

Lecture 2 Introduction to Linux Notes

1. **What is an Operating System?** An Operating System (OS) is the main software that runs your computer. It acts like a manager between you and the computer's hardware. It helps you run programs, manage files, and use devices like your keyboard and printer. Simple example: Windows, macOS, and Linux are all operating systems.
2. **What is a kernel?** The kernel is the heart of an operating system. It's the core part that directly talks to your computer's hardware (like the CPU, memory, and hard drive). Think of it as the "brain" that controls everything behind the scenes.
3. **Which other parts aside from the kernel identify an OS?** Besides the kernel, an OS includes:

User Interface - What you see and interact with (desktop, icons, menus)
System Libraries - Collections of code that programs use to work
System Utilities - Basic tools like file managers, text editors, and settings
Application Software - Programs you use daily (web browsers, office apps)

4. What is linux and linux distribution?

A Linux distribution is a complete operating system package that includes:

The Linux kernel Software applications A desktop environment Installation tools

Examples of distributions: Ubuntu, Fedora, Debian, Mint

5. **List at least 4 linux characteristics:** Free and Open Source - Anyone can use, view, and modify the code without paying Secure - Less vulnerable to viruses and malware compared to other systems Stable - Runs for long periods without crashing or needing restarts Flexible - Can be customized for different uses (servers, phones, computers)

6. What is Debian?

Debian is one of the oldest and most popular Linux distributions. It started in 1993 and is known for being:

Very stable and reliable Completely free Community-driven (run by volunteers, not a company)

7. List and define the different types of licensing agreements

- Proprietary License

You pay for the software You cannot view or modify the source code Example: Microsoft Windows, Adobe Photoshop

- Free and Open Source License (FOSS)

Free to use, modify, and share Source code is available to everyone Example: Linux, Firefox, LibreOffice

- Shareware

Free to try for a limited time Must pay to continue using after trial period Example: WinRAR

- Freeware

Free to use forever But you cannot see or modify the source code Example: Adobe Acrobat Reader

8. What is Free Software? Define the 4 freedoms.

Free Software means software that respects users' freedom and community. "Free" refers to freedom.

The 4 Freedoms:

Freedom 0: Use the freedom to run the program for any purpose, anywhere, anytime

Freedom 1: Study the freedom to study how the program works and see its source code

Freedom 2: Share the freedom to make copies and distribute them to help others

Freedom 3: Improve the freedom to modify the program and share your improvements with the community

9. What is virtualization?

Virtualization is technology that lets you run multiple "virtual computers" on one physical computer.