

## COMPUTER SYSTEM SOFTWARE

Computer software is a set of instructions that are used to direct the computer hardware to perform its task i.e. it is a set of instructions that makes the user to do work and allow the computer to operate.

### TYPES OF SOFTWARE

There are two main classes of software

1. System software
2. Application software

### SYSTEM SOFTWARE

Is a collection of programs that are directly responsible for ensuring utilization of the hardware component (C.P.U and peripherals?)

### TYPES OF SYSTEM SOFTWARE

1. Operating system
2. Language translator/processor
3. Utility program
4. Device drivers

### OPERATING SYSTEM

Operating system or “OS,” is a collection of programs that acts as an interface between the user programs and the computer hardware. It is a special method designed to manage the hardware of a specific computer system such as a processor, main memory, storages, peripherals and files.

#### **Types of Operating System**

1. **SINGLE USER OPERATING SYSTEM:** it's an operating system designed for one user to effectively use the computer at a time. Single user, multi-tasking operating systems are the operating systems that allow a single user to run different applications at the same time e.g. Microsoft Windows and Macintosh of Apple.

2. **MULTI-TASKING OPERATING SYSTEM:** this type of OS allows multiple users to simultaneously use the system, while here as well, the processor splits its resources and handles one user at a time, the speed and efficiency at which it does this makes it apparent that users are simultaneously using the system, some network system utilize this kind of operating system.
3. **DISTRIBUTED OPERATING SYSTEM:** It's an OS, where software and data may be distributed around the system, programs and files may be stored on different storage devices which are located in different storage devices which are located in different geographical locations and maybe accessed from different computer terminals.
4. **BATCH PROCESSING OPERATING SYSTEM:** Batch OS creates an interaction between the user and processor is limited or there is no interaction at all during the execution of work. Data and programs that need to be processed are bundled and collected as a 'batch' and executed together.

**Batch processing operating system are ideal in situations where:**

- There are large amounts of data to be processed
- Similar data needs to be processed
- Similar processing is involved when executing the data

5. **REAL-TIME OPERATING SYSTEM:** A real time operating system processes inputs simultaneously, fast enough to affect the next input or process. Real time systems are usually used to control complex systems that require a lot of processing like machinery and industrial systems.

## **FUNCTIONS OF OPERATING SYSTEM**

Every operating system performs 3 basic functions;

1. Managing resources
2. Providing a user interface
3. Running application

1. **Managing resources:** This program coordinates all the computer resources including key board, mouse, printer, monitor, storage device and memory.
2. **User interface:** Users interact with application program and computer hardware through a user interface.
3. **Running application:** This program load and run application such as word processes and spreadsheet.

## EXAMPLES OF OPERATING SYSTEM

1. NOVELL
2. OS2
3. UNIX
4. LINUX
5. ZENITH
6. MACINTOCH
7. MS DOS
8. WINDOW
9. MICROSOFT WINDOWS
10. AOS/VS

## LANGUAGE PROCESSOR (TRANSLATOR)

A language is a set of notations used for communication. Language translator translates program written in non-machine language into machine readable language. Computers are run and written in machine language i.e. binary system 0 and 1, there is need to translate programs written in non machine language to computer language programs written in non machine language is called source program and its equivalent machine language is the object program.

## TYPES OF LANGUAGE TRANSLATOR

There are three types of language translators;

1. Assembler
2. Interpreter
3. Compiler

1. **ASSEMBLER:** this is a program that converts program written in assembly language to machine language equivalent. Assembler requires a separate instruction for each machine operation as each machine has its own assembling language.

2. **INTERPRETER:** An interpreter is a set of language translation program that convert source code to machine code, translation takes place during processing.
3. **COMPILER:** Is a computer program that accepts source program in one high level language, resides and translate the users' program into an equivalent machine language program. Compiler is normally called by the names of high-level language they translate. Example COBOL, FOTRAN are compilers.

**UTILITY PROGRAMS:** this is asset of commonly used program in data processing department. It is called services or general-purpose program. They perform the following operation related to managing computer resources of files.

- File conversion
- File re-organization
- File copy
- File maintenance
- Sorting
- Locate lost file

#### 4. **DEVICE DRIVERS:**

This are specializing program designed to allow a particular input or output devices to communicate with the rest of the computer system.