Computer System Software

Definition of Software

1. Computer software or simply software is a program that enables a computer to perform a specific task, as opposed to the physical component of the system (hardware).

2. Software is a set of instructions and procedures passed to the computer to perform certain activities or task.

3. It can also be defined as a set of instructions that direct the activities of the computer system in order to undertake a specific task.

4. Computer software is that part of a computer system that consists of encoded information or computer instructions, in contrast to the physical hardware from which the system is built.

Type of System Software

Software is divided into two broad groups, these are:

1. System Software

2. Application software

Definition of System Software

a. System software is a collection of program design to operate, control and extend the capabilities of computer.

b. These are software that control the way the different computer components communicate with one another.

c. It can also be defined as programs that helps run the computer hardware and software.

Types of System software

The major types of system software are:

i. Operating System

ii. Translators

iii. Utility programs (or tools)

A. Operating System

What is an operating system?

- It is a collection of programs/software that enables all the hardware in a computer system work together. It also controls the running of other programs.

- A suite/set or collection of programs/software that controls and coordinate /manages the hardware and software of a computer set system.

- A collection of programs that supervises the operations and use of all system resources and peripherals.

Computer operating systems perform basic tasks, such as recognizing input from the keyboard, sending output to display screen, keeping track of files and directories of the disk, and controlling peripheral devices such as printers.

Operating system is like a traffic cop, coordinating input, output, and other processes. The operating system is either built into the computer or loaded into the computer's memory from a disk when you turn on the computer.

Examples of operating systems
- MS DOS
- MS windows
- Novell
- UNIX
- Linux
- XENIX
- MacOS (AppleMac), IOS (Internetwork OS) (Apple Iphone)
- Mobile OS, Google Andriod

Functions of the operating system
- It serves as the interface between the user and the computer/hardware and software
- Provides an interface between the computer hardware and the programmer to make coding, debugging, and maintenance of applications feasible.
- Simplifies file creation and management

- Provides security features that protect the computer from unauthorized or mischievous intervention such as virus, spyware, malware etc.
- Provides routines that handle the intricate details of input/output programming.

Types of operating system

There are two main types namely
1. Single user operating system
2. Multi user operating system

They are broken into the following
3. Single –user, Single task
4. Single –user, Multi task
5. Multi –user, multi task

<u>User interfaces</u>

A user interface (UI) refers to the part of an operating system that allows a user to enter and receive information

1. Graphical user Interface (GUI) operating system: This operating system allows users to click and drag objects with a mouse instead of entering command line. Examples of GUI based operating system are Mac, Windows, and Linux.

2. Text User Interfaces (TUI)/Command line also known as command screen is a user interface that requires the user to type in commands via the keyboard in order to pass instruction

to the computer. Examples are DOS (Disk operating System), Unix, etc. in MS-DOS the command line prompt is "C:/>"..

B. Translators

Translators are programs for converting programs in other languages into machine language instruction so that the computer can execute them. A *computer* language *translator* is a program that translates a set of code written in one programming language into a functional equivalent of the code in another programming language. Examples of translators include, Assembler, compiler and interpreter.

Assembler: An assembler is a computer program for translating assembly language into machine language. Assembly language is a mnemonic representation of machine language. The computational step where an assembler is run is known as assembly time.

Compiler: A compiler is a computer program that translates text written in a computer language into another language. The original sequence is called the source code and the output called the object code.

Interpreter: An interpreter is a computer program that directly executes instructions written in a programming language, without previously compiling them into a machine language program. An interpreter translates one statement at a time to machine code and executes it immediately before taking the next statement.

c. <u>Utility Program</u>

Utility software also known as service program, service routine, tool, or utility routine) is a computer software designed to help analyze, configure, optimize or maintain the computer.

<u>Examples of Utility program</u>

1. Anti-virus: Antivirus or anti-virus software is used to prevent, detect, and remove malwares. Computer viruses, computer worms, Trajan horse, spyware and adware from the computer

2. Backup utilities: Backup utility can make a copy of all information stored on a disk, and restore either the entire disk or selected files in event of disk failure or accidental deletion.

3. Data compression utilities: output a smaller file when provided with a file.

4. File managers: It provide a convenient method of performing routine data management tasks, such as deleting, renaming, cataloging, copying, moving, merging, etc.

5. Cryptographic utilities: cryptographic utilities encrypt and decrypt streams and file.

6. Disk Cleaners: Disk cleaner can fine files that are unnecessary to computer operation, or take up considerable amount of space. It helps the user to decide what to delete when their hard disk is full.

7. Disk partitioners: Disk partitioners can divide an individual drive into multiple logical drives.