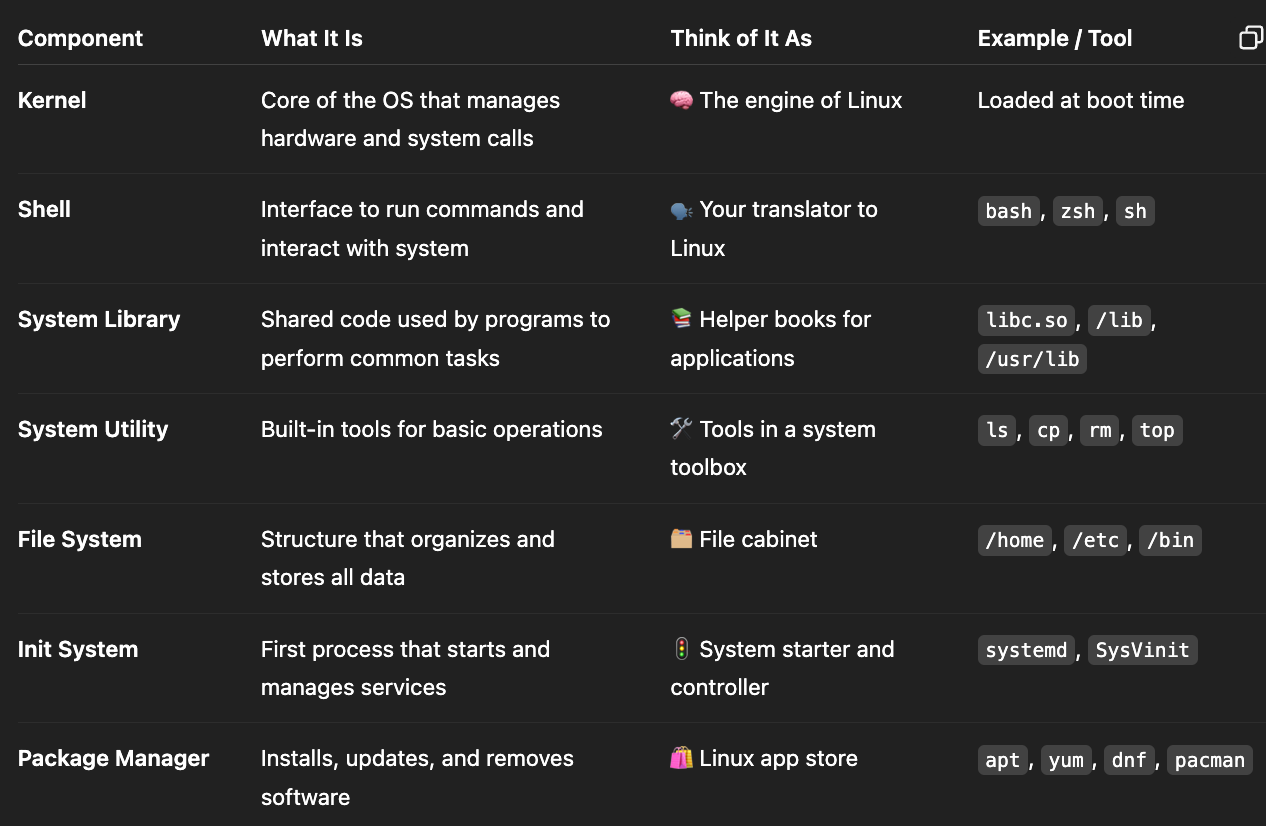
**Components of linux OS**



**Folder structure at root**

/sbin (system binaries)- contains command files required by administrator. like adduser, mount a file system, reboot system

/bin- contains command files required by all users like cp,ls,r,cat,mkdir

/lib- used by kernel  
  
/boot- contains files needed to restart the system.

/usr- contains most of the installed softwares and it’s files documents. It’s like ProgramFiles in windows

/srv- It stores data that your server shares with others.

/opt- used to store third-party software or manually installed applications. Every user should manually install 3rd party software here only.

/mnt- Used by system admin to temporarily access external devices or partitions by mounting them into the file system

/var- /var/log stores log files of system, services, applications. (basically all logs)

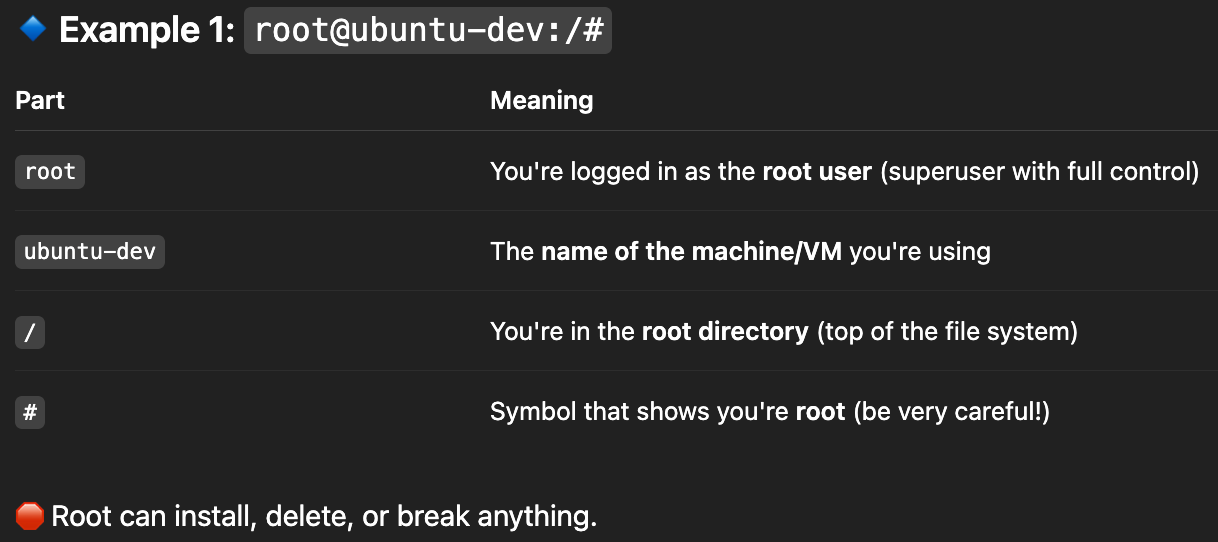
/home- Stores personal files for each normal user, which are user specific like /home/Ishan/scripts , /home/Ishan/Documents

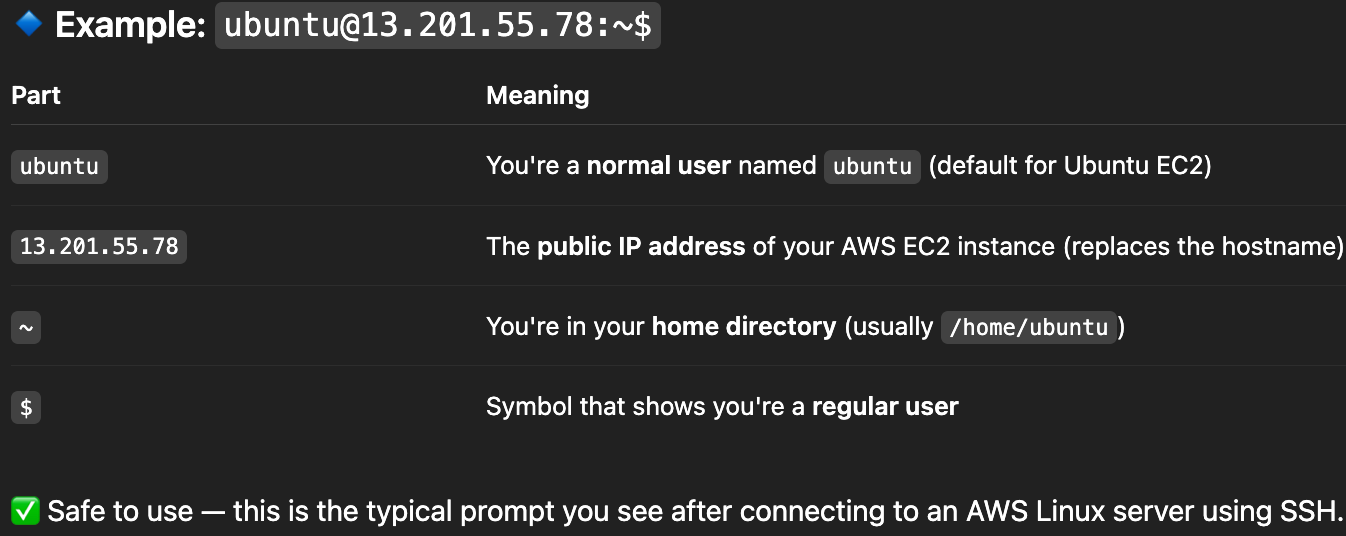
/etc- stores all configuration files for system (hostname) and major applications. If you install a tool like Apache, Docker, or MySQL, their configs typically live in /etc

/tmp- stores cache and temporary data. emptied on reboot.

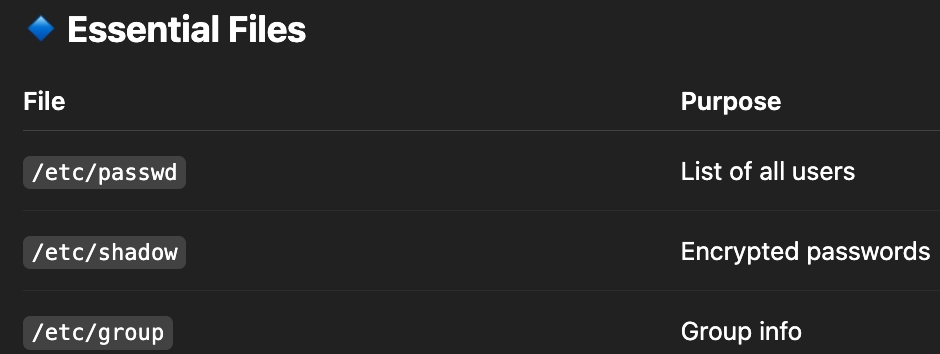
/run- stores runtime data of processes like processID, sockets docker.sock

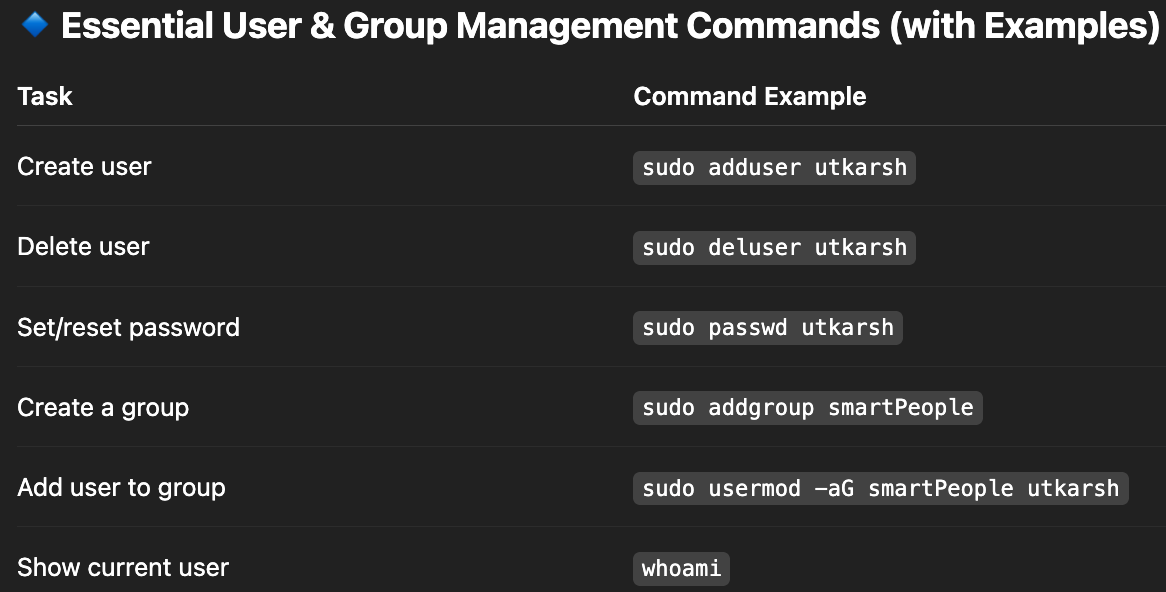
**Linux prompt**  
  
user@hostname:directory\_symbol





**User Management**





- “useradd” commanddoesn’t create a user directory under /home, while “adduser” does.

-We can’t restore a user’s password, we can only view encrypted password.

**Commands**

touch <file>- create empty file

vi <file>- opens the file in text editor, if not created then create and opens.

cat <file>- to show content of the file

man <command>- tells what that command does and available flags like “man ls”

pwd- print working directory

mkdir- make directory

top- shows all the details abt process and thread on system like TaskManagr. Used to monitor node health.

\* apt is the default package manager of linux- /etc/apt. It creates a dependency tree for required package and install all necessary dependencies.

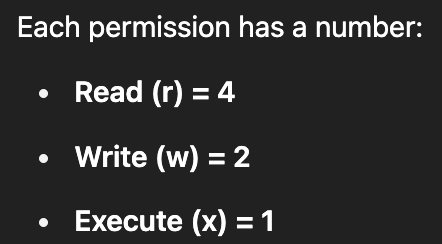
\* The line #!/bin/bash at the **top of a shell script** is called a **shebang. It means run the shell script in bash.**

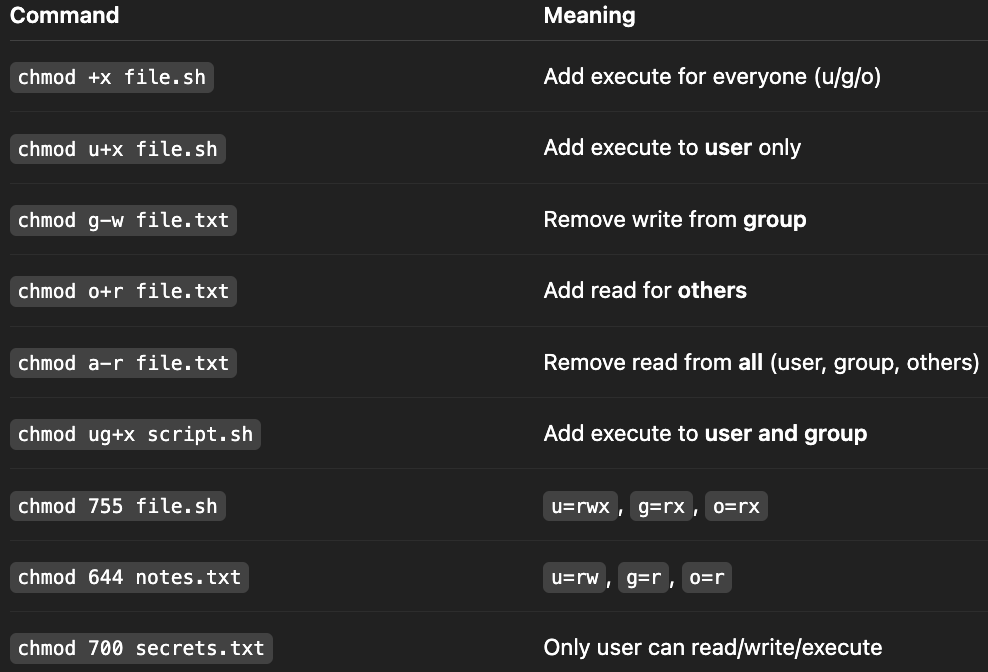
****chmod command** (change mode)**

**- 3 type of user we set permission for - user (u), group (g), others (o).**

**User means owner of file. Group includes users in the file’s group**

**- 3 types of access- read, write, execute**





-rwxr-xr-- 1 utkarsh smartPeople 5467 Jun 28 test.sh

| **Section** | **Example** | **What It Means** |
| --- | --- | --- |
| -rwxr-xr-- | Permissions | File type + who can read/write/execute |
| 10 | Link count | Number of hard links to this file |
| utkarsh | Owner | The user who owns the file |
| smartPeople | Group | The group that owns the file |
| 1234 | File size | Size in **bytes** (here: 5467 bytes) |
| Jun 28 | Modified date | Last modified **month and day** |
| test.sh | File name | Name of the file |

When your account was created (e.g., “utkarsh”), the system also created a group with the same name (“utkarsh”) and made that your default group.

When a user creates a file, Linux automatically assigns two things: user (owner) & user’s deafult group.

