# Assignment No - 1

## 1. Introduction to Linux

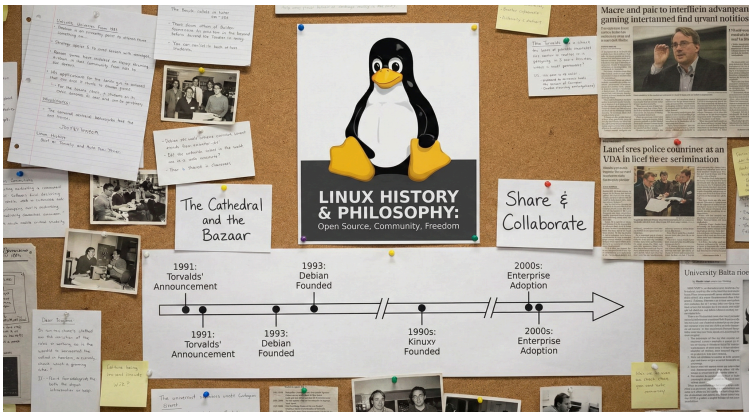
Linux is an open-source operating system that is widely used in servers, desktops, mobile devices, and embedded systems. An operating system acts as an interface between the user and computer hardware, managing resources such as memory, processor, storage, and input/output devices. Linux is known for its stability, security, flexibility, and cost-effectiveness.


Unlike proprietary operating systems, Linux allows users to view, modify, and distribute its source code. This openness has encouraged developers across the world to contribute to its improvement, making Linux one of the most reliable and powerful operating systems today. Linux is commonly used in web servers, cloud platforms, supercomputers, and also by students and developers for learning and development purposes.

---

## 2. Linux History and Philosophy

The history of Linux is closely connected with the philosophy of free and open-source software. The core idea behind Linux is collaboration and freedom. Users are free to run the software for any purpose, study how it works, modify it, and share it with others.

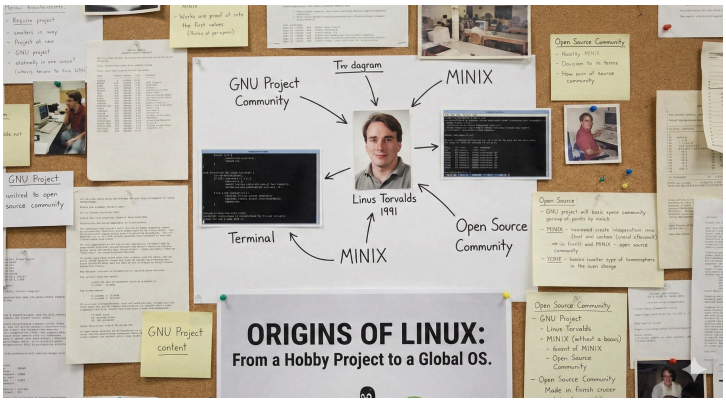


Linux follows the Unix philosophy, which emphasizes building small, simple programs that perform one task well and can work together. This design approach makes Linux systems efficient, modular, and easy to maintain. The community-driven development model ensures rapid innovation, transparency, and long-term sustainability.

---

## 3. Origins of Linux

Linux was created in 1991 by Linus Torvalds, a computer science student from Finland. He developed Linux as a personal project to create a free operating system kernel inspired by Unix. Linus shared the kernel on the internet, inviting other developers to contribute.

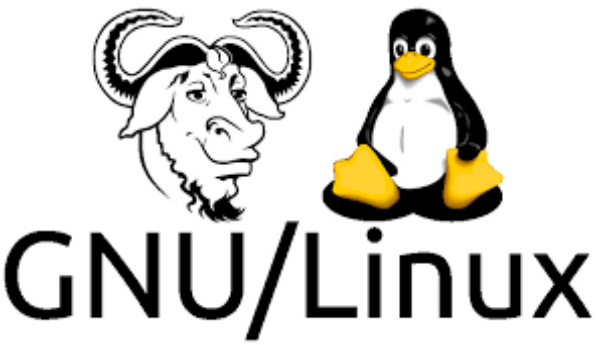



Over time, programmers from around the world added features, fixed bugs, and improved performance. What started as a small project soon evolved into a fully functional operating system kernel. Today, the Linux kernel is maintained by a global community and is used in millions of devices worldwide.

---

## 4. GNU/Linux

GNU/Linux refers to an operating system that combines the Linux kernel with tools and libraries developed by the GNU Project. The GNU Project was started by Richard Stallman with the goal of creating a completely free Unix-like operating system.



While Linux provides the kernel, GNU supplies essential components such as the shell, compilers, text editors, and system utilities. Together, GNU and Linux form a complete operating system used in most Linux distributions. This combination highlights the importance of community collaboration in open-source development.

---

## 5. Overview of Ubuntu

Ubuntu is one of the most popular Linux distributions and is based on Debian. It is designed to be user-friendly and suitable for beginners as well as professionals. Ubuntu provides a clean graphical interface, regular updates, and strong community support.


Ubuntu is widely used on desktops, laptops, servers, and cloud platforms. It offers long-term support (LTS) versions that receive updates for several years, making it a reliable choice for both personal and enterprise use.

---

## 6. Overview of Fedora

Fedora is a community-driven Linux distribution sponsored by Red Hat. It focuses on innovation and includes the latest technologies and software. Fedora is often used by developers who want access to new features and tools.

Fedora releases new versions frequently and serves as a testing ground for technologies that may later appear in enterprise-level systems. It emphasizes security, performance, and open-source principles.

---

## 7. Overview of CentOS

CentOS is a Linux distribution that was traditionally based on Red Hat Enterprise Linux (RHEL). It is known for its stability and is commonly used in servers and enterprise environments. CentOS provides a free and open-source platform with long-term support.


CentOS is preferred by organizations that require a reliable system for hosting applications and services. Its strong compatibility with enterprise software makes it suitable for production environments.