Lesson	Topic	Class no.
Computer Fundamental	**OS | HARDWARE | SOFTWARE**	007

OPERATING SYSTEM & SOFTWARE

Data: Raw information

Information: Meaningful data or processed data

Programs: collection of instructions or commands

Software: collection of programs to perform some specific tasks. There are two types of Software:

1. System software
2. Application software

OPERATING SYSTEM & SOFTWARE

Software

- Comprises the instructions and data to be processed using the computer hardware.
- Examples are operating systems like UBUNTU or Windows 7/10
- It is of three types:
  - System software
  - Programming software (Languages)
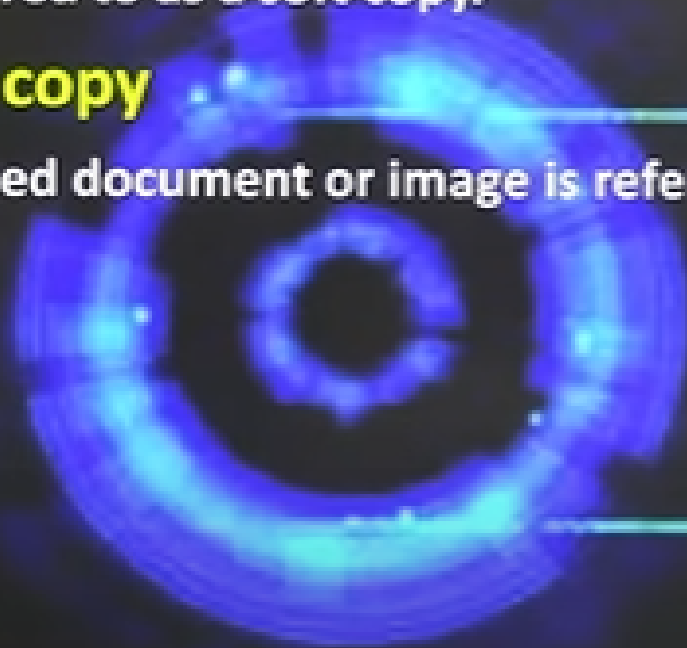 - Application software

OPERATING SYSTEM & SOFTWARE

Soft copy

- Document or image stored on the hard disk or pen drive is referred to as a soft copy.

Hard copy

- Printed document or image is referred to as hard copy.

OPERATING SYSTEM & SOFTWARE

System Software

- Provides the basic functionality to operate a computer by interacting directly with its constituent hardware
- Provides services directly to the end user
- Examples: Operating system, drive drivers, system utilities or utility software BIOS etc.

Utility Software

- Software used for maintenance and configuration of the computer system.
- These enhance the performance of the system and devices.
- Eg: anti-virus, disk cleaner, formatting tool etc.

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Programming languages

Each language in which computer programs are written has its own grammar called its syntax.

- Two major categories of computer programming languages are low-level languages and high-level languages.
- Low-level languages are machine dependent languages and include machine language (1GL) and assembly language (2GL).
- High level language are machine independent and are simpler to write code into. But these languages are not directly understood by the computer. Hence translators are needed to translate them into machine language. Eg: C++, JAVA, Python etc.

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Translator

1. Program written in assembly or high level language are called source code.

2. Three types of translators are assembler, compiler and interpreter.

3. Assembler convert code written in assembly language to machine language.

4. Compiler converts the source code (high level language) into machine code.

5. Interpreter translates one line at a time instead of the whole program at one go.

Application Software

1. Designed and developed for the users to perform some specific tasks like writing a letter, listening to music or seeing any video.

2. These are of two types:

   a. General purpose software ✓

   b. Customised software ✓

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Word processors
- MS-Word, Word pad, Word star, Corel Word Perfect, Google docs.

Database software
- MS access, file maker, dBase, Clipper, MySQL, FoxPro

Web browser
- Google chrome, Mozilla Firefox, Internet explorer, opera

Multimedia software
- Adobe photoshop, Picasa, VLC media player, windows media player

Mailing software
- MS outlook

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Operating system

1. Considered as the resource manager which manages all the resources of the computer i.e. hardware (CPU, RAM, Input Output) and application Softwares also.

2. Eg: Windows, Linux, Android, Macintosh etc.

Functions of OS

- Process management.
- Messaging service
- Device management
- Error detection
- Memory management
- Security
- File management
- Command interpretation

OPERATING SYSTEM & SOFTWARE

Name of the OS	Release Date
Android	2008
iOS	2007
Windows	1985
Mac OS	2001
MS-DOS	1981
Chrome OS	2011
Windows Phone	2010
Blackberry OS	1999
Firefox OS	2013
UNIX	1969

OPERATING SYSTEM & SOFTWARE

1. Batch operating system ✓

- Operator batches together jobs with similar needs and run them through the computer as a group.
- Another job will be executed only after first job is fully executed.
- No direct communication between computer and OS
- Multiple users can use it.
- Eg: Payroll system, banking system
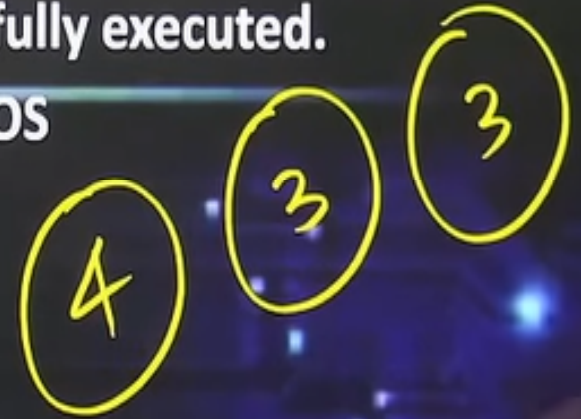
OPERATING SYSTEM & SOFTWARE

2. Real time operating system

- Used for a real time application.
- Used in fields where the response needs to be quick and rapid.
- Processing time is small between the user's command and the output
- Eg: Air traffic control systems, autonomous driving systems.
- It is of two types:
  - Soft real time system (Camera, mobile phones)
  - Hard real time system (Air bag control, anti lock brake, engine control system)

OPERATING SYSTEM & SOFTWARE

6. Embedded operating system

- These operating systems are built into larger systems.

- They generally are limited to single specific functions like an ATM