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SOFTWARE

A computer system works on instruction given by user. A set of instruction is called as **program** and set of programs is called as **software**. These software are developed to perform specific tasks. So software makes the computer to do work. Software is of two types:

(i) System Software (ii) Application Software

SYSTEM SOFTWARE

The system software is collection of system programs. These software are designed to operate, control the computer. System software are generally developed by computer manufacturers. These software perform a many types of functions. For example: file management, storage management, resource management, I/O management etc. There are many types of system software. These are explained below:

Types of System Software:

System Control Software: These software control the execution of other programs, manage the storage, processing resources and perform other management and monitoring functions. Example of System Control Programs is Operating System.

System Support Software: These software provide routine service functions to other programs. Examples are Utility Programs. The common tasks performed by the utility programs are: Formatting the disk, Backing up of data, Antivirus programs etc.

System Development Software: These software help in the development of programs. Examples are: Language Translator like Interpreters, Compilers and Assemblers etc.

OPERATING SYSTEM:

Operating system is System Software. It is used to operate or control the computer system. It provides the platform to execute user programs. It acts as an interface between the user and the computer hardware. Operating system is also called the resource manager. It manages the many resources of the computer system such as hardware and software. DOS, UNIX, WINDOWS etc. are the example of Operating system. It provides an environment in which a user can execute programs in an easy and efficient way.

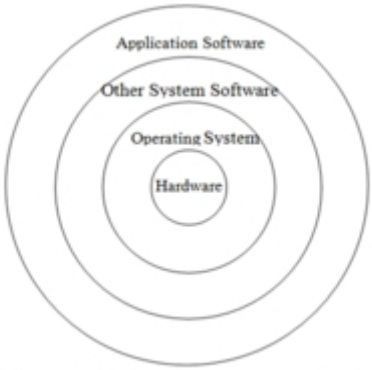

Fig: Relationship between Hardware and Software

Operating system is the first program that gets loader in the main-memory of computer system. This process is called **booting**. Operating system is also known as supervisor, kernel, and resource manager. Operating System manages many hardware resources such as processors, memory, I/O devices, communication devices etc. examples of operating system are: Windows XP, Windows Vista, Windows 7, Windows 8, UNIX, Linux etc. The basic services or functions of operating system are given below:

1. Memory Management
2. Processor Management
3. Device Management
4. File Management

LANUGAGE TRANSLATORS:

A language translator is also known as programming language processor. It is a computer program. It performs the translation of a program written in a programming language into an equivalent program in the target language. We know that computer understands only machine language which consists of 0 and 1only. But most of the computer programs are written using high level and assembly languages. These computer languages are not be directly understood by the computer systems. So, programs written in these languages must be translated into machine language format. Such translations are carried out by the different translators. Such translators are called Language Translators. Commonly used language translators are: Compilers, Interpreters, and Assemblers. These translators are explained below:

Compiler:

Compiler is a language translator. It converts High Level language program into machine format program. Each High Level language has its own compiler. We cannot compile the source code of one language with the compiler of another language. For example FORTRAN compiler cannot compile the source code written in COBOL language.

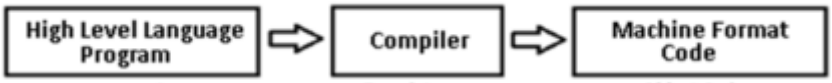

Fig: Compiler

The input to compiler is High level language program. This program is called **Source Program**. Compiler produces the output as the machine language program. This program is called **Object Program**. During translation, the compiler reads the whole source program and translates it into Object Code. During compilation it checks the source code for syntax errors. If there is any error, the compiler generates **Syntax Errors**.

Interpreter:

It is also a language translator. It is used to convert high-level languages into machine format. It takes one statement of High Level Language and translates it into a machine instruction. It is then immediately executed. Interpreter does not save object code for future use.

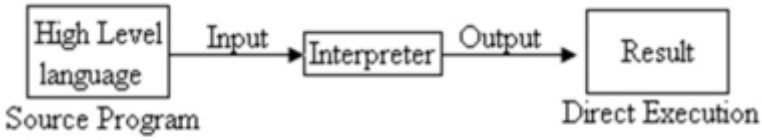

Fig: Interpreter

Interpreters are easy to write. They do not require large memory. But, interpreter is a time consuming translation method. It is because each statement must be translated every time it is executed.

Assembler:

It is also a language translator. It converts assembly language program into machine- format. The input to Assembler is Assembly Language program. This program is called **Source Program**. Assembler produces the output as the machine language program. This program is called **Object Program**.

Fig: Assembler

UTILITY PROGRAMS:

These programs provide routine service functions to other programs. These programs perform a very specific task, usually related to managing system resources. Operating systems contain a number of utilities for managing disk drives, printers, etc. Utilities are sometimes installed as memory-resident programs. Typically a utility is smaller than a program in size. Utility programs may be included with an operating system or installed separately. The common tasks performed by the utility programs are: Formatting the disk, Backing up of data, Antivirus programs etc.

COMMUNICATION SOFTWARE:

Those Software that makes it possible to send and receive data over telephone lines through modems, are called Communication Software. These software forms a part of communication systems. The best examples of communication software are file transfer protocol (FTP), messaging software and email.

APPLICATION SOFTWARE

Application software is the set of application programs. These software are designed to solve specific problems. These software can be developed in the computer labs. Examples of Application software are: payroll system, student information management system, inventory control software, Railway reservation software, Income tax software, Word processors, Spreadsheets, dBase etc.

Types of Application Software:

There are two types of application software:

General purpose Application Software:

Examples of General purpose Application software are: Word Processors, Spread sheets, Database Management Packages etc.

Special purpose Application software:

Examples of special purpose application software are: Account Management, Inventory Management, Student Information Management, Library Management etc.

WORD PROCESSOR APPLICATION SOFTWARE:

Word Processor is general purpose application software. Word processor software is capable of creating, storing, and printing typed documents. Today, the word processor is one of the most frequently used software programs on a computer. Microsoft Word is the most popular word processor software. Abiword, Google docs, writer etc. are other examples of word processor software. Most common features of a word-processor are:

- We can format text using word-processor
- We can insert clip art, charts, images, pictures, and video into a document.
- We can check spelling and grammatical errors in the document.
- We can modify the margins and layout of a document.
- We can add tables to a document.
- We can add header and footers in a document.
- Word Processor can automatically correct common errors

SPREADSHEET APPLICATION SOFTWARE:

Spreadsheet is general purpose application software. Spreadsheet software is capable of organizing, storing and analyzing data in tabular form. Spreadsheet is a file made of rows and columns. It helps us to sort data, arrange data easily, and calculate numerical data. It has the ability to calculate values using mathematical formulas. A good example of spreadsheet software is Microsoft Excel. Google sheets, Lotus 1-2-3 etc. are other examples of spreadsheet software. Some popular uses of spreadsheets are:

- Spreadsheets are commonly used to handle financial data
- Teachers can use spreadsheets to prepare results, time tables etc.
- Salary of employees can be managed using spreadsheets
- Spreadsheets can be used to managing different types of list

DATABASE APPLICATION SOFTWARE:

These software are also called as Database Management Systems (DBMS). Database software is designed for creating, editing and maintaining database files and records. This type of software allows users to store data in the form of structured fields, tables and columns. This data can be retrieved later at any time. Database software is used for a number of reasons in any industry. Some of the most popular database software are Microsoft Access, dbase, MySQL, Microsoft SQL Server and Oracle.

EDUCATIONAL AND ENTERTAINMENT SOFTWARE:

Education and entertainment software is a powerful tool for educational agencies. These types of software are very useful especially for educating young children. There is a wide range of entertainment software such as computer games, educational games, translation software, and mapping software, among others. There is a large inventory of education and entertainment software. The top manufacturers in this field are Leapfrog, Encore Software, and Electronic Arts etc.

Educational software are developed for the purpose of teaching and learning. Many educational-software are designed to teach preschooler children. Some educational programs introduce mathematical concepts. Some programs teach professionals, which describe the details of their jobs, for example: flight simulators. Still other programs, called Learning Management Systems (LMSs), are designed for use by certain grades in entire school districts for teaching.