* Linux Terminology overview

-> when you start exploring linux, you will soon come across some terms which may be unfamiliar, such as distribution, boot loader, desktop environment etc.

-> Before we proceed further, lets stop and take a look at some basic terminology used in linux to help you get up to speed.

-> Before you begin Linux you need to be aware of some basic terms.

- Kernel
- Distribution
- Boot Loader
- Service
- File system
- X window system
- Desktop environment
- Command Line
- Shell

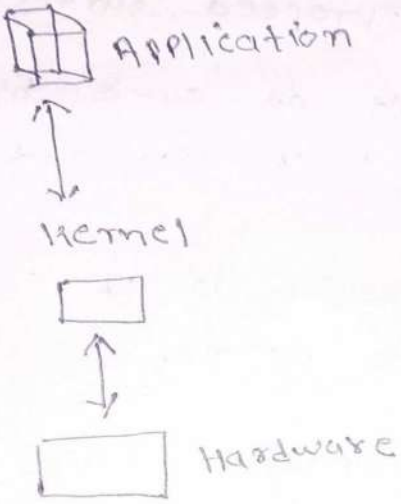
* Kernel

-> The kernel is considered brain of the Linux operating system.

-> It controls the hardware and makes the hardware interact with the application.

→ An example of a kernel is the Linux kernel.

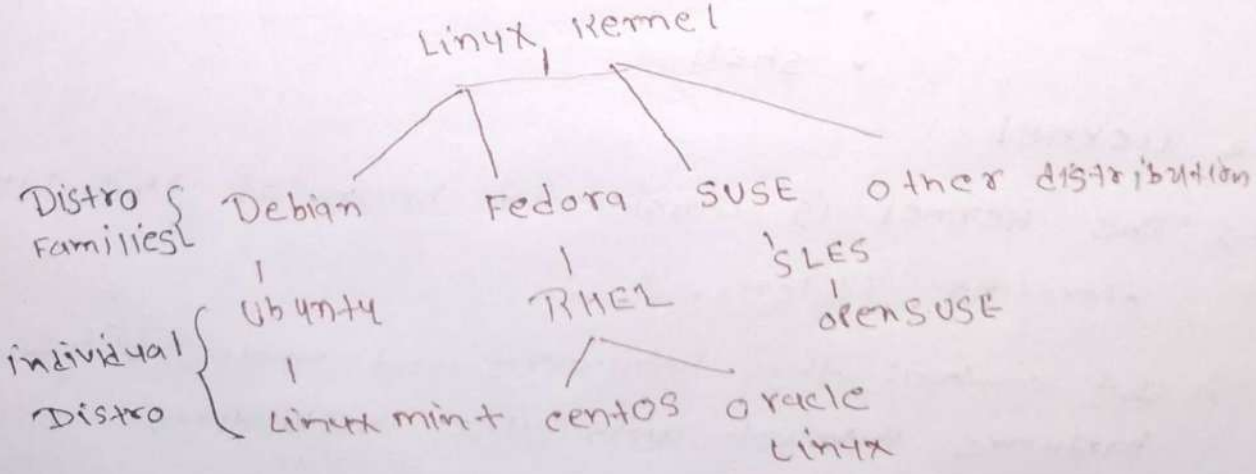
→ The most recent linux kernel along with past Linux kernels can be found at the kernel.org web site.



* Distribution

→ A Distribution also known as Distro is a collection of Program combined with the Linux kernel to make up a Linux-based operating system.

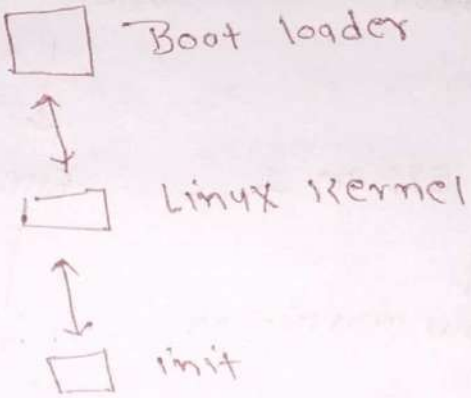
→ some common example of a distribution are Red Hat Enterprise Linux, Fedora, Ubuntu and Centos.



* Boot Loader

→ The boot loader as the name implies is a Program that boots the operating system.

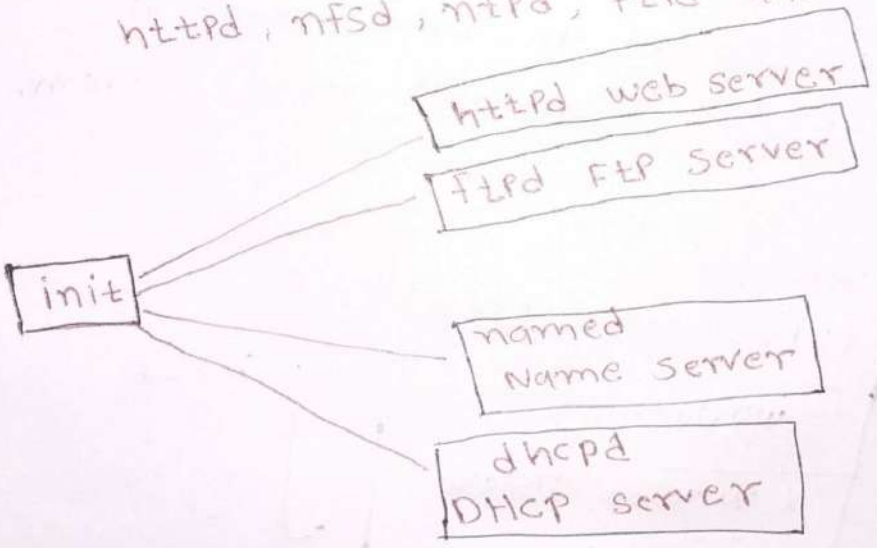
→ Two Example of a boot loader are GRUB and Isolinux.



* Service

→ A service is a Program that runs as a background Process

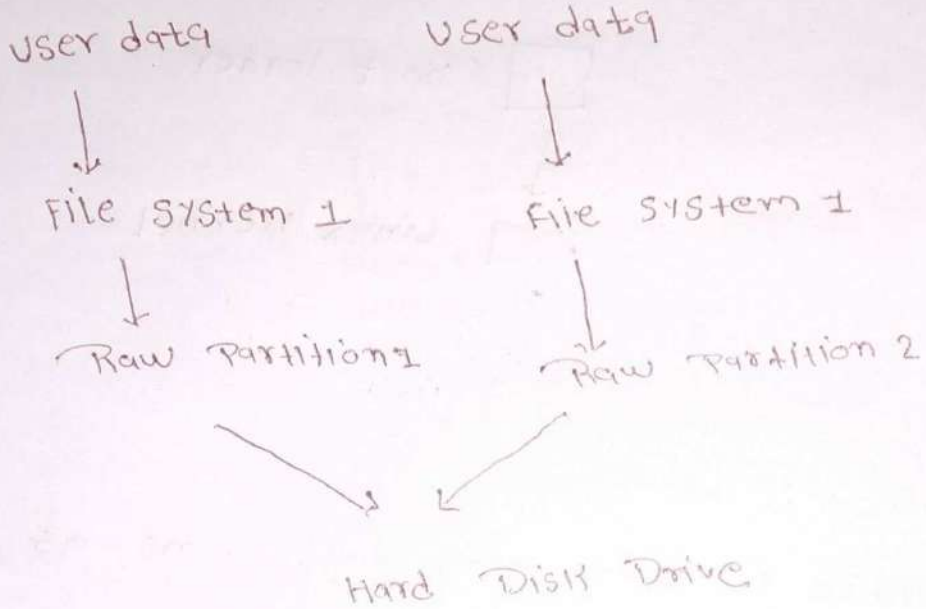
→ Some Example of the services are httpd, nfsd, ntpd, ftpd and named.



* File System

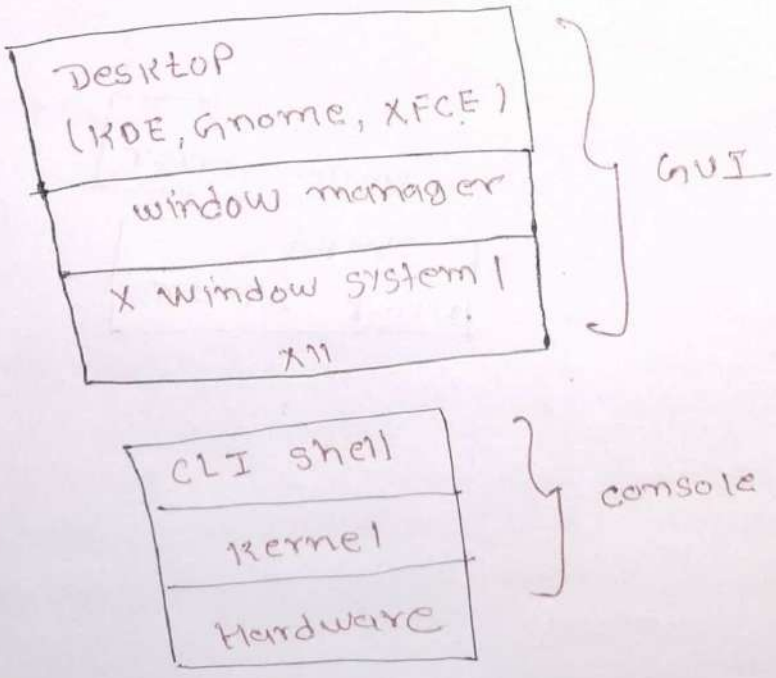
→ A file system is a method for storing and organizing files in Linux.

→ Some examples are ext3, ext4, exFAT, XFS and BrtFS.



* X window System

→ The X window system Provide the standard toolkit and Protocol to built graphical user interface on nearly all Linux system.



* Desktop Environment

-> The desktop environment is a graphical user interface on top of operating system.

GNOME, KDE, Xfce and FluxBox are some example of desktop environment.

* Command Line

-> The command line is an interface for typing command on top of operating system.

* Shell

-> The shell is the command line interprets the command line input and instruct the operating system to perform any necessary task and commands

-> For example bash, tcsh and zsh.

* Linux Distribution

→ If you are building a Product designed to run on Linux, Project requirment will surely include making sure the Project works Properly on the most widely used Linux distributions.

→ To accomplish this, you need to learn about the diffrent components, services and configuration associated with each distribution.

* what is Linux Distribution, and how does it relate to the Linux Kernel?

→ The Linux Kernel is core of the operating system.

→ A full Linux Distribution consists of the Kernel plus a number of other software tools, for file related operation, user managment and software Package managment.

→ Each of these tools Provides a part of the complete system.

→ Each tool is often it's own seperate Project with it's own developer working to Perfect that Piece of the system.

→ while the most recent Kernel (and earlier version) can always be found in the Linux Kernel Archives, Linux distribution may based on diffrent Kernel version.

→ For Example the very Popular RHEL 8 distribution is based on the 4.18 Kernel,

→ which is not new but extremly stable, while the newer RHEL 9 is based on much later 5.14 Kernel.

→ Other Distribution distribution may move more quickly in adopting the latest Kernel release.

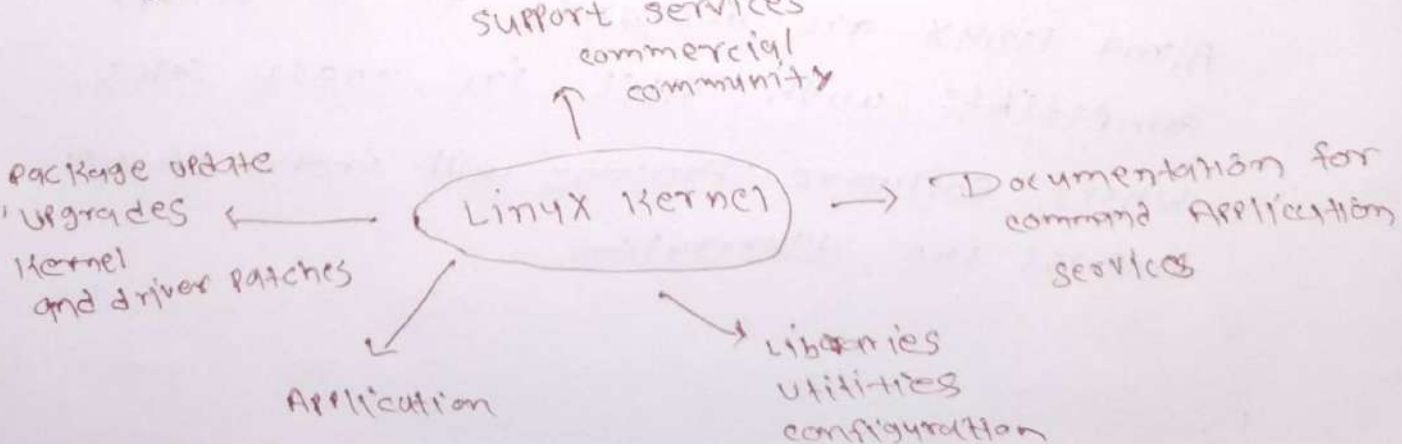
→ It is important to note that Kernel is not an all-or-nothing proposition.

→ For Example RHEL/centOS has incorporated many of more recent Kernel improvement into their customized older versions as have Ubuntu, openSUSE, Fedora etc.

→ Example of other essential tool and ingredients Provided by distributions include c/c++ and clang compilers, the gdb debugger, the core system libraries application need to link with in order to run.

→ The low-level interface for drawing graphics on the screen, as well as higher level desktop environment, and the system for installing and updating the various components, including the Kernel itself

→ And all distribution come with rather complete suit of application already installed.



* Services Associated with Distributions

-> The vast variety of Linux distributions are designed to cater to many diffrent audiences and organization according to their specific needs and tastes.

-> However, large organization, such as companies and governmental institutions and other entities, tend to choose the major commercially-supported distribution from Red Hat, SUSE, and canonical (Ubuntu)

-> centOS and centOS Stream are Popular free (as in no cost) alternatives to Red Hat Enterprise Linux (RHEL) and are often used by organization that are comfortable operating without Paid technical support.

-> Note that new version of centOS disappeared at the end of 2021 in favor of centOS Stream.

-> However at least two new RHEL-derived Subsitutes, Alma Linux and Rocky Linux have established a healthy foothold.

-> The RHEL variants, such as centOS and Alma Linux are designed to be binary compatible with RHEL in most cases binary software Package will instam properly across the distribution.

→ Ubuntu and Fadora are widely used by developers and are also Popular in the educational realm.

→ many commercial distributors, include Red Hat, Ubuntu, SUSE and oracle, Provide long-term fee-based support for their distribution, as well as hardware and software certificatio

→ All major distributors provide update services for keeping your system primed with the latest security and bug fixes and Performance enhancement, as well as or provide online support resources.