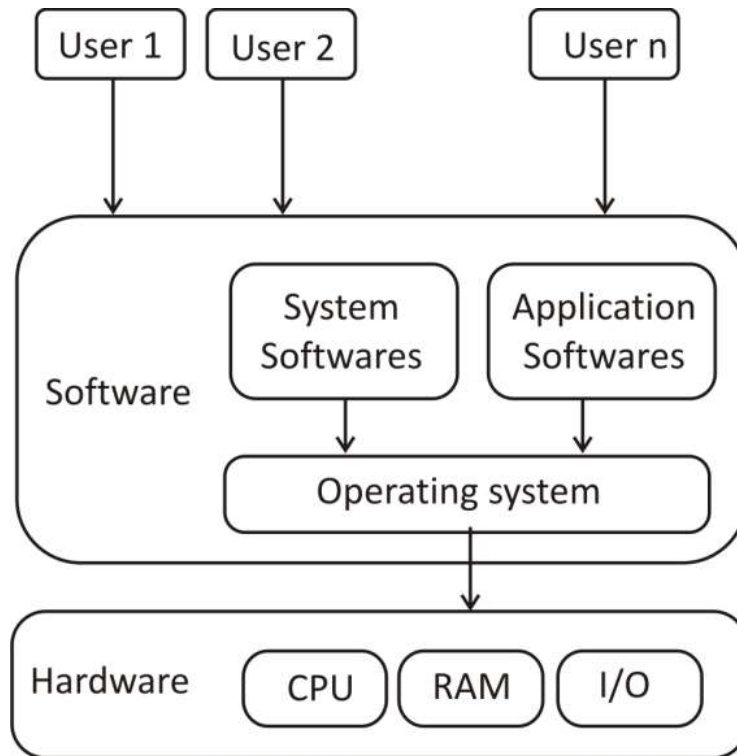## OPERATING SYSTEM

An **Operating System** is a software that works as an interface between a user and the computer hardware. It performs basic tasks such as receiving input from the keyboard, processing instructions and sending output to the screen.

A block diagram depicting the interaction between the different parts

Functions of the Operating System

- **Process Management**: - The mechanism by which an operating system can control the planning, monitoring and performance of a CPU. A process is the basic unit of execution in the operating system.
- **Memory Management** It is a process of controlling and coordinating computer memory. It ensures that all processes are able to access their memory or not.
- **File Management** It is the main function of operating system. It manages all data files in a computer system.
- **Device Management** It is a process of managing the operation and maintenance of input/output devices. It also facilitates the interface between all the connected devices.
- **Resource allocation and management: -** In case of multi-user or multi-tasking environment, resources such as main memory, CPU cycles and files storage are to be allocated to each user or job.
- **Error handling**: - The OS constantly checks for possible errors and takes an appropriate action to ensure correct and consistent computing.

TYPES OF OPERATING SYSTEM

1. **Batch operating system: -** In this type of OS, the users of a batch operating system do not interact with the computer directly. This operating system is responsible for scheduling the jobs according to priority and the resource required.
2. **Time Sharing Operating System/MULTITASKING**: - This operating system allows multiple programs to simultaneously share the computer resources.The OS handles multitasking in the way that it can handle multiple operations/executes multiple programs at a time.
3. **Real Time Operating System: -** These operating systems are designed to respond to an event within a predetermined time. These are used in military applications, automatically driven cars, flight reservation system, etc.
4. **Multiprogramming OS**: - In this the operating system picks and begins to execute one of the jobs from memory. Once this job needs an I/O operation operating system switches to another job. In Non-multiprogrammed system, there are moments when CPU sits idle and does not do any work and in an ideal situation, **CPU must never be idle.**
5. **Distributed Operating System: -** In this kind of OS, multiple systems are involved, and users at one site can utilize the resources of systems at other sites for resource-intensive tasks.

WHAT IS SPOOLING?
Spooling is an acronym for simultaneous peripheral operations online. Spooling refers to putting data of various I/O jobs in a buffer. In OS, the term buffer refers to an area in memory or hard disk, where the jobs are ready in queues.

SOME TERMINOLOGIES

1. **Kernel** is the core of the operating system that supports the process by providing a path to the peripheral devices.
2. **Shell** is the program which interprets commands given by the user.
3. **Thread** is a task that runs with other tasks concurrently within the same process. It is also called a lightweight process.