Lecture 2: Introduction to Linux Notes

1. What is an Operating System?

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

2. What is a kernel?

- A **kernel** is *the core part of an operating system. It is the fundamental component responsible for managing the system's resources and facilitating communication between the hardware and software.*

3. Which other parts aside from the kernel identify an OS?

- The **Command-Line Shells**, **Graphical User Interfaces (GUI)**, **Utility and Productivity Programs**, and **Libraries** are all components of an operating system that can be used to identify it.

4. What is linux and linux distribution?

- Linux is a **Unix-like Operating System** popular in academic and business environments. A Linux distribution is **any operating system that runs the Linux kernel.**

5. List at least 4 linux characteristics:

- **Open source**
- **Free of charge**
- Is highly **scalable and customizable**
- Can be **installed on almost any system** as it supports almost every processor and architecture.

6. What is Ubuntu?

- A **Linux distribution**, freely available with both community and professional support.

7. What is Debian?

- *Debian* is an **all-volunteer organization dedicated to developing free software and promoting the ideals of the Free Software Community.**

8. List and define the different types of licensing agreements

- *Open Source* means the software **may be distributed for a fee or free.** The source code is distributed with the software.
- *Closed Source* means the software **is not distributed with the source code.** The user is restricted from modifying the code.
    - *Freeware* is **free software without the source code available.**
    - *Shareware* is **free software on a trial basis without the source code available.**
- *Free Software* is **software distributed with the source code. The software can be free of charge or obtained by a fee.**

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

- **Freedom 0**: Use the software for any purpose.
- **Freedom 1**: Examine the source code and modify it as you see fit.
- **Freedom 2**: Redistribute the software.
- **Freedom 3**: Redistribute your modified software.

> More about the implications of these freedoms can be found here:
> https://www.gnu.org/philosophy/free-sw.html

10. What is virtualization?

- It can be defined as **creating virtual versions of something.** It is used to **let multiple OS's run on one physical machine at the same time.**