# Deliverable 1

## Introduction/project description

- how to install a web Apache web sever on Ubuntu 20.04 Apache web server is the most extensively used open sources web server supported on the majority of the OS including Linux, windows , etc. It is highly customizable and can be integrated with other module . Installing and configuring the Apache for basic setup is quite easy .we will need to update the system repository index to install the most recent version.

## Project hardware and software requirements

you should have a regular, non-root user with sudo privileges configured on your server. Additionally, you will need to enable a basic firewall to block non-essential ports. You can learn how to configure a regular user account and set up a firewall for your server

## What is Linux?

Linux is a Unix like Operating System popular in academic and business environments Linux consists of a Kernel Libraries ,and utilities that make up the entire operating system is also available in many distributions (any operating system that rand the linux kernel) popular Linux distributions include Arch,centos ,Debian ,fedora, openSUSE, Red Hat , Slackware , Ubuntu and many more.

## Short history of linux

Not to be confused with Linux kernel version history. Linux began in 1991 as a personal project by Finnish student Linus Torvalds: to create a new free operating system kernel. The resulting Linux kernel has been marked by constant growth throughout its history. Since the initial release of its source code in 1991, it has grown from a small number of C files under a license prohibiting commercial distribution to the 4.15 version in 2018 with more than 23.3 million lines of source code, not counting comments.

# The history of Linux

Or listen to this two episodes podcast
OS Wars 1 and OS Wars 2

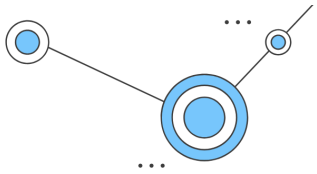


# Where Does Linux Fit in the OS World?

**Comparing Linux to Mac OS**

- Mac OS  is a commercial Unix-based OS derived from BSD with its own user interface.
- Mac OS share similarities with Linux. You can say they are cousins.
- Apple makes OS X available for its own computers. Installing it in other computers, while possible, is a violation of is EULA.
- Mac OS and many Linux distributions have the some of the popular Unix serve programs and the same Shell. Bash.
- Mac OS  differs from Linux in its user interface. Apple designed their own user interface and API (Aqua and Cocoa).
- Linux uses Xorg combined with a Desktop Environment.
- Cocoa isn't compatible with X from a programming perspective, applications developed for OS X can't be run directly on Linux.
- OS X and its mobile equivalent is largely limited to Apple hardware. Linux  runs on almost all processor architectures.

# Comparing Linux to Windows



**Keep this in mind:**

- In terms of security, advocates of both Windows and Linux claim to be the more secure. This is because each OS focuses on different security issues. Windows faces the thread of viruses where in Linux the security concern comes from breaches caused by misconfigurations or **Zero Days Exploits**.
- For over two decades, Windows has dominated the desktop arena. Linux, on the other hand, dominates the Server market.
- In most cases, it's possible to use either Linux or Windows. However, keep in mind that some applications or hardware may not be supported by Linux.
- The argument administrators face when choosing between each OS is Total Cost of Ownership. While Linux is, almost always, provided for free, it requires at least one system administrator well verse in Linux. Windows is provided at a cost but support is easier to find as more users are familiar with it.

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A zero-day vulnerability, at its core, is a flaw. It is an unknown
exploit in the wild that exposes a vulnerability in software or hardware
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## Linux distribution

there are tow main Linux distributions that branch out most of the other distorts out there

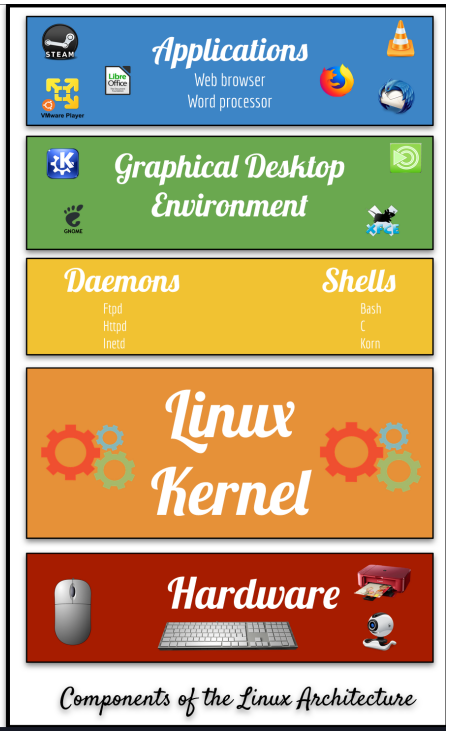
- Debian
- Ubuntu
- Pop os
- Redhat
- Fedora

- Alma Linux

# What Is a Distribution?

A complete Linux system package is called a Linux Distribution.
The following elements make up a Linux Distribution:

- **A Linux Kernel**
  - Different distributions use different versions of the Linux Kernel
- **Core Unix Tools**
  - For instance, the GNU tool set, the X Window System, a Desktop Environment, disk partitioning tools, etc ..
- **Supplemental Software**
  - For instance, server applications, user applications, and more.
- **Startup Scripts**
  - These are scripts that differentiate different distributions they range from launching dozens of programs at startup to even modify the way the desktop environment behaves.
- **An Installer**
  - Different distributions use different installers and manage software differently as well. One of the key elements is the package manager a distribution uses.



Components of the Linux Architecture

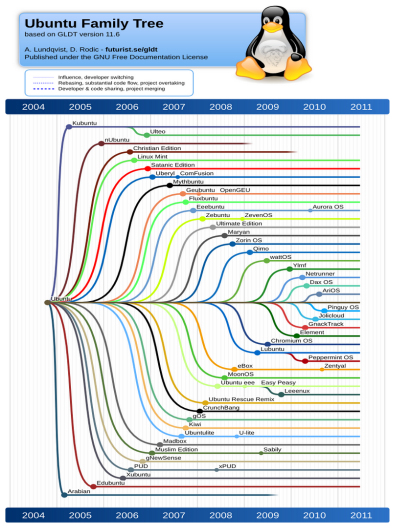
# Common Linux Distributions

There are two main Linux distributions that branch out most of the other distros out there.

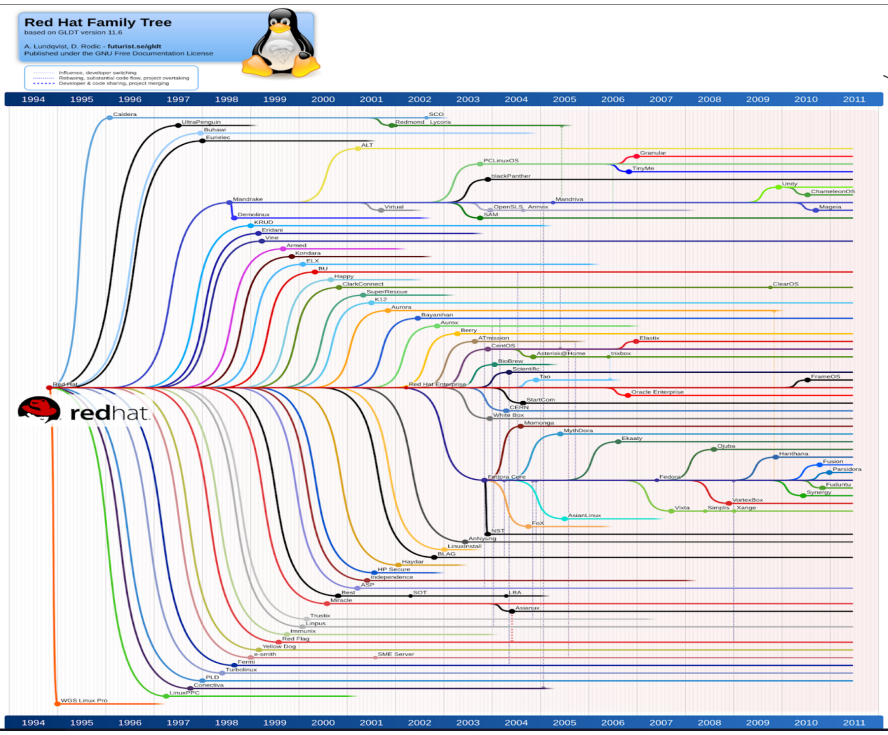
- Debian
  - Ubuntu
    - Pop OS
- Redhat
  - Fedora
    - Alma Linux

There are other independent distros like:

- Slackware
  - Absolute Linux
- Arch Linux
  - Manjaro



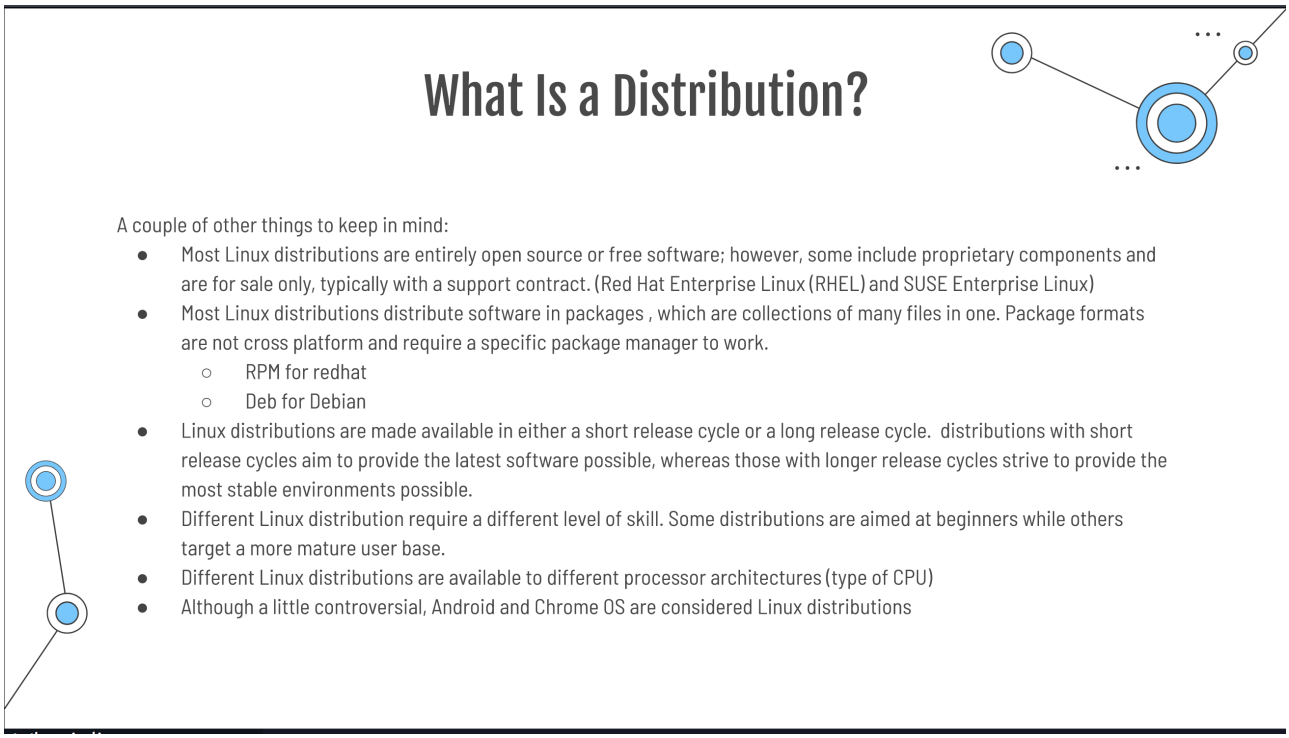
https://commons.wikimedia.org/wiki/File:Ubuntu_family_tree_11-06.png




# Linux Distributions Family Tree

https://upload.wikimedia.org/wikipedia/commons/1/1b/Linux_Distribution_Timeline.svg

https://en.wikipedia.org/wiki/List_of_Linux_distributions




- Slackware Slackware aims for design stability and simplicity and to be the most "Unix-like" Linux distribution. It makes as few modifications as possible to software package.

- Debian is an all volunteer organization dedicated to developing free software and promoting the ideals of the free software Community.** Fedora ** contains software distributed under various free and open-source licenses and aims to be on the leading edge of open source .

> Debian based Linux Distributions Ubuntu:
> is a Linux distribution freely available with both community and professional support. Kali Linux: is a Debian-derived Linux distribution designed for digital forensics and penetration testing. It is maintained. The standard Debian and its popular off shoot Ubuntu are great, all-around choices for a Linux system, but if you have more specialized needs, you might want a Debian alternative

- red Hat Inter price Linux Red Hat Enterprise in Linux provides a concisest foundation environment and thr tools needed to deliver services and workloads faster for any application. it also reduces deployment friction and costs while speeding time to value for crucial workloads enabling development and operations teams to innovator together in any environment.

> Fedora: contains software distributed under various free and open-source licenses and aims to be on the leading edge of open source .

## Open Source VS Closed Source

Open source software refers to the computer software which source is open means the general public can access and use. Closed source software refers to the computer software which source code is closes means public is not given access to the source code

## advantage of open source

Open Source: the software may be distributed for a free or free. the source code is distributed with the software.

## advantage of close source

Close Source: the software is not distributed with source code. the user is restricted from modifying the code.

- The Free software movement
  The freeThe free software movement is a social movement with the goal of obtaining and guaranteeing certain freedoms for software users, namely the freedoms to run the software to

> study the software to modify the software to modify software and to share copies of software whether modified or not software which meet some requirements of freedoms.

Freedom 0: use the software for any purpose Freedom 1: examine the source code and modify it as you see fit Freedom 2: redistributed the Software Freedom 3: redistribute your modified software

## Sources

class presentation lab 1 https://www.makeuseof.com/best-debian-based-linux-distros/ https://www.google.com/search?channel=fs&client=ubuntu&q=open+source+vs+closed+source course YouTube channel