# Linux File System Structure :-

**1. /bin** :- bin - stands for binary.s

.

Binary is a file which contains the compiled source code.

We can also call it as executable, because it can be executed on the computer.

/bin is a sub-directory of the root directory in Unix/Linux OS.

this directory contains basic commands which is enough for the minimal system function
ex :- ls, cat, cp

**2. /sbin** : system binaries or super user binaries. This folder contains commands which are required for changing system properties.
Ex:- adduser,reboot,shutdown

**3. /boot** : The contents are mostly Linux kernel files and bootloader files(files needed to start up the operating system)

**4. /dev** : This contains device files
This file represents your speaker device,keyboard

**5. /etc** :- it contains all system related configuration files in here or in its sub-directories
A "configuration file" is defined as a local file used to control the operation of a program;it cannot be an executable binary.
Ex:- adduser.conf, theme config

**6. /cdrom** :- directory is a standard practice to mount cd, but not necessary. We use media and mnt to mount anything these days

/home :- The home directory can be said as a personal working space for all the users except root. There is a separate directory for every user. For example, two users ‘jitendra' and ‘jack' will have directories like "/home/jitendra“ and "/home/jack“

/lib :-
directory contains those shared library files needed to boot the system and run the commands in the filesystem,
ie. by binaries in /bin and /sbin

Only the shared libraries required to run binaries in /bin and /sbin will be here
Difference between lib, lib32, lib64, libx32

lib :- architecture independent files.
lib32 :- for 32 bit architecture libraries
lib64 :- for 64 bit architecture libraries
libx32 :- for 64 bit architecture libraries but the pointer size is 32 bit,
Normally software using the x86-64 instruction set uses 64-bit pointer size.

/media :- When you connect a removable media such as USB disk, SD card or DVD, a directory is automatically created under the /media directory for them. You can access the content of the removable media from this directory.

/mnt – Mount directory
This is similar to the /media directory but instead of automatically mounting the removable media, mnt is used by system administrators to manually mount a filesystem

/opt – Optional software
Traditionally, the /opt directory is used for installing/storing the files of third-party applications that are not available from the distribution's repository.

In the old days, "/opt" was used by UNIX vendors like AT&T, Sun, DEC and 3rd-party vendors to hold "Option" packages; i.e. packages that you might have paid extra money for.

/proc :- It contains useful information about the processes that are currently running.
It could be used for obtaining information about a system, we can also edit the config files related to kernel here.

/root :- it works as the home directory of the root user. So instead of /home/root, the home of root is located at /root. root directory (/) is different from root user directory.

/tmp :- this directory holds temporary files. Many applications use this directory to store temporary files. Even you can use directory to store temporary files.

the contains of the /tmp directories are deleted when your system restarts. Some Linux system also delete files old files automatically so don' store anything important here.

/var :- stores system-generated variable data files. This includes spool directories and files, administrative and logging data, cache, transient and temporary files.
Ex :- /var/spool contains data which is awaiting some kind of later processing

/run :- runtime variable data. The purposes of this directory were once served by /var/run, system may use both

/srv :- This directory gives users the location of data files for a particular service.
For example, if you run a HTTP or FTP server, it's a good practice to store the website data in the /srv

directory.

/usr :- User System Resources. in '/usr' go all the executable files, libraries, source of most of the system programs. For this reason, most of the files contained therein is read only (for the normal user).

why /usr/bin , /usr/sbin ?

/sys :- allows you to get information about the system and its components (mostly attached and installed hardware) in a structured way.
Ex:- device, kernel, firmware

/snap :- The /snap directory is, by default, where the files and folders from installed snap packages appear on your system.

# Types of Files in Linux:-

In Linux everything is treated as File.

All files are divided into 3 types

**1) Normal or Ordinary files:**

These files contain data. It can be either text files (like abc.txt) OR binary files (like images, videos etc).

**2) Directory Files:**

🕐 These files represent directories.

🕐 In windows, we can use folder terminology where as in linux we can use directory terminology.

🕐 Directory can contains files and sub directories.

**3) Device Files:**

In Linux, every device is represented as a file. By using this file we can communicate with that device.

Note: short-cut commands to open and close terminal

ctrl+alt+t ➔ To open terminal

ctrl+d ➔ To close terminal

How to check File Type:

In Ubuntu, blue color files represents directories and all remaining are considered as normal files. This color conventions are varied from flavour to flavour. Hence it is not standard way to check file type.