

Humour Code Lab

Introduction to Linux

What is Linux ?

Linux is a free, open-source operating system. Technically, Linux refers to the kernel the core part of the OS. When people say 'Linux', they usually mean a complete operating system built around the Linux kernel.

Key Characteristics of Linux

- Free — Linux is completely free to download, use, and distribute
- Open Source — The source code is publicly available; anyone can view, modify, and share it
- Secure — Very resistant to viruses and malware; strong permissions system
- Stable — Servers run Linux for years without needing a restart
- Fast & Lightweight — Can run on old or low-resource hardware
- Customizable — You can modify everything according to your needs
- Multi-user — Multiple users can use the system simultaneously

Where is Linux used?

- Web Servers — Over 96% of the world's web servers run Linux
- Cloud Computing — AWS, Google Cloud, Microsoft Azure all run on Linux
- Supercomputers — 100% of the top 500 supercomputers use Linux
- Android Phones — Android is built on the Linux kernel
- Embedded Systems — Smart TVs, routers, IoT devices
- DevOps & Development — The standard platform for developers and engineers

What is Kernel ?

The kernel is the most important part of an operating system. It is the core program that runs first when the computer starts and stays in memory the entire time the computer is on.

What does the Kernel do?

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- Process Management — Decides which program runs on the CPU and when
- Memory Management — Controls which program uses which part of the RAM
- Device Drivers — Communicates with hardware (keyboard, disk, GPU, etc.)
- File System — Manages how data is stored and retrieved from storage
- System Calls — Provides a safe way for programs to request hardware resources
- Security — Enforces permissions and controls access to resources

Linux Distributions

Ubuntu

Debian

Fedora

Red Hat

Kali Linux