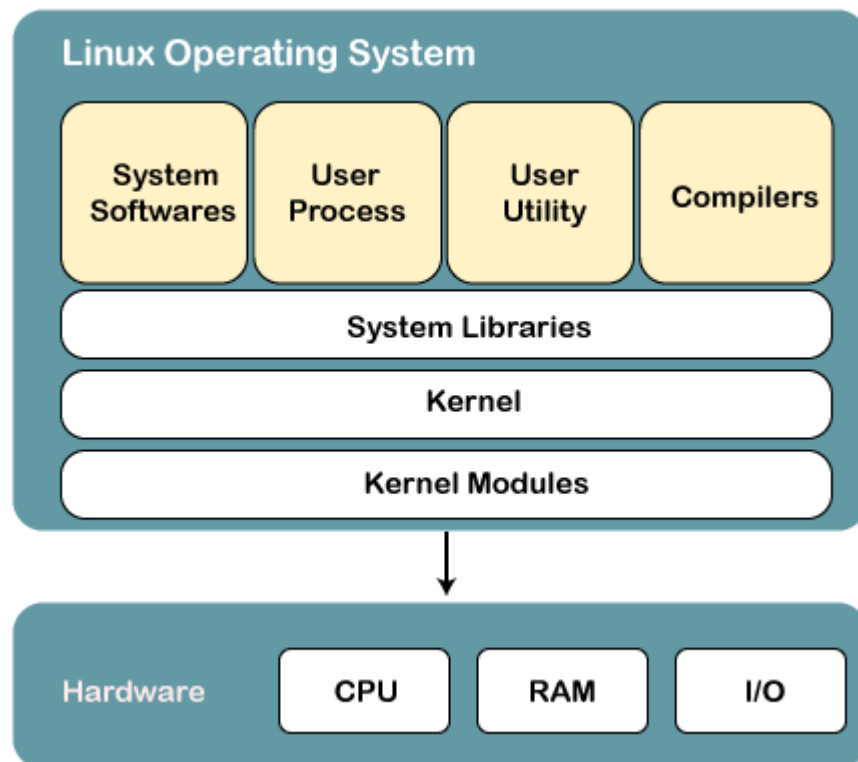


1. Explain the structure of the Linux operating system and its key components.

### **Structure Of Linux Operating System**

An operating system is a collection of software, each designed for a specific function.

Linux OS has following components:



#### 1) Kernel

Linux kernel is the core part of the operating system. It establishes communication between devices and software. Moreover, it manages system resources. It has four responsibilities:

#### 2) System Libraries

System libraries are special programs that help in accessing the kernel's features.

#### 3) System Tools

Linux OS has a set of utility tools, which are usually simple commands. It is a software which GNU project has written and publish under their open source license so that software is freely available to everyone.

#### 4) Development Tools

With the above three components, your OS is running and working. But to update your system, you have additional tools and libraries. These additional tools and libraries are written by the programmers and are called toolchain. A toolchain is a vital development tool used by the developers to produce a working application.

## 5) End User Tools

These end tools make a system unique for a user. End tools are not required for the operating system but are necessary for a user.

**Shell:** It is an interface to the kernel which hides the complexity of the kernel's functions from the users. It takes commands from the user and executes the kernel's functions.

## 2. Advantages of Linux

- The main advantage of Linux, is it is an open-source operating system. This means the source code is easily available for everyone and you are allowed to contribute, modify and distribute the code to anyone without any permissions.
- In terms of security, Linux is more secure than any other operating system. It does not mean that Linux is 100 percent secure it has some malware for it but is less vulnerable than any other operating system. So, it does not require any anti-virus software.
- The software updates in Linux are easy and frequent.
- Various Linux distributions are available so that you can use them according to your requirements or according to your taste.
- Linux is freely available to use on the internet.
- It has large community support.
- It provides high stability. It rarely slows down or freezes and there is no need to reboot it after a short time.
- It maintain the privacy of the user.
- The performance of the Linux system is much higher than other operating systems. It allows a large number of people to work at the same time and it handles them efficiently.

- It is network friendly.
- The flexibility of Linux is high. There is no need to install a complete Linux suit; you are allowed to install only required components.
- Linux is compatible with a large number of file formats.
- It is fast and easy to install from the web. It can also install on any hardware even on your old computer system.
- It performs all tasks properly even if it has limited space on the hard disk.