Introduction to Linux

What is Operating System?

As per Wikipedia

An operating system is system software that manages computer hardware and software resources, and provides common services for computer programs

In simple words

An operating system (OS) is software that acts as a middleman or a bridge between computer hardware and the computer user. It provides a user interface and controls the computer hardware so that software can function

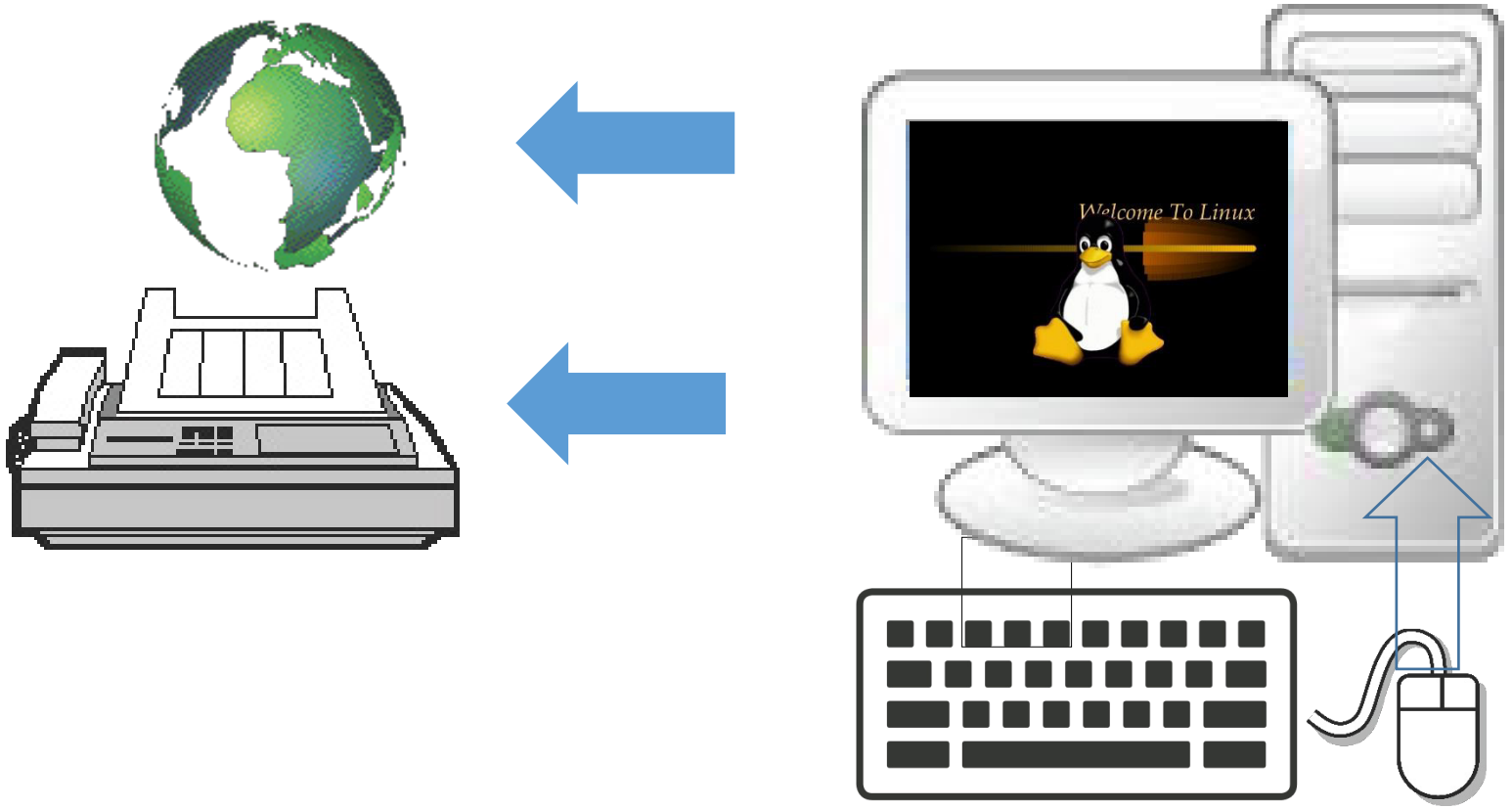
Types of Operating Systems:

1. **Desktop Operating Systems**, e.g., Microsoft Windows, macOS, and Linux such as Ubuntu
2. **Server Operating Systems**, e.g., Windows Server, Linux distributions like CentOS, Red Hat Enterprise Linux
3. **Mobile Operating Systems**, e.g., Android, iOS, Windows Mobile
4. **Embedded Operating Systems** used in devices like routers, smart TVs, automobiles, home appliances etc.
5. **Real-Time Operating Systems (RTOS)** used in critical systems like medical equipment, car ECUs, aerospace, defense, network firewalls, home security system etc.

By: Sagar Kerhalkar

What is Linux?

- Linux, in simple terms, is a free and open-source operating system
- It's similar to Windows and macOS, but it's different in several ways
- Linux is very popular for its stability, security, and flexibility. It can be modified and distributed by anyone, which has led to many different versions, known as "distributions," and each distribution is tailored for different uses
- Its open-source nature means that a community of developers and users contribute to its development



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What is Linux?

Why Learn Linux or its importance?

- Widely used in servers and cloud computing
- Free software philosophy
- Strong command line interface
- Faster processing
- Enhanced security
- Customization because of open-source nature
- Community support
- Understanding of other operating systems
- Career opportunities.

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Linux vs. Unix

- Origins and Development:
  - Unix: Originated in the 1970s at AT&T's Bell Labs. It was developed by Ken Thompson, Dennis Ritchie, and others
  - Linux: Created in the early 1990s by Linus Torvalds. It's free and open-source, meaning its source code can be used, modified, and distributed by anyone
- OS Distribution:
  - Unix: Solaris, HP-UX, AIX. BSD etc.
  - Linux: Red Hat, CentOS, Fedora, Ubuntu, SUSE, Kali etc.
- Licensing and Cost:
  - Unix: Generally requires a paid license, especially for commercial use
  - Linux: Free to use, modify, and distribute
- Community and Development:
  - Unix: Development and updates are controlled by the owning organization
  - Linux: Maintained and developed by a global community of developers
- Hardware Support:
  - Unix: Traditionally supports less hardware variety compared to Linux
  - Linux: Known for its broad hardware support, including both traditional PCs and servers as well as embedded devices.

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Linux Flavors

"Linux flavors" = "Linux distributions" = or "distros" for short

- Ubuntu
- Fedora
- Debian
- Red Hat Enterprise Linux (RHEL)
- CentOS
- Arch Linux
- openSUSE
- Linux Mint
- Gentoo
- Slackware
- Alpine Linux
- Kali Linux

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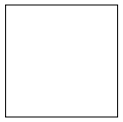
Linux Users

Linux is used by a wide range of **users** and **organizations** due to its versatility, stability, and open-source nature.

- Developers
- Educational institutions
- Government agencies
- Enterprise and businesses
- Tech companies
- Cloud and web servers
- Supercomputers and research facilities
- Telecommunications and networking
- Media and entertainment



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Linux Vs. Windows

	Linux	Windows
Price	Free	$$$
Ease	Not user-friendly	User friendly
Reliability	Very reliable. Often runs for months or years	Often requires reboot
Software	Mostly enterprise level softwares	Much larger selection of softwares e.g. office, games, utlities etc.
Multi-tasking	Best for multi-tasking	Multi-tasking is avaliable but with very high cpu or memory resources
Security	Very secure	Some what secure
Open source	Open to public	No an open source OS

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