Lecture 2 Introduction to Linux Notes

Important concepts:

- **Operating System:** An operating system provides all fundamental software features of a computer.
- **Kernel:** An OS Kernel is a software component thats responsible for managing low-level features of the computer, including the following managing system hardware, memory allocations, CPU time, and program to program interaction.
- **Components of an operating system:**
    - Applications
    - Graphical Desktop Enviorement
    - Daemons and Shells
    - OS Kernel
    - Hardware
- **Linux:** A unix-like OS popular in academic and business enviroments.
- **Linux Characteristics:**
    - Open Source
    - Free of Charge
    - Unix Tools
    - Highly Scalabe
    - Many Buisnesses rely on Linux for day to day operations
    - A lot of server applications run some version of linux
    - Linux can be installed on any system.
- **GNU Toolchain:** A collection of compilers, libraries, debuggers, and core utilities modeled on Unix.
- **Linux Distribution:** A complete Linux system package:
    - A Linux Kernel
    - Core Unix Tools
    - Supplemental Software
    - Startup Scripts
    - An Installer
- **What is Ubuntu:** A Linux Distribution.
- **Ubuntu Release cycles:**
    - Regular or Non-LTS
    - LTS(Long-Term Support)
- **What is Debian:** An all-volunteer organization dedicated to developing free software.
- **Different software licensing models (open source vs closed source):**
    - **Open Source:** The software ma be distrubuted for a fee or free. The source codee is distributed with the software.
    - **Closed Source:** The softrware is not distributed with the source code. The user is restricted from modifying the code.
- **The 4 Freedoms of Free Software:**
    - **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 the modified software.

- **Virtualization:** Defined as creating virtual versions of something.
- **Hypervisor and types:** Software or hardware in charge of creating, managing, and running virtual machines
    - **Type 1:** Runs directly on Hardware.
    - **Type 2:** Runs on an application on top of the OS.
- **VirtualBox:** A powerful x86 and AMD64/intel64 virtulization product for enterprise as well as home use.

List of the main Linux distributions

- Debian
- Redhat

List of some of the Debian Based Linux distributions

- Ubuntu

List of some of the Red Hat-based Linux distributions

- Fedora

List of some of the Ubuntu Based Linux Distributions

- Pop OS