Linux

What is Linux?

- **Linux is a free and open-source operating system (OS)**
- It is used to run computers, servers, mobile devices, and cloud platforms.
- Linux is an operating system, just like **Windows** and **macOS**,
- **Linux is the backbone of the DevOps ecosystem** because it powers most servers, cloud platforms, container systems, and automation workflows

Why Linux?

Linux is preferred because:

- Free and open-source operating system
- No license cost, huge community support
- Very stable and reliable (servers run for long time)
- Highly secure with strong permission system
- Used by most servers and cloud platforms
- Backbone of the internet and data centers
- Best OS for DevOps tools (Jenkins, Docker, Kubernetes, etc.)
- Powerful command-line and scripting support
- Easy automation and remote server management
- Lightweight and fast, uses fewer system resources
- Highly customizable and flexible
- Supports almost all programming and server technologies

OPERATING SYSTEM

- An Operating System (OS) is software that acts as an interface between computer hardware components and the user.

- Every computer system must have at least one operating system to run other programs.

- Applications like browsers, MS Office, Notepad, games, etc., need an environment to run and perform tasks.

- The OS helps users communicate with the computer without knowing the computer's language.

KERNEL

- The kernel manages the hardware components such as CPU, memory, and peripheral devices.

- The kernel is the lowest level of the operating system.

DAEMONS

- Daemons manage background services such as printing, sound, scheduling, etc.

- These services start during system boot or after user login.

SHELL

- The shell is an environment where users can run commands, programs, and shell scripts.

- It takes input from the user, executes it, and displays the output.

- A shell acts as an interface between the user and the operating system.

Shells can be:

- Graphical (GUI-based)
- Command-line based (CLI)

COMMAND

- A command is an instruction or request given to the operating system by a user.

- It tells the computer to perform a specific task.

TERMINAL

- A terminal is a text-based interface that allows users to interact with the operating system by typing commands and receiving output.

- Terminals are commonly used in Linux, Unix, macOS, and Windows systems.

LINUX OS DISTRIBUTIONS

Linux distributions are modified versions of Linux released with different names based on user requirements.

Examples:

    i. RedHat

    ii. Ubuntu

    iii. Debian

    iv. CentOS

    v. Fedora

    vi. OpenSUSE

    vii. Kali Linux

    viii. Amazon Linux

    ix. Rocky Linux