

Software

By completing this module, you will be able to understand and learn the following:

- **What is software & types of Softwares**
- **Copy right and open source**
- **Commercial, Public domain, freeware & share ware Softwares**
- **System Software & operating System software**
- **Programming languages**
- **General purpose Application Softwares**
- **Working with Windows**

Software refers to parts of the computer which do not have a material form. Software is a set of programs, data, protocols, etc.

Computer software provides instructions that tell the computer how to operate.

- Softwares are also called programs
- Programs are usually created using other Softwares called programming languages

There are two main types of software. They are System software and Application software

- **System Software**
 - Used by the computer to accomplish a task
 - System software
 - controls the internal function of the computer
 - controls other devices connected to the CPU
- **Application Software**
 - Used by people to accomplish a specific task
 - Some common kinds of application software - Word Processor software, Database software, Spreadsheet software, Games, Web Page Browsers

Copyright and Open Source

i. Copyright – symbolized "©"

Copyright is a legal concept enacted by most national governments, that gives the creator of an original work exclusive rights to it, usually for a limited period of time.

It is literally "the right to copy", but also gives the copyright holder the right to be credited for the work, to determine who (if anyone) may adapt the work to other forms, to determine who may perform the work, to benefit financially from the work, and other related rights. It is one form of intellectual property (distinct from patents, trademarks, and trade secrets), and applies to any particular expression of an idea or information, which is substantial and self-contained in a fixed form



- Copyright is generally enforced by the creator as a civil matter, though some jurisdictions also apply criminal sanctions
- Copyright may apply to a wide range of creative, intellectual, or artistic forms, or "works". Specifics vary by jurisdiction, but these can include poems, theses, plays, other literary works, movies, dances, musical compositions, audio recordings, paintings, drawings, sculptures, photographs, software, radio and television broadcasts, and industrial designs

ii. Open source software

Open Source software has two properties:

- (a) the "source code" (the programs themselves) is freely distributed, and
- (b) it is generally illegal to convert this into a proprietary version.

When the source code of a program is available (e.g. the C or C++ files which make up the program), the consequences that follow are

- Anyone can read the source code and learn the technology
- Anyone can contribute by improving the code -- adding new features, correcting errors, etc.
- Hidden trapdoors cannot be introduced
- The waste of resources involved in reinventing the wheel is avoided. This brings down the cost of development.

Open source sounds idealistic and impractical to many. However, it has succeeded in building some of the best software in the world. Today, open source programs such as Apache (web server), Linux (operating system), Netscape (web browser), and send mail (mail transport) are the dominant products in their categories with over 10 million copies in use for each. This demonstrates that open source is a viable strategy for obtaining high quality, high volume solutions to complex problems.

Categories of Software

➤ **Commercial Software**

- The software is to be bought before using it and is copyrighted
- It is allowed to make one copy of the software as a backup copy.
 - A backup copy is used in case something goes wrong with the original software
 - The backup copy cannot be shared or sold
- It is not possible to copy, look at the program's code, change, or use the software in another program without the copyright holder's permission

➤ **Public Domain Software**

- Has no copyright and is free for use
- It can be copied, used in other programs, or changed by anyone

➤ **Freeware**

- Has a copyright - someone owns the right to determine who can make copies of the software
- Its free for use but it is possible to give away only exact copies of the software
- Cannot be changed or used in another program without the copyright holder's permission

➤ **Shareware**

- Has a copyright
- Allowed to use the software before paying for it
 - A demo of the software - which limits some major features
 - Software could be used for free for a certain period of time
- Can only give away exact copies of the software
- Cannot be changed or used in another program without the copyright holder's permission.

System Software

The **operating system** and **utility programs** are the two major categories of **system software**. Just as the processor is the important part of the computer system, the **operating system is the core of all software activity**.

Operating system (Kernel):

The operating system is the core software component of computer. It performs many functions and is, in very basic terms, an interface between computer and the outside world. A computer is described as consisting of several component parts including your monitor, keyboard, mouse, and other parts. Operating systems are responsible for everything from the control and allocation of memory to recognizing input from external devices and transmitting output to computer displays. They also manage files on computer hard drives and control peripherals, like printers and scanners. The operating system provides an interface to these parts using what is referred to as "drivers". This is why sometimes when you install a new printer or other piece of hardware, your system will ask you to install more software called a driver.

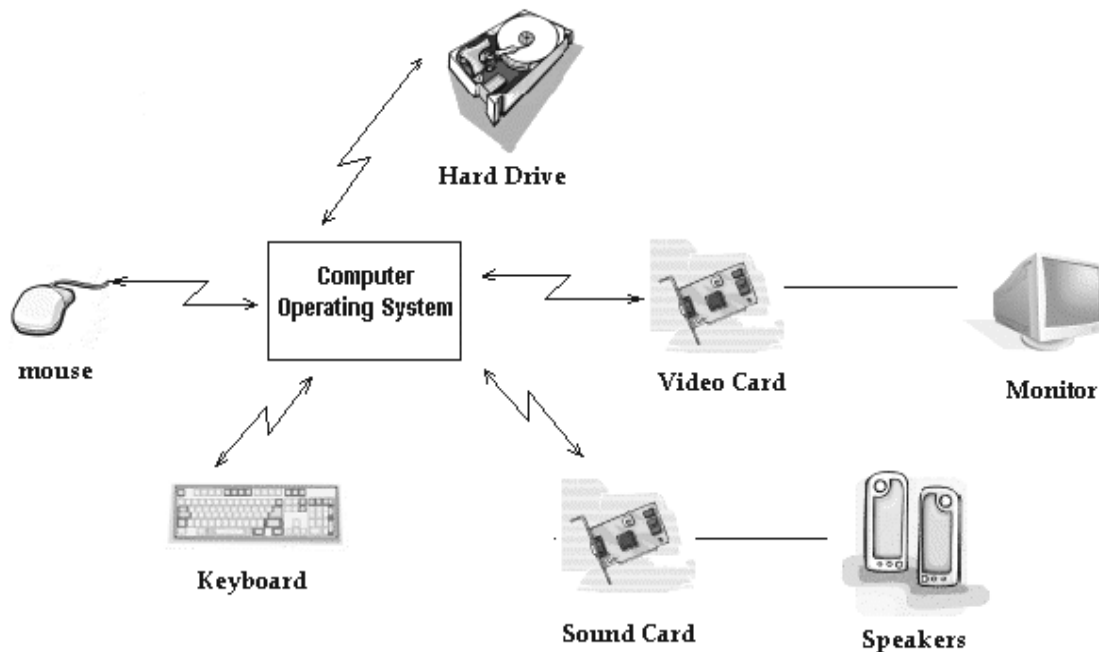
Operating systems perform basic tasks, such as

- recognizing input from the keyboard
- sending output to the display screen
- keeping track of files and directories on the disk
- Controlling peripheral devices such as disk drives and printers

It is the **first program loaded into memory** when the computer is turned on and, in a sense, **brings life to the computer hardware**. Without it, you cannot use your word processing software, spreadsheet software, or any other applications.

Without an operating system, you **cannot communicate** with your computer. When you give the computer a command, the operating system relays the instructions to the 'brain' of the computer, called the microprocessor or CPU. You cannot speak directly to the CPU because it only understands **machine language**. When you are working in an application software program, such as Word processing, commands that you give the application are **sent through the operating system** to the CPU.

Operating System Interfaces



Types of Operating Systems

i. Microsoft suite of operating systems.

They include from most recent to the oldest:

- Windows XP Professional Edition - A version used by many businesses on workstations. It has the ability to become a member of a corporate domain.
- Windows XP Home Edition - A lower cost version of Windows XP which is for home use only and should not be used at a business.
- Windows 2000 - A better version of the Windows NT operating system which works well both at home and as a workstation at a business. It includes technologies which allow hardware to be automatically detected and other enhancements over Windows NT.
- Windows ME - An upgraded version from windows 98
- Windows 98 - This was produced in two main versions.

- Windows NT - A version of Windows made specifically for businesses. It has better control over workstation capabilities to help network administrators.
- Windows 95 - The first version of Windows after the older Windows 3.x versions

ii. UNIX

UNIX is an operating system which was first developed in the 1960s, and has been under constant development ever since. By operating system, we mean the suite of programs which make the computer work. It is a stable, multi-user, multi-tasking system for servers, desktops and laptops.

iii. Linux

Linux is similar to Unix in operation but it is also a open source.

iv. Apple MacIntosh

Most recent versions are based on Unix. It has a good graphical interface and so it is both stable (does not crash often or have as many software problems as other systems may have) and easy to learn. It can only be run on Apple produced hardware.

V. BOSS GNU/Linux, Indian Linux

BOSS (Bharat Operating System Solutions), Indian Version of GNU/Linux, is the result of the efforts initiated by NRCFOSS for promoting the use of Free/Open Source Software in the country, made specifically for the Indian environment, it consists of a pleasing Desktop environment coupled with Indian Languages support and other packages that are most relevant for use in the government domain as well. The ultimate goal is to localise it into all 22 official Indian languages so that Information Technology can reach even the non-english speaking masses who are denied its benefits today.

BOSS provides an Indian version of OpenOffice i.e BharateeyaaOO which is localised into Indian languages and in the future releases there will be a completely localised openoffice into 22 different Indian Languages

Programming Languages

Programming languages provide various ways of specifying programs for computers to run. They are purely written languages and are often difficult to

read aloud. They are generally either translated into machine language by a compiler or an assembler before being run, or translated directly at run time by an interpreter. Sometimes programs are executed by a hybrid method of the two techniques. There are thousands of different programming languages—some intended to be general purpose, others useful only for highly specialized applications.

Commonly used High level languages	BASIC, C, C++, C#, COBOL, Fortran, Java, Lisp, Pascal
Commonly used Scripting languages	Bourne script, JavaScript, Python, Ruby, PHP, Perl

Application Software Programs

Applications are programs that are installed on computers to give users the ability to do specific tasks. For example, Microsoft Word is a program that gives the user the ability to write documents. Some program packages come in a set with multiple programs included to provide multiple capabilities such as the Microsoft Office suite of programs. This suite of programs also includes Microsoft Outlook which is used to send and receive e-mail. It also includes other programs with more capabilities.

Application software programs work with the operating system software to do specific types of work such as word processor to type a letter.

- Application Softwares are used by people to solve general problems. It can be used to do a wide variety of tasks. Some common tasks done by general purpose application software include - planning, Writing, Record keeping, Calculating, Communicating, Drawing, Painting

Examples of general purpose application software

i. Word Processor:

A **word processor** (more formally known as **document preparation system**) is a computer application used for the production (including composition, editing, formatting, and possibly printing) of any sort of printable material.

Word processor may also refer to a stand-alone computer unit similar to a typewriter, but often including technological advancements such as a screen, advanced formatting and printing options, and the ability to save documents onto memory cards or diskettes

Examples : Microsoft Word, OpenOffice.org Writer

Writer is the word processor component of the OpenOffice.org software package. Writer is a word processor similar to Microsoft Word, with a roughly equivalent range of features. Writer is a free software.

ii. Spreadsheet:

A **spreadsheet** is a computer application that displays multiple cells that together make up a grid consisting of rows and columns, each cell containing either alphanumeric text or numeric values. A spreadsheet cell may alternatively contain a formula that defines how the content of that cell is to be calculated from the contents of any other cell (or combination of cells) each time any cell is updated.

Examples : Microsoft Excel (full name **Microsoft Office Excel**) is a spreadsheet application written and distributed by Microsoft for Microsoft Windows and Mac OS X. It features calculation, graphing tools, pivot tables and a macro programming language called VBA (Visual Basic for Applications).

OpenOffice.org Calc is the spreadsheet component of the OpenOffice.org software package. Calc is similar to Microsoft Excel, with a roughly equivalent range of features. Calc is capable of opening and saving spreadsheets in

Microsoft Excel file format. It also provides a system which automatically defines a series for graphing based on the layout of the user's data. Calc is also capable of writing spreadsheets directly as PDF files.

iii. Presentation software:

A **presentation program** is a computer software package used to display information, normally in the form of a slide show. It typically includes three major functions: an editor that allows text to be inserted and formatted, a method for inserting and manipulating graphic images and a slide-show system to display the content.

Examples : Microsoft PowerPoint, OpenOffice.org Impress, Apple's Keynote

Microsoft PowerPoint is a presentation program developed by Microsoft. It is part of the Microsoft Office system.

OpenOffice.org Impress, a part of the OpenOffice.org office suite is developed by Sun Microsystems. In addition to being able to create PDF files from presentations, it is also possible to export presentations to Adobe Flash (SWF) files allowing them to be played on any computer with the Flash player installed

iv. Database:

A computer database is a structured collection of records or data that is stored in a computer system. A database relies upon software to organize the storage of the data and to enable a person or program to extract desired information. The term "database" refers to the collection of related records, and the software should be referred to as the database management system (DBMS); this is sometimes shortened to *database manager* or *database system*.

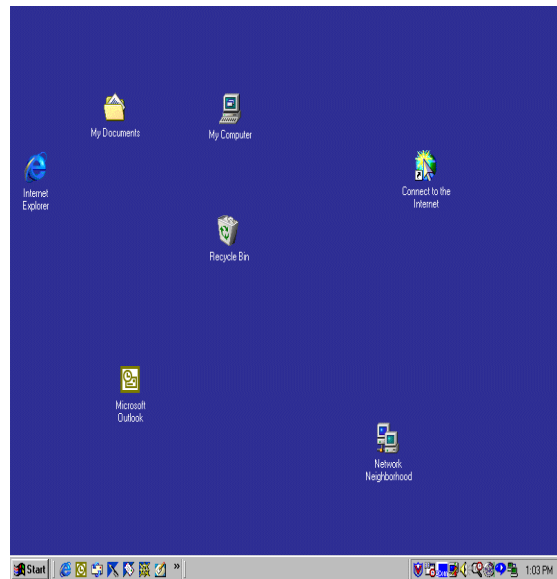
Examples : Oracle, DB2, Microsoft Access, Microsoft SQL Server, Firebird, PostgreSQL, MySQL, SQLite, FileMaker and Sybase.

Working with windows

Introduction to Desktop:

After you have started the computer, the area you are looking at is called the desktop.

From the upper left to the lower left side of the screen, there are small pictures or images called **icons**. Each one is used to make the computer do something. Some of the most regular icons are:



Network
Neighborhood

You use Network Neighborhood to communicate with other computers if yours is part of a network.

My Computer is used to explore the content of your computer and to do other routine things.



My Computer



Recycle Bin

When you delete some things on your computer (folders or files), they go to an area called the Recycle Bin where you still have a chance of recalling (retrieving or restoring) them.

A folder is one of the containers you will be using to store or locate your work



Folder



Displays information and websites on the Internet

Task Bar:



In the bottom section of the screen, there is (or there may be) a long object. It is called the Taskbar.

On the left side of the taskbar, there is an area with the word Start



or . The appearance of this depends on the version of

Windows you are using but it plays the exact same role in any version.

Computer Shut Down

After using the computer, you can exit from it, which is also referred to as shutting down the computer. To safely shut down, on the taskbar, you can click Start -> Turn Off Computer. These steps may be different depending on your operating system.

