New syllabus 2020-21

Chapter 2

Types of software

Computer Science

Class XI (As per CBSE Board)

Types of software

Software is an organized instructions/code written by programmers using any of various special computer languages for specific purpose.

Types of software:

(1) Application software: It handles specialized/ common tasks a user wants to perform, such as banking, hotel management, any data processing, word processing etc.

(2) System software: controls the basic functions of a computer & hides complexity of computer system from user and application software. E.g. Operating System, Compiler, Interpret etc.

(3) Utility software: Which helps to manage, maintain and control computer resources. E.g. are antivirus software, backup software and disk tools.

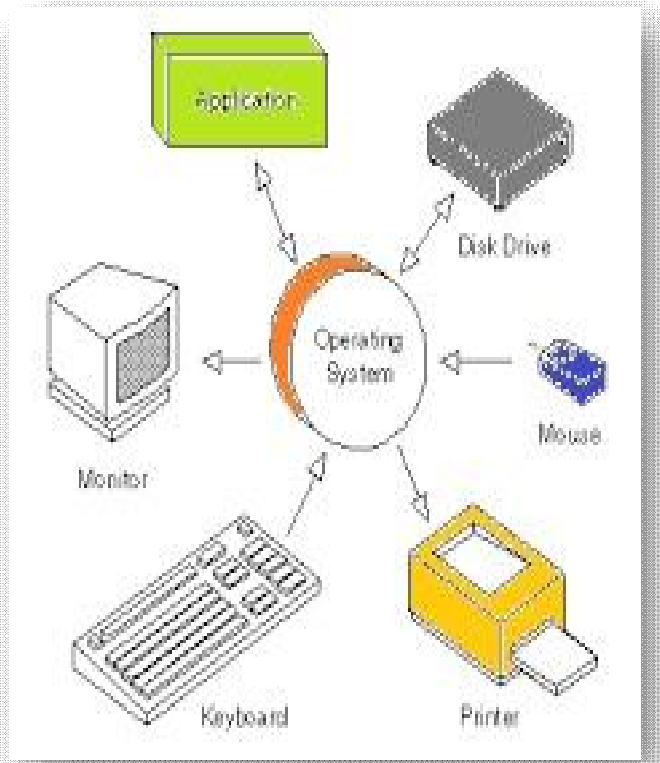
Types of software

(1) System software

OPERATING SYSTEM

An Operating System (OS) is a system program that controls and manages the computer resources(resource manager) so that application software can run on it.

Example: Microsoft Windows, Solaris, Linux, MAC OS,Ubuntu, Apple's i-Phone OS etc.






Operating Systems

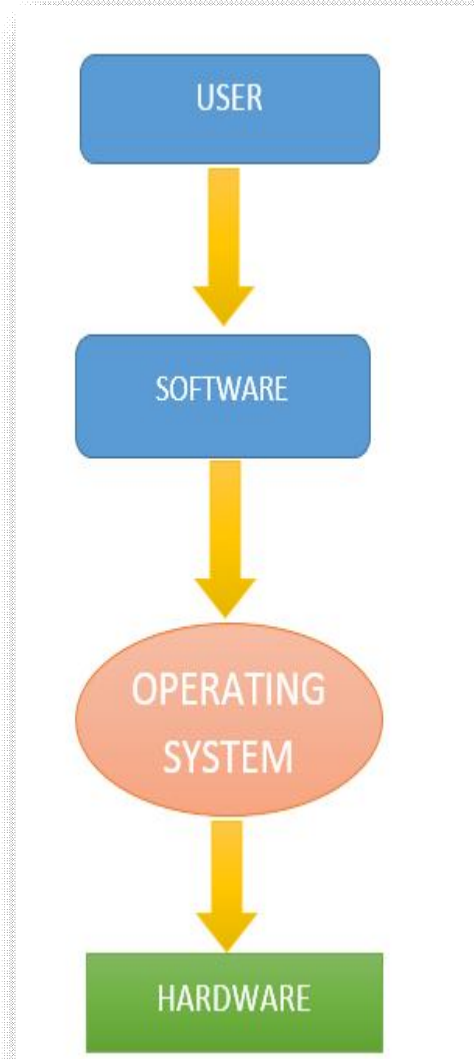
Types of software

HOW OPERATING SYSTEM WORKS

In any computer or mobile device, the operating system can be termed as the back bone when it comes to software. This is because it has to be there before other programs can be run.It works as a middleman (interface) between machine and user.

At the simplest level, an operating system does two things:

- It manages the hardware resources of the computer system. These resources include such things as the processor, memory, disk space, etc.
- It provides a stable, consistent way for applications to deal with the hardware without having to know all the details of the hardware.



Types of software

FUNCTIONS OF OPERATING SYSTEM

- Processor management

Loads, schedules and execute process/programs.

- Memory management

Allocates /De-allocation of memory for program execution.

- Device management

Communicate and controls various I/O devices.

- Storage management

Manages and controls the storage device to provide space to program for execution & data save.

- Application interface

API/drivers provide a way for applications to make use of hardware

- User interface

structure for interaction between a user and the computer

Types of software

TYPE OF OPERATING SYSTEM

* Single-User, Single Task Operating System:

These operating systems work on single task & single user at a time.E.g. DOS

* Single-User, Multi-Task Operating System:

These operating systems works on more than one task and process them concurrently at a time.E.g. windows 95 or later version of windows

* Multiuser Operating System:

In these OS, multiple users are allowed to access the same data or information at a time via a network. E.g. Unix,Linux,Windows7.

* Multiprocessing Operating System:

Here, a single process runs on two or more processors. All the processing and their management takes place in a parallel way, hence this OS are also called as Parallel Processing. E.g. Linux, UNIX and Windows 7.

* Embedded Operating System:

These are embedded in a device, which is located in ROM.E.g. OS of microwaves,washing machine.

* Distributed Operating System:

In these OS, the computers work in co-operation with each other.

Types of software

SYSTEM SOFTWARE/PROGRAMMING SOFTWARES

Language processor/Programming Language

As the computer understand machine language(0/1) where as Humans understand High level/Human Lang.

Language Processors does the conversion task(high level to machine lang.)

These are of 3 types Language processors

1.Compilers-It convert high-level language code to machine code in one session. It takes time because it have to translate high-level code to lower-level machine language all at once and then save the executable object code to memory.

2.Interpreters-It translates code like a compiler but reads the code and immediately executes that code, and therefore it is initially faster than a compiler.

3.Assemblers-It translates an assembly language program into machine language.

One-pass assemblers go through the source code once. Any symbol used before it is defined will require "errata" at the end of the object telling the linker or the loader to "go back" and overwrite a placeholder which had been left where the as yet undefined symbol was used.

Multi-pass assemblers create a table with all symbols and their values in the first passes, then use the table in later passes to generate code.

Types of software

Difference between Compiler and Interpreter:

S.NO.	COMPILER	INTERPRETER
1.	Scans the whole program in one go.	Translates program one statement at a time.
2.	the errors (if any) are shown at the end together.	errors are shown line by line.
3.	Main advantage of compilers is it's execution time.	Due to interpreters being slow in executing the object code, it is preferred less.
4.	It converts the the instructions into systematic code.	It doesn't convert the instructions instead it directly works on source language.
5	E.g. C, C++, C# etc.	E.g. Python, Ruby, Perl, MATLAB etc.

Types of software

(2) Application software

* General Purpose application software

These are ready to use software for daily use purpose

e.g. word processor,spread sheet,presention,DBMS etc.

* Specific Purpose application software

Softwares which are designed for specific task

e.g. Payroll,Hotel Mgmt,Hospital Mgmt,Stock Mgmt etc.

(3) Utility software

that assist OS in carrying out certain specialized tasks are called utility software.

- Antivirus - An anti-virus scans the system for any virus and if detected, gets rid of it by deleting or isolating it.
- Compression tools - Compression tools are utilities that assist operating systems in shortening files so that they take less space.

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(3) Utility software

- Disk Cleanup - Disk cleanup tools assist users in freeing up disk space.
- Disk Defragmenter - Disk defragmenter is a disk management utility that increases file access speeds by rearranging fragmented files on contiguous locations.
- Backup - Backup utility enables backing up of files, folders, databases or complete disks.
- File management tools - Utility software providing regular file management tasks like browse, search, update, preview, etc. are called file management tools.
- Restore – This utility restores the backup earlier taken.