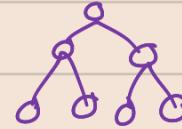


## \* Linux file system (lesson 7)

\* Linux vs Windows file system.

### Linux file system

i) Hierarchical tree structure

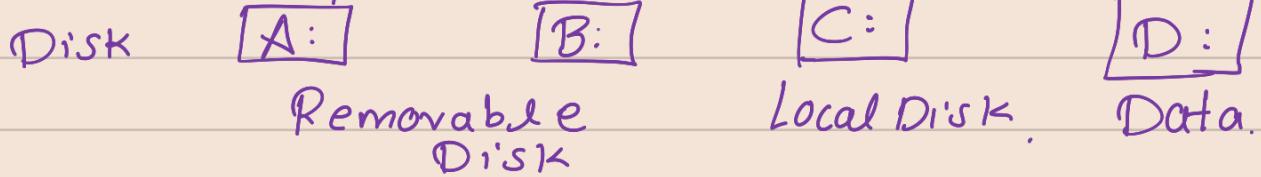


2.) 1 root folder and inside many folders  
(each having its own purpose) → folders and files and so on



### Windows file system

i.) multiple root folders



C → Internal Hard drive.

\* Linux file system overview.

GUI file view (on left side of Ubuntu OS)  
aka Files.

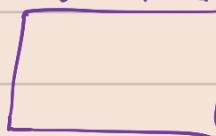
it shows all the folders and files  
in GUI so that we can navigate easily  
now i am inside home directory of user.

every user on Linux will get its own space  
inside home directory. Default Directories  
in home directory. → Desktop, Documents, Downloads,  
music, videos etc.

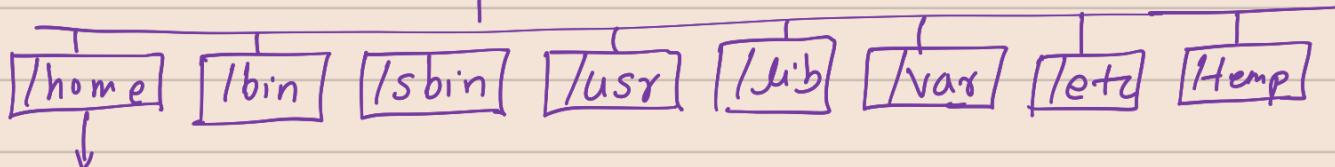
⇒ 'Home' folder is one of the folder in  
the root of file system.

Q. How to go to root folder? root directory.

→ Other locations → Computer →



→ root directory.



- all Linux users spaces are located
- each user will have its own space in home directory. except root user

Root user home directory is at /root.



- multiple users on computer.
- each user has its own space
- each user can have its own configurations.

- Programs installed system wide, are available for all users on that computer.

not available in home direc. (available in outer level and available to all users)

\* **/bin**

- stand for binaries.
- bin folder inside the root directory
- contains basic commands that you use in Linux.
- available system wide.

What is a binary?

- computer-readable format.  
(0101)

- to execute a command it must be in a binary format.

## \* /sbin

- system binaries.
- essential system binaries programs that admin would use (need superuser privilege)

## \* /lib

- contains the library of commands (`/bin`)

executable file - `/bin`  
libraries - `/lib`.

## \* /usr

- user.
- This was used for user home directories
- It <sup>also</sup> contains folder `/bin /lib /slib`
- `/bin` in root folder and `/bin` in `/usr` is same.
- historic reasons.  
↳ because of storage limitations  
it was split to root binary folders  
and user binary folder.

`/usr → /local`

`/bin  
/sbin  
/lib`

- 1.) application that you install on your computer. (3<sup>rd</sup> party)
- 2.) eg - docker, docker cube, java, etc.
- 3.) app. installation is split  
eg Java install.  
Java binary files - `/bin`  
Java libraries - `/lib`.  
and so on
- 4.) User is inside root, available to all user (system wide)
- 5.) You can install application only for yourself.  
↳ install home directory

## \* /opt

- optional - third party programs you install.

## /usr /local

- application which split its components
- binary files - /bin
- library - /lib.
- system wide.

## /opt

- programs , which not split its components.
- IDE e.g.
- everything in one folder.
- system wide

## \* /boot

- contains file required for booting the system (do not touch)

All these were read only folders - bin, sbin, usr, boot, opt.

## \* /etc

- place where configuration for system-wide applications is stored.
- it is writable and readable.
- eg - network interface config, linux user data and passwords.

## \* /dev

- devices.

- location of device file - webcam, keyboard, hard drive etc.
- apps and drivers will access this, not user
- contains files that system need to interact with the device.

## \* /var

- variable.

- contains logs - contains file to which the system writes data during the course of its operation

/var/log

/var/cache

- contains log files.

- contains cached data from application programs

\* /tmp

- stores temporary files for diff application.

\* /media and /mnt

/media

→ contains subdirectories, removable media. where removable media devices inserted into the computer are mounted.

eg- when you insert a CD a directory will automatically be created and you can access the contents of the CD inside the directory.

/mnt → historically, sys admin mounted temporary file system there mount points

\* interaction with these root folders.

- usually you will not be interacting with these folders.

- You install apps with package manager.

- Package manager handle root <sup>folders</sup>
- OS will also handle this.

\* Hidden files

Home → ⌂ → ☐ Show Hidden files

- Is primarily used to help prevent user data from being accidentally deleted.

- automatically generated by programs or OS.
- file name starts with dot
- Ign Union also called 'dotfiles'.