SOFTWARE
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Software

Software is another name for programs. Basically it is a single program or a group of programs.

Program

Program is nothing but a set of or a group of step by step instructions. Such several programs integrated together to make a software. Generally instructions are made of functions.

Types of software

Basically there are two types of software as shown below.

1.System Software

2.Application Software

System software

System software are also known as background software as most of them runs at background to support foreground process. It acts as an interface between a computer user, computer hardware and application software. There are four types system software as follow.

a)Operating System

b)Utilities

c)Device drivers

d)Language translators.

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a) Operating System

Operating system is a software that coordinate computer resources. It also acts as an interface between user and computer hardware and application software. Operating system handle many of technical details related to using computer. Some Examples of operating system are given below. Linux, Unix, Microsoft windows XP etc.

b) Utilities

This utility concept is some what same as like tool kit and tool box that came with your newly purchased bike. Though we are not mechanic, these tools are given for the purpose of conducting periodic maintenance of bike to maintain its efficiency and performance. Utilities functions in the same manner for your computer to make more efficient. Utilities are also known as service programs. Generally utilities are used to perform specific tasks related managing computer resources. Some utilities are given below that came with Windows XP are given below. Disk defragment, backup, disk cleanup etc.

c) Device Drivers

As we know there are different types of devices connected to a computer system which includes some input devices (for example.. keyboard, mouse, scanner etc.), some output devices (for example. monitor, printer, speaker etc.) and other devices like pen drive, mobiles etc. Then one question arises that how can computer distinguish these devices while functioning them. And answer is because of these device drivers.

Whenever you connect device (printer, mouse etc.) to computer system, computer system has a special program associated with it. This program is called a device driver. Device drivers works with operating system. And because of this there is communication between that device and rest of computer system.

Every time when you connect new device to computer system, it searches for its device drivers in operating system and if found, operating system install it and device work properly. And if device drivers are not in operating system then it gives you message for providing it.

d) Language translators

Language translators translate programming code or programming instructions into machine code so that computer can understand and process it.

Assembler: A computer will not understand any program written in a language, other than its machine language. The programs written in other languages must be translated into the machine language. Such translation is performed with the help of software. A program which translates an assembly language program into a machine language program is called an assembler. If an assembler which runs on a computer and produces the machine codes for the same computer then it is called self assembler or resident assembler. If an assembler that runs on a computer and produces the machine codes for other computer then it is called Cross Assembler.

Assemblers are further divided into two types: One Pass Assembler and Two Pass Assembler. One pass assembler is the assembler which assigns the memory addresses to the variables and translates the source code into machine code in the first pass simultaneously. A Two Pass Assembler is the assembler which reads the source code twice. In the first pass, it reads all the

variables and assigns them memory addresses. In the second pass, it reads the source code and translates the code into object code.

Compiler: It is a program which translates a high level language program into a machine language program. A compiler is more intelligent than an assembler. It checks all kinds of limits, ranges, errors etc. But its program run time is more and occupies a larger part of the memory. It has slow speed. Because a compiler goes through the entire program and then translates the entire program into machine codes. If a compiler runs on a computer and produces the machine codes for the same computer then it is known as a self compiler or resident compiler. On the other hand, if a compiler runs on a computer and produces the machine codes for other computer then it is known as a cross compiler.

Interpreter: An interpreter is a program which translates statements of a program into machine code. It translates only one statement of the program at a time. It reads only one statement of program, translates it and executes it. Then it reads the next statement of the program again translates it and executes it. In this way it proceeds further till all the statements are translated and executed. On the other hand, a compiler goes through the entire program and then translates the entire program into

machine codes. A compiler is 5 to 25 times faster than an interpreter.

By the compiler, the machine codes are saved permanently for future reference. On the other hand, the machine codes produced by interpreter are not saved. An interpreter is a small program as compared to compiler. It occupies less memory space, so it can be used in a smaller system which has limited memory space.

Linker: In high level languages, some built in header files or libraries are stored. These libraries are predefined and these contain basic functions which are essential for executing the program. These functions are linked to the libraries by a program called Linker. If linker does not find a library of a function then it informs to compiler and then compiler generates an error. The compiler automatically invokes the linker as the last step in compiling a program.

Not built in libraries, it also links the user defined functions to the user defined libraries. Usually a longer program is divided into smaller subprograms called modules. And these modules must be combined to execute the program. The process of combining the modules is done by the linker.

Loader: Loader is a program that loads machine codes of a program into the system memory. In Computing, a **loader** is the part of an Operating System that is responsible for loading programs. It is one of the essential stages in the process of

starting a program. Because it places programs into memory and prepares them for execution. Loading a program involves reading the contents of executable file into memory. Once loading is complete, the operating system starts the program by passing control to the loaded program code. All operating systems that support program loading have loaders. In many operating systems the loader is permanently resident in memory.

Application software

Application software are also known as end user software as these software used by end users to complete their task. There are two types of application software as follows.

a) Basic application software
b) Specialized application software

a) Basic application software

Basic application software are also known as general purpose applications and productivity applications.
Example - Microsoft office 2007

b) Specialized application software

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Specialized application software are also known as special purpose application software.

Example - graphics programs, audio and video editor programs