**What is a Linux?**

* Linux is an operating system that uses a monolithic kernel architecture, where the kernel is the central component of the operating system and controls all hardware and software resources.
* The Linux kernel is responsible for managing system resources such as CPU, memory, I/O devices, and network connections.

**The Linux Architecture**

**It can be divided into several layers:**

* **User Space:**This layer includes all user-level applications, such as the graphical user interface (GUI), command-line interface (CLI), and system utilities. These applications interact with the kernel through system calls to perform various operations.
* **Kernel Space:** This layer includes the kernel and the device drivers. The kernel provides an interface between the hardware and the software and manages the system’s resources. The device drivers allow the kernel to communicate with the hardware.
* **Hardware:** This layer includes all physical hardware components, such as the CPU, memory, disk drives, network adapters, and input/output (I/O) devices.
* The Linux architecture is designed to be modular, scalable, and flexible, allowing it to run on a wide variety of hardware platforms and support a broad range of software applications.
* It is an open-source operating system, which means that its source code is freely available, and developers can modify and distribute it as they see fit.
* The Linux kernel is responsible for managing system resources, such as CPU, memory, I/O devices, and network connections. It is also responsible for providing system services, such as process management, memory management, file system management, and network management.
* Overall, the Linux architecture provides a powerful and versatile operating system that is highly customizable and can be tailored to meet the needs of a wide range of users, from individual users to large enterprises.

