These hardware components are the building block of a computer.

A computer case covers the computer circuitry. It is also known as cabinet, box, computer chassis etc. it is a box which contains different components of a computer like CPU, Motherboard, RAM, Power supply unit etc.

Computer cases are available in many different forms and sizes like desktop cases, full-size tower cases, mini tower cases etc. ATX is the most popular form factor used for desktop computer these days. Computer case includes input/output ports and power buttons. Motherboard is a main component placed inside the computer case. The power supply unit is also attached with the case. A power supply unit is responsible for providing power to other components of a computer.

Figure 5.5: Computer Case (Cabinets)

Central Processing Unit

Central Processing Unit (CPU) is considered as one of the most important component of a computer system. It is also known as the brain of a computer. The main function of a CPU is to execute a series of instructions called as program in a specific sequence. Normally there are four steps that all CPU use in order to perform their operation these are: fetch, decode, execute and output.

CPU contains Arithmetic Logic Unit (ALU) and Control Unit(CU). ALU and CU are jointly known as the central processing unit (CPU). The ALU of a computer performs all the arithmetic operations such as addition, subtraction, multiplication and division and also all the logical decisions are made by the ALU.

Control Unit (CU) is the unit which manages and coordinates the entire operation of a computer system. It controls the operation of the other components of a computer system.

Motherboard

Motherboard holds some of the most important component of the computer system. It is also known as system board, main board etc. in a typical computer microprocessor, main

memory and other components are connected to the motherboard. It acts a s a base for other components. Motherboard also provides connectors for several other devices. A motherboard allows many different parts of our computer to receive power and communicate with one another. The shape , size and layout of a motherboard is called a form factor. The Motherboards usually provides the interface between the CPU memory and input/output peripheral circuits, main memory, and facilities for initial setup of the computer immediately after power-on.
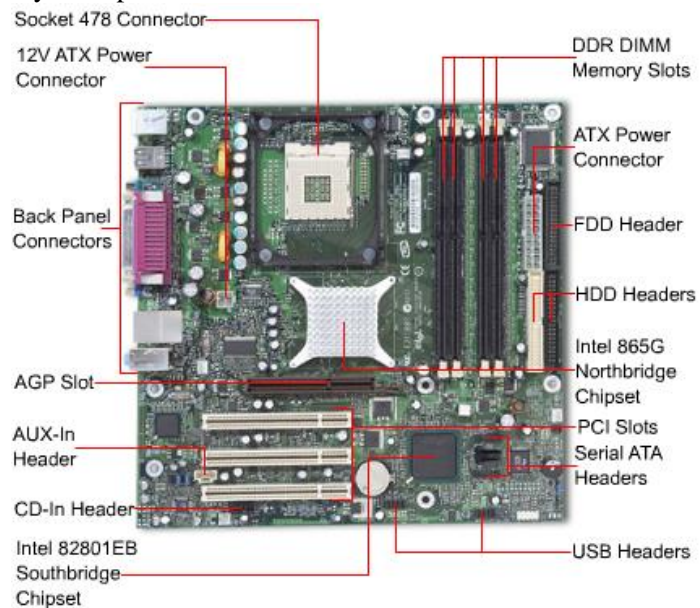

Figure 5.6: Mother Board

The below is a brief description about some parts of a motherboard:

a) **ATX Power Connector:** Advanced Technology Extended (ATX) power connector is used to connect computer's power supply to motherboard.

b) **AGP Slot:** Accelerated Graphics Ports (AGP) is a point-to point channel which is used to attach a video card to a motherboard.

c) **CD-in header:** At this CD drive is plugged in or connected .

d) **FDD Header:** Floppy Disk Drive (FDD) header is used for Floppy drive. Now this slot is obsolete because floppy disks are outdated.

e) **HDD Headers:** Hard Disk Drive header is used for connecting to hard disk .

f) **PCI Slots:** It is used for connecting the PCI (Peripheral component interconnect) card.

g) **USB Headers:** It is a group of pins to which an internal USB cable can be attached to provide extra USB ports. These ports are used for attaching external/auxiliary devices such as pen drive, printer etc.

Video card

A video card is an expansion card , which is used to produce output images to a display in a monitor. Its main purpose is to generate graphical information. It is responsible for rendering the image on the monitor of a PC . It is also known as video adapter, display

These days high performance video cards are available for gaming purposes which requires very high resolution

adapter or graphics card. A video card should be capable of displaying the best resolution supported by the monitor of the system. These days high performance video cards are available for gaming purposes which requires very high resolution. Video card consists of a circuit board which holds several components such as graphics processing unit (GPU), video memory, video BIOS etc. Video graphics array (VGA), Digital visual interface, high definition multimedia port etc are some of the common connection points used between video card and display.

Now-a-days, high performance video cards are available, which has higher visual capability. With increasingly popularity of computer games video cards became one of the most important parts of a computer. One disadvantage of this high performance video card is that consume high power. The amount of video memory in video card is one of the main considerations while opting for a video card. Advanced graphics port (AGP) and PCI-Express are the two commonly slots available which is used to connect a video card.

Figure 5.7 :Video Card

Check Your Progress-1

1. **True/False**

    (a) A workstation is a high-end personal computer designed for technical or scientific applications.

    (b) Pentium Chip is one of the most popular processor brand.

    (c) ALU and CPU are jointly known as Control unit.

    (d) VGA stands for video graphics array.

    (e) One disadvantage of high performance video card is their high power consumption.

2. **Multiple Choice Questions**
1. (a) Which of the following is not a part of computer motherboard.
        (i) AGP Slot   (ii) ATX power connector   (iii) PCI Slot   (iv) Light pen
    (b) Which of the following is a type of personal computer
        (i) Tablet PC   (ii) Net book   (iii) Desktop   (iv) All of these
    (c) Which one of these is not a hardware component of a computer.
        (i) Operating system   (ii) Monitor   (iii) CPU   (iv) Video Card

3. What is a PC? What are different types of a PC?

    ……………………………………………………………………………………………

    ……………………………………………………………………………………………

    …………………………………………………………………………………………..

4. How a laptop is differ from a desktop? Specify one configuration of a laptop.

    ……………………………………………………………………………………………

    ……………………………………………………………………………………………

    …………………………………………………………………………………………..

5. What is the need of a motherboard in a computer? List some major components of a motherboard.

    ……………………………………………………………………………………………

    ……………………………………………………………………………………………

    …………………………………………………………………………………………..

5.4   SOFTWARE COMPONENTS

In this unit so far we have explored about the hardware components of a PC. Now let us learn about the software component. Without which a PC can not work, no matter how good processor, memory etc you have in your PC.

To solve a given problem, we write various programs in different programming languages. Programs are nothing but a set of instructions written in a programming language to solve a problem. These computer programs are collectively known as Software. Software is an integral component of a computer system.   It is the software which directs a computer to do a specific task. Software can be broadly categorized as system software, application software and utility software.

System Software

System software is set of programs which are used to run the system. System software manages all the other resources of the computer. It controls all the operations of the computer. One important system software requires to work any computer system is Operating System (OS).

Operating system is one of the most important system software. An operating system commonly called OS, is system software which acts as an interface between a user and computer hardware. It also acts as a bridge between application programs and the computer hardware. Operating system is must in order to operate a computer. Without operating system computer is of no use. A OS controls and manages all the hardware components of a computer as well as it also controls input and output, memory and files. In other word a OS can be seen as a manager of the system. It optimizes and utilizes various kinds of resources like I/O devices, Memory, CPU etc. Microsoft Windows, UNIX, LINUX, OS/360, OS/2 etc are some of the examples of an Operating system.

Now let us discuss about some of the commonly used application software and utility software in a PC. You will learn in more details about different types of software in Unit 1 of Block 2 of this course.

5.4.1 Application Software

Application software is the set of programs necessary to carry out operations for a specified application. These are programs written by programmers to enable computer to perform a specific task such as inventory control, accounting, railway reservation, billing or any such type of applications in real life. These software are user-oriented applications..

Application software enables a non-computing background people to carry out various computer related tasks more effectively and efficiently on a PC

Media Player

It is one of the other common examples of application software. It is an application which is used to play multimedia files. Most of the media players can play both audio and video files. Media library is a common part of almost all media players which contains available songs. It is generally used to watch movies and listen to music on the computer. Some media players also have the capability of ripping and burning an audio CD. With the help of ripping option you can convert an audio track to a digital audio file you can also burn a CD which will convert a digital audio file to an audio track.

There are many audio file format , which are used to store digital audio data on a computer. Some audio file farmats are - .mp2,.mp3, .wma, .wav etc. Similarly, .mpg, .mov, . rm, .wmv etc. are some commonly used video file format. Windows media player, Winamp, iTunes, WinDVD, Real Player, GOM media player are some examples of media player. Windows media player is in-built with windows operating system.
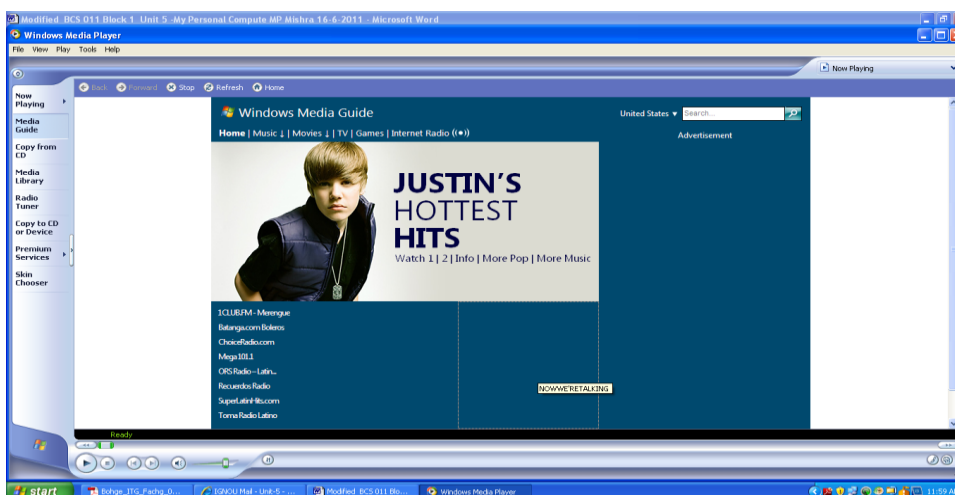

Figure 5.8: Windows Media Player

Calculator

It is application software provided by windows operating system. It is an application which is used to perform simple mathematical operations which can be performed by a normal digital calculator..
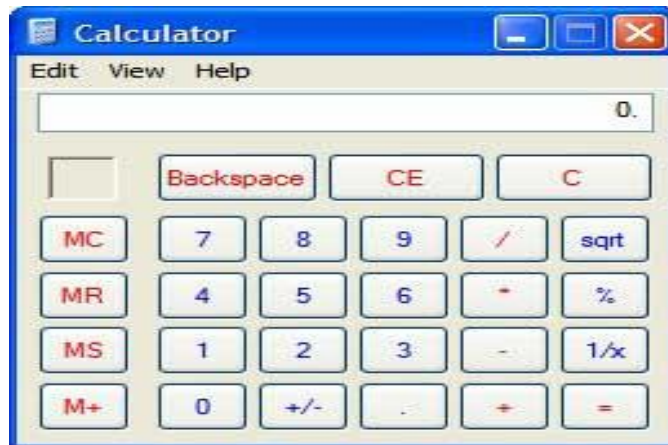

Figure 5.9 : Calculator

Below is list of some categories of application software, which are used by a common PC user:

- Word Processor
- Spreadsheet
- Presentation software
- Graphics software
- Computer games/Entertainment software
- Accounting software

5.4.2 Utility Software

Utility programs are also known as utilities. Utilities help out a user for system maintenance and performing routine tasks. It basically deals to optimize, manage, configure and analyze the computer system. Generally utilities are included with the operating systems. While application software are user and application oriented utilities software focuses on system infrastructure. These utilities are specialized programs capable of doing a particular type of tasks. Some of the common tasks of utility software are:

- Formatting of drives
- Scanning system for viruses
- Checking the free space available in a memory
- Checking the free space available in hard disk
- Searching files
- Taking backup of files

Utilities help out a user for system maintenance and performing routine tasks. It basically deals to optimize, manage, configure and analyze the computer system

The utilities software can be categorized in following types:

- Disk Checkers
- System restore
- Disk Defragmenters
- Disk Management
- Backup
- Anti-virus
- Disk cleaners
- Network utilities
- Data compression etc.

Now we will briefly explore some of the utility software and their functions. We have used Windows XP operating system in executing the steps involved in utilities software mentioned in this section.

Disk Checkers : Disk Checkers are used to check the integrity of the hard disk and Pen Drive/ Flash Drive. CHKDSK is a command which is used for this purpose. This command can be used on a computer running Windows operating system. It fixes the logical file system errors found in the disk/drive. It is a command line tools which is used to check the volumes for any potential errors. This command can be used to repair the problems related to bad sectors, lost clusters, directory errors etc.

How to use CHKDSK Command : You can run CHKDSK command from either My computer or windows explorer and from command prompt.

Running CHKDSK from My Computer :

- Double-click **my computer** and then right-click the disk drive you want to check.
- Click **properties** there and then click **Tools**.
  - Under **Error-checking**, click **Check Now** button. It will open a dialog-box which shows **Check disk options**.

Depending upon your preference use one of the following options:

- To run CHKDSK in read-only mode, click **Start**.
- Select the **Automatically fix file system errors** check box, and then click **Start**. It will repair errors without scanning the volume for bad sectors.
- To repair errors, locate bad sectors, and recover readable information, select the **Scan for and attempt recovery of bad sectors** check box, and then click **Start**.
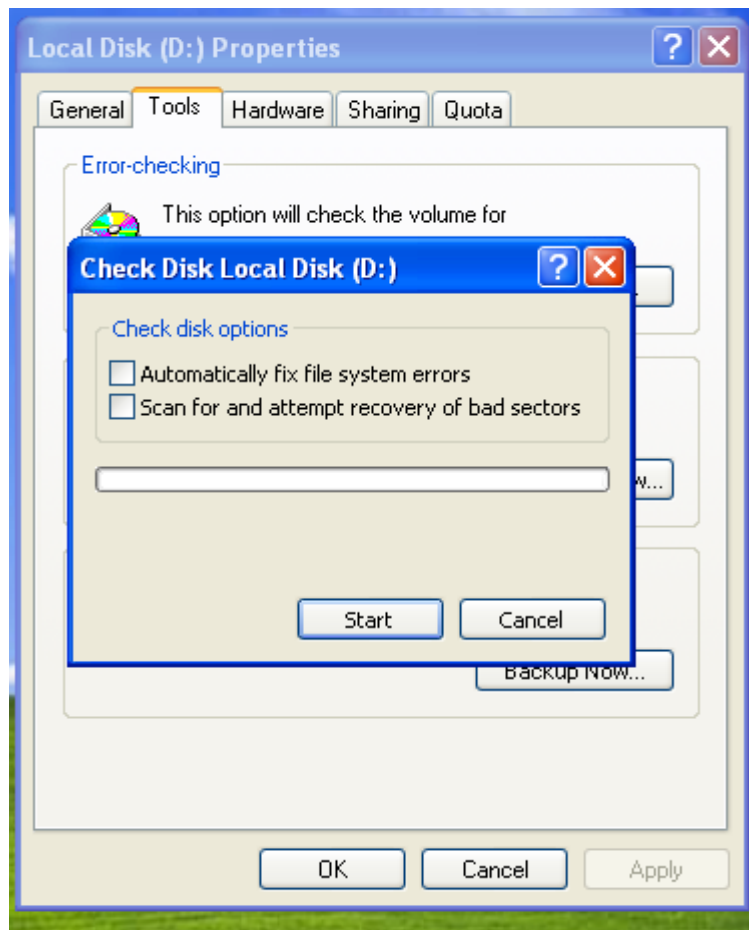
Figure 5.10: Execution of CHKDSK Command from My Computer

Running CHKDSK from Command Prompt:

- Click **Start** and then click **Run**.
- In **Open** type **cmd** and then press enter key, then use one of the following options:
  - If you want to run CHKDSK in read-only mode, type CHKDSK at command prompt and press enter.
  - If you want to repairs the error without scanning the volumes for bad sectors, type **CHKDSK volume:/f** at command prompt and press enter.
  - If you want to repair errors, locate bad sectors, and recover readable information, type **chkdsk** *volume:*/**r** at command prompt and then press ENTER.
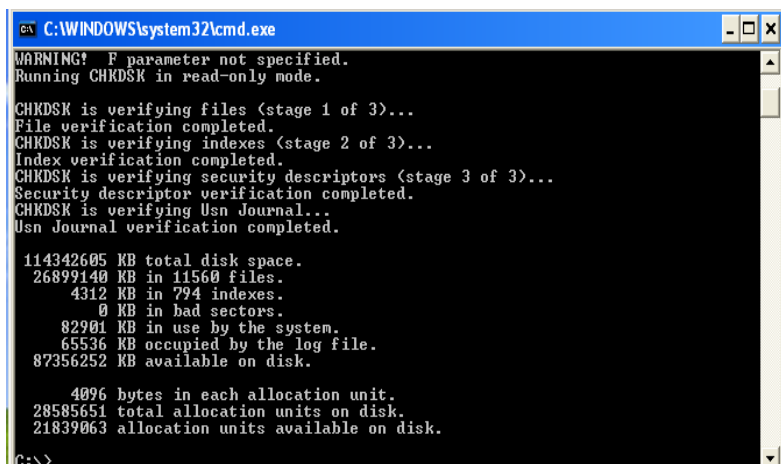

Figure 5.11: Execution of CHKDSK Command on Command Prompt

Once CHKDSK finishes the checking, it returns exit codes whose description is as below:

Exit Code	Description
0	No Errors found
1	Errors found and corrected
2	Disk cleanup was performed or disk cleanup was not performed because **/f** was not specified
3	Could not check the disk, errors could not be corrected or errors were not corrected because **/f** was not specified.

System Restore

System restore roll backs system files, registry keys etc in case of system malfunction or failure, for later use. System restore is a facility available with modern windows operating system like Windows XP, Windows vista, Windows ME, Windows 7. System restore backs up system files such as .dll, .exe etc and saves it for later use. System restore helps us to restore computer's system files to an earlier state. Sometimes it happens that while installing a program or during use of any other software in the computer, there may some problem occurs and the system starts malfunctioning. One way to get rid of such type of problem is to re-install the software or drivers. But if uninstalling the software doesn't fix the problem then we can restore the computer to an earlier date when the system was working properly. Restore points are used for this purpose which contains information related to registry settings and system information.

It is important to note that the system restore is not able to take back ups of personal files such as images, e-mails, documents etc. so if these personal files got accidentally deleted or lost it cant be restored using system restore. So it's a better practice to take back ups of your personal file regularly.

> It is important to note that the system restore is not able to take back ups of personal files such as images, e-mails, documents etc.

Steps to use System Restore

Follow these steps to perform restore on your PC:

1. Click on **Start button**, select **All Programs**, from there choose **Accessories**, click on **System Tools**, and then click **System Restore**. System Restore starts.
2. On the **Welcome to System Restore** page, click **Restore my computer to an earlier time** (if it is not already selected), and then click **Next**.
3. On the **Select a Restore Point** page, click the most recent system restore point in the **On this list, click a restore point** list, and then click **Next**.
4. On the **Confirm Restore Point Selection** page, click **Next**. System Restore restores the previous Windows XP configuration, and then restarts the computer.
5. Log on to the computer as Administrator. The System Restore **Restoration Complete** page is displayed.
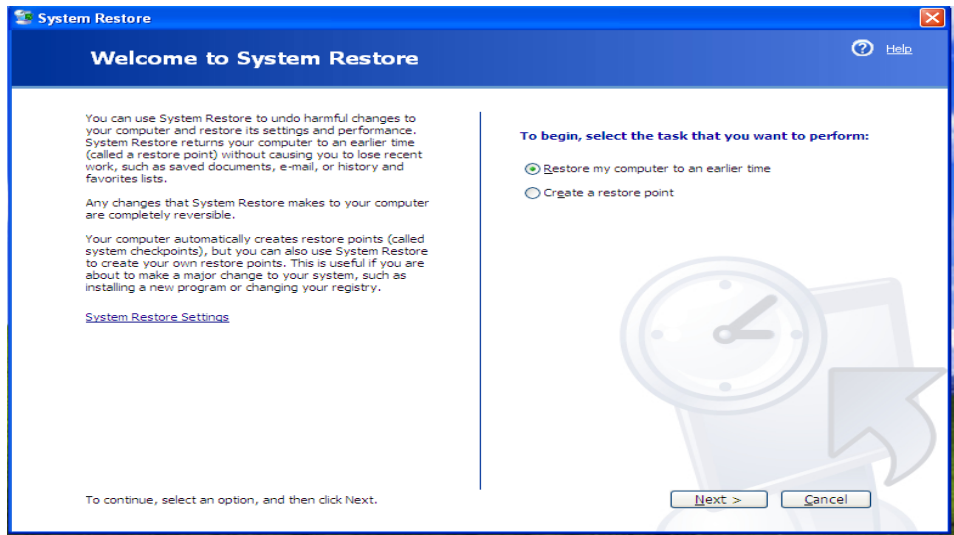6. Click **OK**.

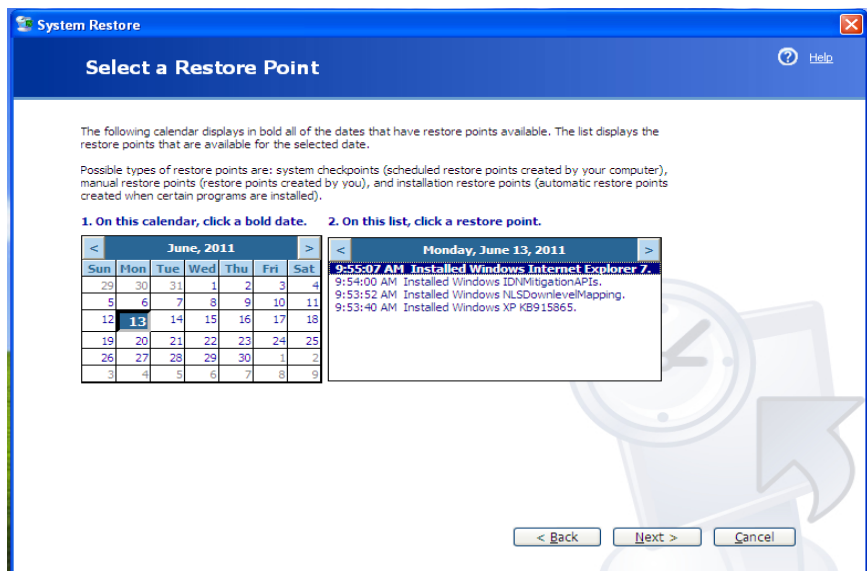**Figure 5.12: Step 1 of System Restore**
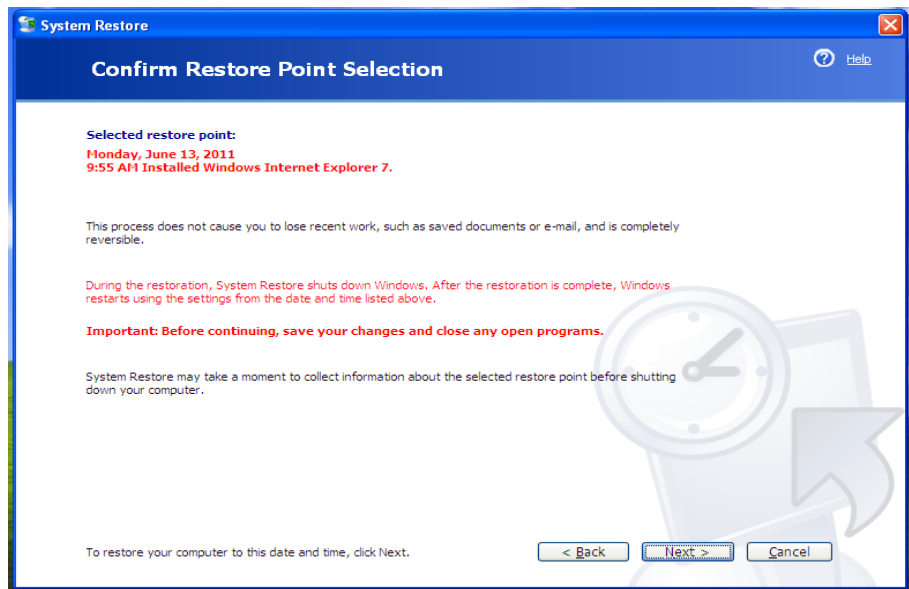

Figure 5.13: Step 2 of System Restore

Figure 5.14: Step 3 of System Restore

Disk Defragmenter

Disk defragmenter is a utility provided with windows operating system. It re-arranges the files stored on the disk so that it can occupy contiguous memory locations. This process is known as defragmentation. The main benefits of defragmentation are that it minimizes the head movements of the hard disk , in turn which reduces the time taken to read files from and write files to the disk. It increases the access speed. With this process files are stored in contiguous locations. The defragmenter reduces the fragmentation in the file systems. Fragmentation of the memory slows the performance of the system. Large number of files and some larger files contribute to fragmentation. When files are stored neatly it speeds up reading and writing to the disks. One should run defragmenter in the PC at regular intervals. It keeps the computer running quickly and efficiently.

Running Defragmenter

- Click **Start button**, select **All Programs**, click on **Accessories** click **System Tools**, and then click **Disk Defragmenter**.
- In the **Disk Defragmenter** dialog box, click the drives that you want to defragment and then click the **Analyze** button. After the disk is analyzed, a dialog box appears, letting you know whether you should defragment the analyzed drives.
- To defragment the selected drive or drives, click the **Defragment** button.
- After the defragmentation is complete, Disk Defragmenter displays the results.
- If you want to view the detailed report about the defragmented disk, click on **View Report.**
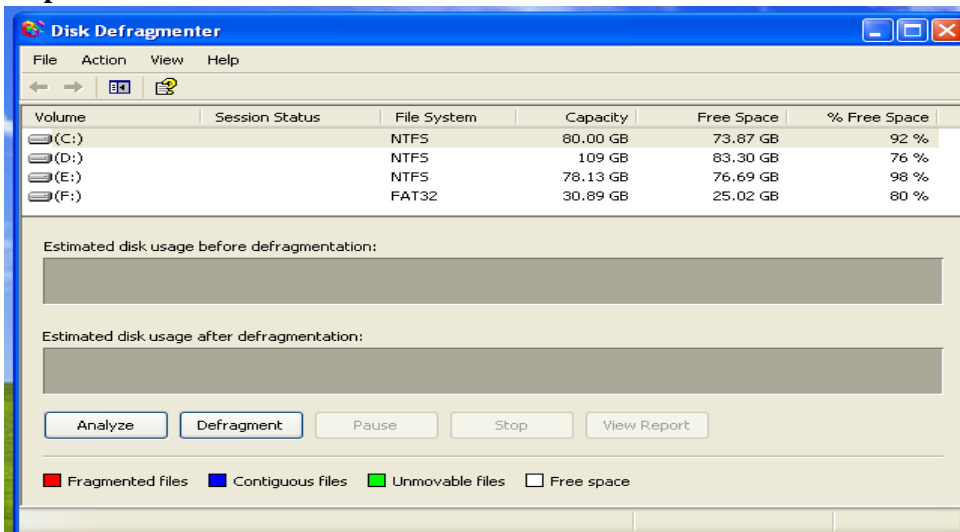

Figure 5.15: Disk Defragmenter

Data Compression

Data compression is the process in which information is encoded with lesser bits in compare to the original representation. Data compression is very useful, as it reduces the size of the file so it consumes fewer resources like disk space. For this purpose, you can use **zip/unzip** utility.

Zipping a file creates the compressed version of the file which takes much smaller space then the original file. A zipped file has .zip file extension. Some of the advantages of

zipping a file includes less storage space, smaller file reduces transmission time on the network, also some zip utilities also have the facility to encrypt the data for security purposes. For example, if a original word document is of 6.5 MB in size it may reduce to 2.5 MB when zipped. Text files are generally reduced more than the graphics file after compression. Similarly after zipping a file you need to unzip it, in order to view its contents or get it into its original form.

Using Zip

- **Right- click** on any file you want to zip
- Click **WinZip** from the shortcut menu
- Click **add to zip file**
- It will create **.zip file**

Using unzip

- **Right- click** on any .zip file you want to unzip
- Click **Extract** from the shortcut menu.

Disk Management

Disk Management is a tool used to manage system disks and their partitions locally or remotely. With disk management utility we can perform most disk related tasks such as initialization of disks, creation of volumes, formatting volumes, etc. it allows one to create fault-tolerant disk systems. Disk management is easy to use and its user interface and wizards allow us to carry out various disk related functions very efficiently. You can also manage remote computers using disk management.

We can also use command line tool **Disk Part** as an alternative to disk management for disk related tasks. You can also display disks and volumes in graphical or list view. Before deleting or creating a new partition it is best practice to keep back ups of data from the disk as it will destroy the existing data.

How to open Disk Management

- Click **My Computer,** and then open **Control Panel**. Click **Administrative Tools**, and then double-click **Computer Management**.

- In the console tree, click **Storage** and then click **Disk Management**.

You can also open Disk Management in following way :

1. Click **Start**, then click **Run**, type **compmgmt.msc**, and then click **OK**.
2. In the console tree, click **Disk Management**. The Disk Management window appears.
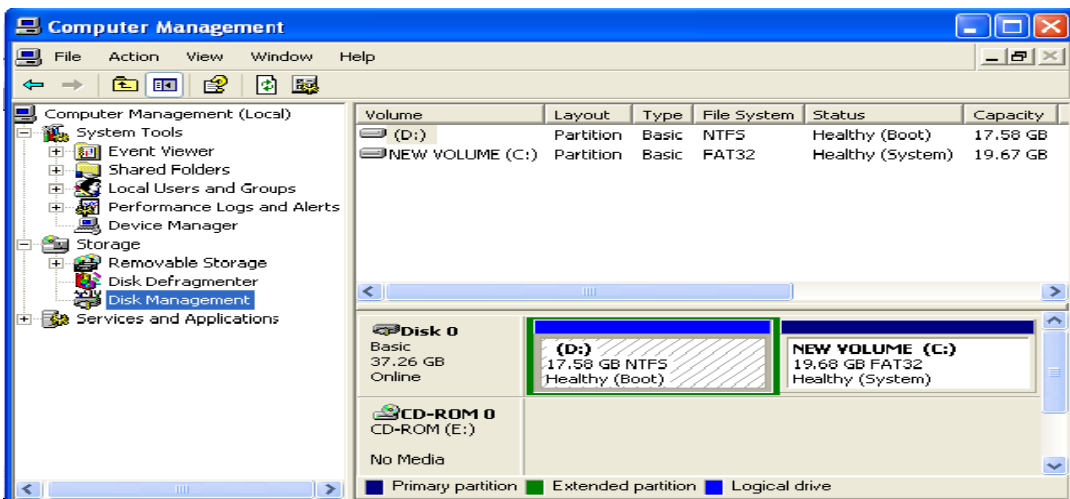
Figure 5.16: Computer Management Window

In Disk Management window, the upper section displays lists of all the partitions in the disk, and the bottom section contains the graphical representation of the drives in the computer.

Check Your Progress-2

1. **True/False**

   (a) Formatting a volume of a memory disk will erase all the data on that volume.

   (b) Zipped file have .zp file extension.

   (c) Disk defragmenter helps the files to store in contiguous locations.

   (d) System restore can be used to take up back-ups of personal files.

2. **Fill in the Blanks :**

   (a) You can use command line tool **…………** as an alternative to disk management for disk related tasks.

   (b) For data compression you can use …………….. utility.

   (c) …………. utility helps us to restore computer's system files to an earlier state. System Restore

   (d) ………….. is a command used for disk checking.

3. What is an Operating system?

   ………………………………………………………………………………………
   ………………………………………………………………………………………
   ……………………………………………………………………………………….

4. What is utility software? List some utility software used in a PC.

   ………………………………………………………………………………………
   ………………………………………………………………………………………
   ……………………………………………………………………………………….

5. Why System Restore is used? Explain how you will use the System Restore.

   ………………………………………………………………………………………
   ………………………………………………………………………………………
   ……………………………………………………………………………………….

5.5 DESKTOP

In most modern computers, you can see the desktop which is a part of Graphical User Interface (GUI). A desktop is a place which holds icons, files, folders etc. Desktop is a visible image which covers the entire screen. The desktop environment provides GUI to the Personal Computer users. On the desktop you can find several small images called as icons. These Icons may also be found on the toolbars and in the menus of computer application software such as Microsoft Word, Microsoft Excel etc . Icons are more user-friendly compare to text-based commands.

Desktop is the background area on our computer screen. We can customize our desktop in several ways. We can add background picture, background color etc. on a desktop. Icons on a desktop are small graphical images which represents various items found on a desktop such as my computer, recycle bin, my documents etc. We can also rename an icon by right-clicking on it.

> A desktop is a place which holds icons, files, folders etc.

Figure 5.17: Desktop

Some of the commonly used items found on a Desktop are:

- My Computer
- My Documents
- Recycle Bin
- Task Bar

5.5.1 My Computer

This icon displays the main components of your computer. You can open any of the items in this window to further examine the components of your computer by clicking on my computer icon. It displays different drives/disks attached with the computer.

5.5.2 My Documents

It is the default space where all the files are stored unless we specifically instruct the computer to save at a specified location. It is a special folder where the system stores user's files, pictures, music, download etc.

5.5.3 Recycle Bin

In Windows Operating System, Recycle Bin is a temporary folder which holds files and folders before it is permanently deleted from the storage devices. The Recycle Bin only stores, files deleted from hard drives, not from removable media, such as memory cards and pen drive/ flash drives. It also doesn't store files deleted from network drives. We can also restore the files from the recycle bin to its original location.

It is also possible that you can bypass the recycle bin and the files deleted will be directly removed from the computer without moving it to the recycle bin. For this you keep holding the SHIFT key and delete the desired files.

Sometimes it might happen that we need to restore the files which has been deleted accidentally. You can restore the deleted files from recycle bin. For this follow these steps :

- Double click the icon of recycle bin on your desktop
- Choose a file which you want to restore back and right-click on it and then click **restore**
- To restore all the files in the recycle bin click on **restore all items.**

5.5.4 Taskbar

The taskbar is the long horizontal bar at the bottom of your screen. It is used to launch and monitor running applications. It has four main sections:

- The Start button which opens the start menu.
- The quick launch toolbar which allows you to open programs with a single click.
- The middle section allows you to see the documents and programs which you have opened and to switch between them.
- The notification area, which includes a clock and icons which shows the status of certain programs and computer settings.

5.6   INTERNET ON A PC

Internet is the backbone of modern communication system. In today's life, we are dependent on the internet for almost everything from information collection to carry out various activities such as reservation, online shopping and education. Internet is a collection of computers world over connected together to share various resources.

There are various ways to connect an internet. Generally dial-up connection and broadband connection are the two types of internet connections which are used commonly.

5.6.1 Dial-up Internet Connection

It is a way to connect to the internet in which public switched telephone network (PSTN) is used to make a Internet connection via telephone lines to an internet service provider (ISP). In dial-up connection telephone network is of prime importance. Since dial-up connection requires telephone lines which have limited capacity. Its transmission speed is limited and it is slow. Generally dialup operate at speeds of 14.4Kbit, 28.8Kbit, or 56Kbit. Dialup speeds vary by the quality of the phone line and the many different user configurations. A MODEM is required for dial-up internet connection. MODEM is short form of modulator-demodulator. A modem is a hardware device or a software application program that is used in a computer to transmit data/ information over a network such as a telephone or cable lines. In computer information is stored in digital form whereas information transmitted over telephone lines is transmitted in the form of analog signal. A modem is used to convert between these two forms of analog to digital and vice versa. Now-a-days, dial-up connections are gradually being replaced by Broadband connections.
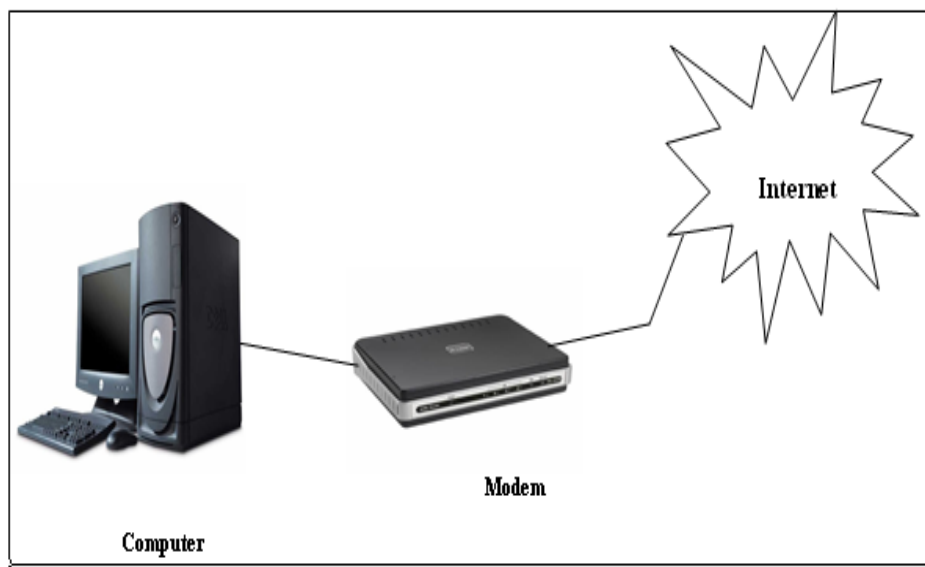

Figure 5.18 : Dial-Up Connection

5.6.2 Broadband Internet Connection

Broadband Connection is a high data rate connection as compared to dial-up connection. Broadband has very high rate of data transmission. In contrast to dialup connection, it is a permanent connection, which can be set up over a high-speed communication links. Generally, an internet connection of 256 kbps (kilo byte per second) or more is considered as broadband Internet connection. Multimedia applications such as video and computer games, can be downloaded very quickly and easily with broadband connection which was not possible, as fast in dial-up connection.

Webcasting is nothing but broadcasting on the internet. This facility is possible only due to high speed internet connection such as broadband connection. When we distribute same media files over the internet to different users using streaming media technology, it is called as webcast. Now-a-days, online web media is a great source of information and it is being successfully used in different sectors such as education, entertainment, technology etc. Online education is one of the most important field which is using this facility. You can find several webcast academic classes on the internet by experts. Even you can find the web lecturers on web link: http://www.ignouonline.ac.in/Broadcast/

Figure 5.19: Webcasting of EDUSAT lectures

5.6.3 Proxy Server

Proxy server is used in a computer network. Proxy server is a server which acts as an intermediary between the client application and the Web server. Proxy server is used to improve performance and for filtering purposes. In an organization, proxy server can be used to prevent its employee to access certain types of website. It provides security and check to the overall system. It can also improve the performance of the network. Suppose two users access the web through proxy server. If user X requests a webpage, say page 1. Sometime later if user Y requests the same page then this request will not forwarded to the web server. Proxy server simply returns the same page which it has access for user X, thus saving lot of time.
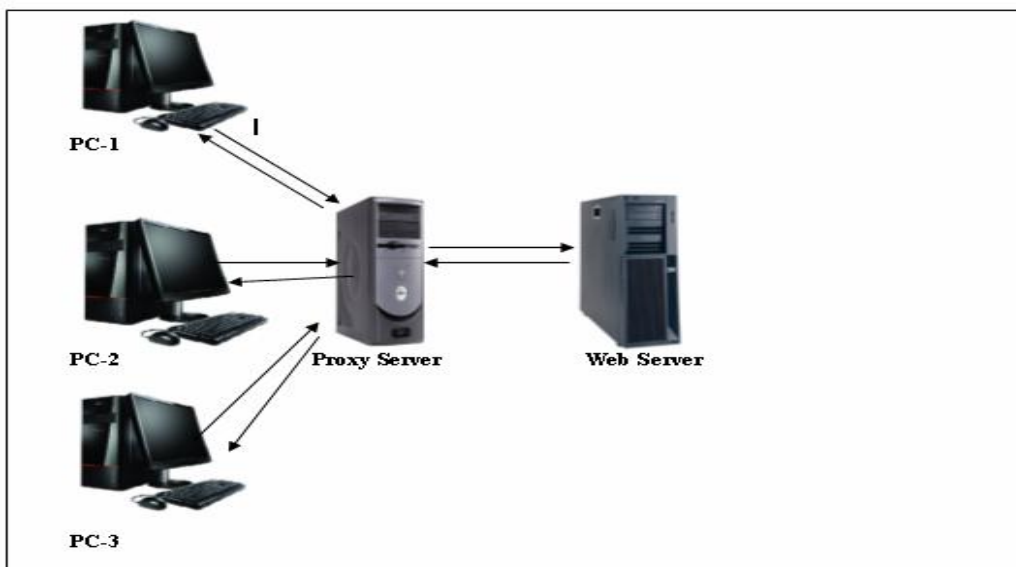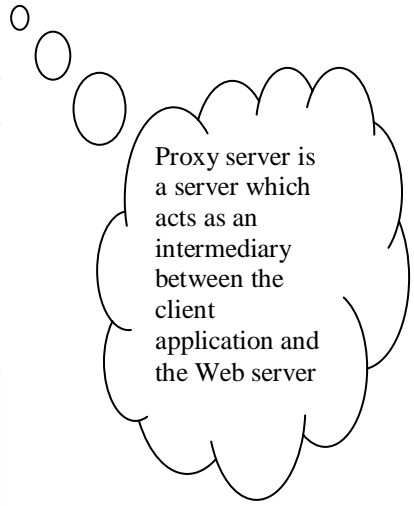
Proxy server is a server which acts as an intermediary between the client application and the Web server

Figure 5.20 : Proxy Server

127

You may configure Internet Explorer to use a proxy over a LAN connection on your PC. To configure **Internet Explorer 6.0 on your PC, follow the following steps:**

1. On the **Tools** menu in Internet Explorer, you click **Internet Options**, click the **Connections** tab, and then click **LAN Settings**.

2. Under **Proxy server**, click to select the **Use a proxy server for your LAN** chec box.

   In the **Address** box, type the IP address of the proxy server.

3. In the **Port** box, type the port number that is used by the proxy server for client connections. The port number by default is 8080.

4. You can click to select the **Bypass proxy server for local addresses** check box if you do not want the proxy server computer to be used when you connect to a computer on the local network (this may speed up performance).

5. Click **OK** to close the **LAN Settings** dialog box.

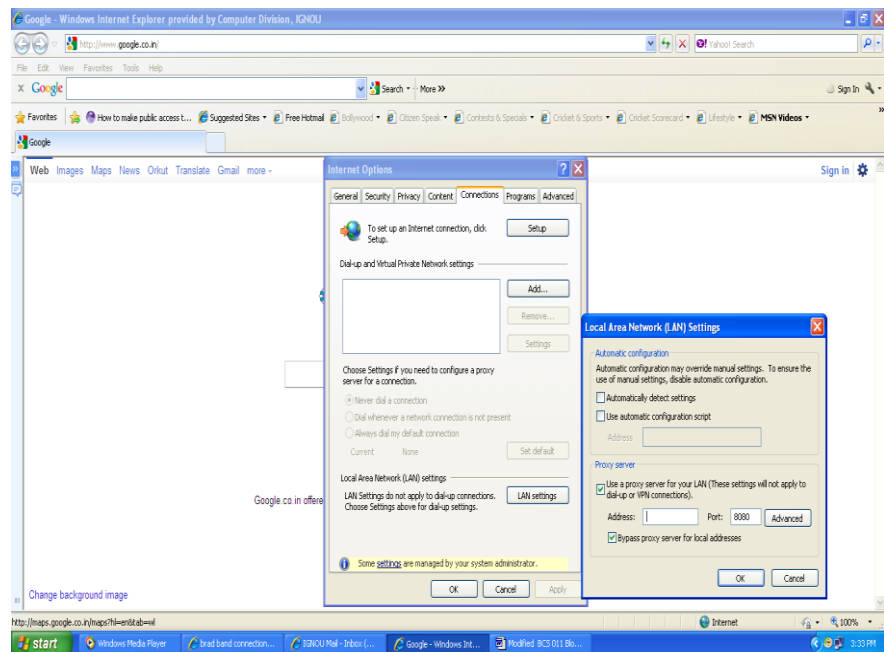6. Click **OK** again to close the **Internet Options** dialog box.

Figure 5.21: Proxy Server Setting

You will learn in more details about computer networks and Internet in **Block 3** of this course.

Check Your Progress-3

1. **True/False**

   (a) A Desktop is a storage area for software and programs.

   (b) Recycle bin is the default space where all the files are stored unless we specifically instruct the computer to save at a specified location.

   (c) Direct connection and dial-up connection are two main methods to connect to Internet.

   (d) For dial up connection to the Internet, you need to have an account on an ISP.

2. **Fill in blanks**

    (i)   …………… is a temporary folder which holds files and folders before it is permanently deleted from the storage devices. Recycle bin

    (ii)   The most common desktop environment on Personal Computer is ……………

    (iii)   A ………….. is an area which holds windows, menus, icons etc. desktop

3. What is desktop on a computer? What are different items found on desktop?

………………………………………………………………………………………
………………………………………………………………………………………
………………………………………………………………………………………

4. What are the different methods for accessing the internet? Explain methods.

………………………………………………………………………………………
………………………………………………………………………………………

5.7   SUMMARY

A personal computer (PC) is a general-purpose computer, used for day to day activities in different areas including education, business, administration and health. Now-a-days PC has become vital part of the life of a person. In this unit we have focused on the practical aspects of a PC. We have discussed about various types of personal computer such as Desktop Computer, Laptop, Work Station, Netbook, Tablet PC etc. We have also discussed about the configuration of these computers. Configuration is basically the technical specifications/details about a computer. As we know hardware is essential part of a computer. Different hardware components such as monitors, CPU, Mouse, Key board etc. are combined together to form a PC. We have studied about some of the hardware components such as computer cases, central processing unit(CPU), motherboard, video card in this unit. Apart from hardware components software is also very important to operate a computer. Software plays major role in a computer. Without software computer is of no use. Software can be broadly classified as System software, Application software and Utilities. In this unit we have mainly focused on Application software and Utility software. Desktop is the place on a computer screen which holds icons, images, files, folders etc. we have also briefly mentioned about My Computer, My Documents, Recycle Bin and Taskbar on the desktop of a computer. Finally this unit provides knowledge and details about Internet and different types of Internet connections.

5.8   ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress-1

1. **True/ False**
    (a) True   (b) True   (c) False   (d) True   (e) True

Multiple choice Questions
2. (a) Light pen   (b) All of these   (c) Operating system

3. PC stands for personal computer. It is a general purpose computer which is used for personal use. It is mostly suited for a single user and we can perform day-to-day activities in areas such as education, office, business etc. It is used for computational, word processing, and data storage purpose among others.

Types of PC

Desktop computer, Laptop Computer, Netbook, PC Tablet etc are different types of a PC.

4. Although both laptop and desktop computers are personal computers but the main characteristics which separates both is their portability feature. A laptop is a portable device which can be used anywhere by the user whereas a desktop is not a portable device. It has to be fixed as a given location and can be operated there. Also their looks and sizes make them different from each other.

Configuration of a Laptop

Processor: Intel Core™ i5-2410M
Memory: 4GB DDR3 1333MHz memory
Hard Disk: 640GB HDD (5400rpm)

5. Motherboard holds some of the most important components of the computer system. It acts as a base for these components. It is also known as system board, main board etc.In a typical computer microprocessor, main memory and other components are connected to the motherboard. Motherboard also provides connectors for several other devices.

Some major components of a motherboard are:

i)   ATX Power Connector

ii) AGP Slot

iii) CD-in header

iv) PCI Slots

v)   USB Headers

Check Your Progress-2

1. **True/ False**

   (a) True   (b) False   (c) True   (d) False

2. **Fill in the Blank**

   (b) DiskPart   (b) Zip   (c) System Restore   (d) CHKDSK

3. Operating system is an example of system software. It acts as an interface between user and hardware of a computer. Operating system is must in order to operate a computer. OS controls and manages all the hardware components of a computer as well as it also controls input and output, memory and files. It optimizes and utilizes various kinds of resources like I/O devices, Memory, CPU etc.

4. Utility software is basically a set of programs that helps user to perform routine system task and maintenance such as taking back ups of data, checking disks for potential errors, disk management etc. It basically deals to optimize, manage, configure and analyze the computer system. Generally utilities are included with the operating systems. Generally Utility programs play supporting roles and it is small programs for specific tasks.

Examples of Utility Software:

- System Restore

- Disk Defragmenter

- Data Compression

- Disk Management

- File compare

5. System restore is used to undo changes to the computer and it restores its settings and performance. System restore helps us to restore computer's system files to an earlier state. System restore backs up system files such as .dll, .exe etc and saves it for later use. System restore creates restore point for this purpose.

To use System Restore follow these steps:

1. Click on **Start button**, select **All Programs**, from there choose **Accessories**, click on **System Tools**, and then click **System Restore**. System Restore starts.

2. On the **Welcome to System Restore** page, click **Restore my computer to an earlier time** (if it is not already selected), and then click **Next**.

3. On the **Select a Restore Point** page, click the most recent system restore point in the **On this list, click a restore point** list, and then click **Next**.

4. On the **Confirm Restore Point Selection** page, click **Next**, System Restore restores the previous Windows XP configuration, and then restarts the computer.

5. Log on to the computer as Administrator. The System Restore **Restoration Complete** page is displayed.

6. Click **OK**.

Check Your Progress-3

1. **True/ False**

     (a) False   (b) False   (c)True   (d) True

2. **Fill in the Blank**

     (b) Recycle Bin   (b) Microsoft Windows interface   (c) Desktop

3. Desktop is a place on our computer which holds icons, folders, files etc. it is the background area on our computer screen. We can also customize our desktop in different ways like we can add background picture, background colors etc. When we start our computer desktop is the first thing which comes in front of us.

Some of the items found on the Desktop are:

- My Computer
- My Documents
- Recycle Bin
- Task Bar

4. The two primary methods of accessing the Internet are through a direct connection and dial-up connections through a modem and phone line. Direct connection is an ISDN (Integrated services digital network) line, a fiber optical line etc. Direction internet connection is faster than dial-up connection. It is a permanent connection, which can be set up over a high-speed communication line. This is normally used in organizations and corporate, using cable modem (used for cable Internet) and DSL connect to the Internet.

In Dial-Up connection, telephone lines are used to establish a connection to the internet service providers (ISP). Dial-up internet service is provided through a number of ISPs. A Modem is required for dial-up internet connection.

5.9 FURTHER READINGS

P. K. Sinha , *Computer Fundamental* (BPB publication)

Weblinks:

- http://support.microsoft.com ,
- www.wikipedia.org,
- www.sciencedaily.com,
- http://depts.alverno.edu/cil/mod1/software/system.html,
- http://www.techiwarehouse.com/cat/13/Motherboard.