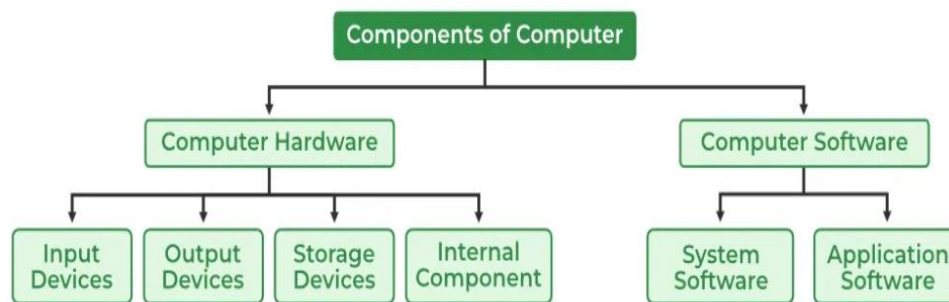


A computer system is divided into two categories: Hardware and Software.

**Hardware** refers to the physical and visible components of the system such as a monitor, CPU, keyboard and mouse.

**Software**, on the other hand, refers to a set of instructions which enable the hardware to perform a specific set of tasks.



### Types of Computer Software

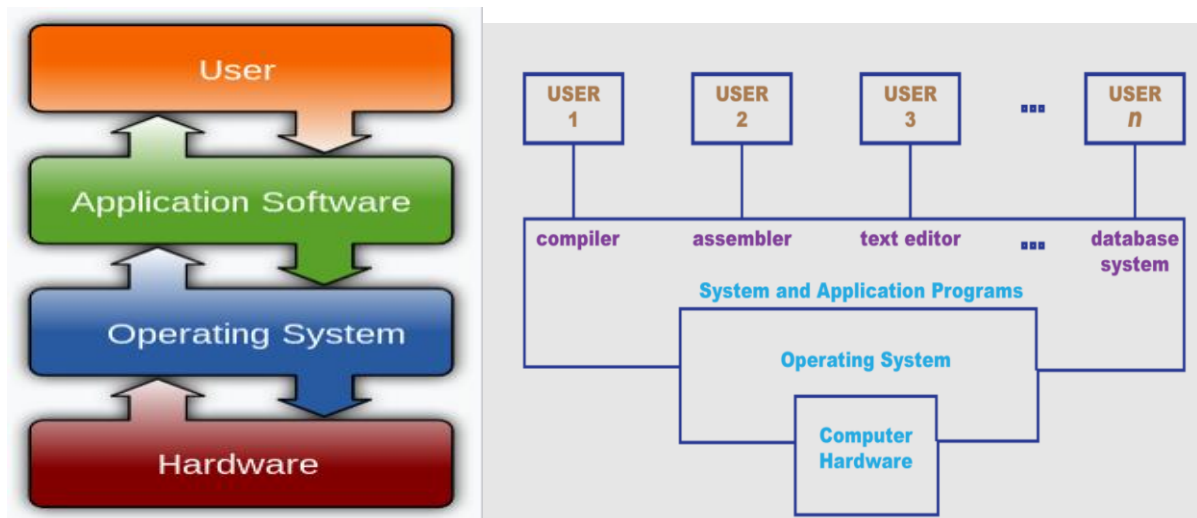
- System Software
- Application Software

**System Software:** System Software is a component of Computer Software that directly operates with Computer Hardware which has the work to control the Computer's Internal Functioning and also takes responsibility for controlling Hardware Devices such as Printers, Storage Devices, etc. Types of System Software include Operating systems, Language processors, and Device Drivers.

**Application Software:** Application Software are the software that works the basic operations of the computer. It performs a specific task for users. Application Software basically includes Word Processors, Spreadsheets, etc. Types of Application software include General Purpose Software, Customized Software, etc.

### Definition:

Operating System can be defined as a system software which acts as an interface between user and the hardware. It manages all other applications and programs in a computer, and it is loaded into the computer by a boot program.

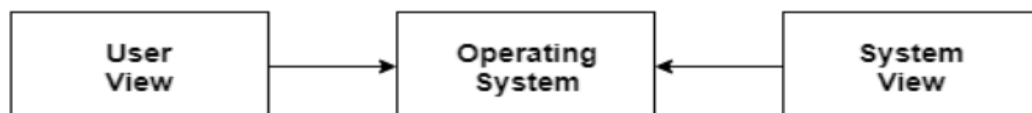


### Operating System Objectives

- To make the computer system convenient to use in an efficient manner.
- To hide the details of the hardware resources from the users.
- To provide users a convenient interface to use the computer system.
- To act as an intermediary between the hardware and its users, making it easier for the users to access and use other resources.
- To manage the resources of a computer system.
- To keep track of who is using which resource, granting resource requests, and mediating conflicting requests from different programs and users.
- To provide efficient and fair sharing of resources among users and programs.

### User View and System View

The operating system can be observed from the point of view of the user or the system. This is known as the user view and the system view respectively. More details about these are given as follows



#### User View:

The user view depends on the system interface that is used by the users. The different types of user view experiences can be explained as follows –

- If the user is using a **personal computer**, the operating system is largely designed to make the interaction easy. Some attention is also paid to the performance of the system, but there is no need for the operating system to worry about resource utilization. This is because the personal computer uses all the resources available and there is no sharing.
- If the user is using a system connected to a **mainframe or a minicomputer**, the operating system is largely concerned with resource utilization. This is because there may be multiple terminals connected to the mainframe and the operating system makes sure that all the resources such as CPU, memory, I/O devices etc. are divided uniformly between them.
- If the user is sitting on a **workstation** connected to other workstations through networks, then the operating system needs to focus on both individual usage of resources and sharing through the network. This happens because the workstation exclusively uses its own resources but it also needs to share files etc. with other workstations across the network.
- If the user is using a **handheld computer** such as a mobile, then the operating system handles the usability of the device including a few remote operations. The battery level of the device is also taken into account.
- There are some devices that contain very less or no user view because there is no interaction with the users. Examples are embedded computers in home devices, automobiles etc.

#### **System View:**

From the System point of view the operating system is the program which is most intermediate with the hardware.

- The system views the operating system as a **resource allocator**. There are many resources such as CPU time, memory space, file storage space, I/O devices etc. that are required by processes for execution. It is the duty of the operating system to allocate these resources judiciously to the processes so that the computer system can run as smoothly as possible.
- The operating system can also work as a **control program**. It manages all the processes and I/O devices so that the computer system works smoothly and there are no errors. It makes sure that the I/O devices work in a proper manner without creating problems.