**Linux Notes**

**Access Linux using SSH command Line**

Go to vmware setting and connect using ssh configure and put the username in it and provide password. You will connect to the linux.

**Or using CMD we need to provide**

ssh –l <username> <IpaddressofLinuxMachine>

**To open the terminal in linux as root we use this command:-**

**Command :- (su –)🡪 (Switch user)**

This command is used to login as root in linux terminals.

**What is Root?**

There are three types of root on linux system:-

1. **Root account**:- root is an account or a username on Linux machine and it is the most powerful account which has access to all commands and files.
2. **Root as /:** the very first directory in Linux is also referred as root directory.
3. **Root home directory:** the root user also has a directory located in /root which is called root home directory.

**How to change the password in CentOS**

**🡺** You should change your initial password as soon as login

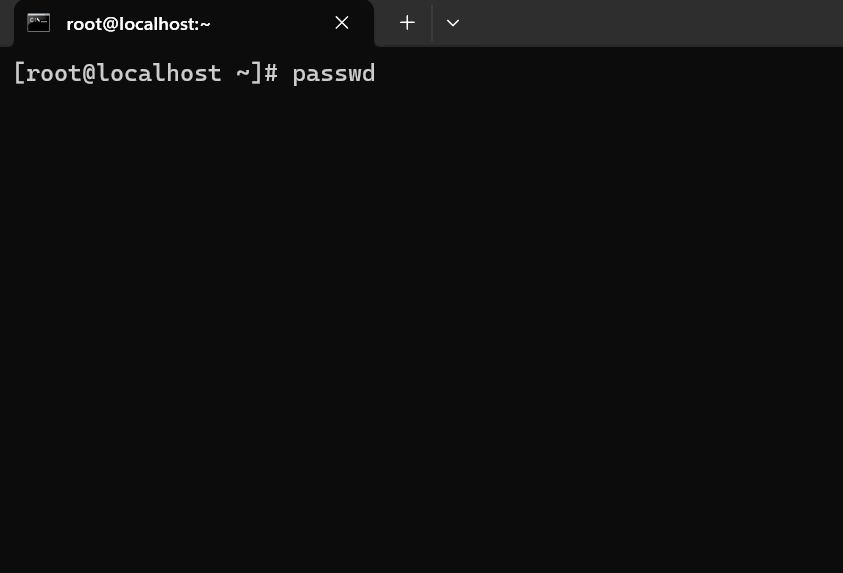
Command 🡺 **passwd <userid>**

Old password:- **enter the current password**

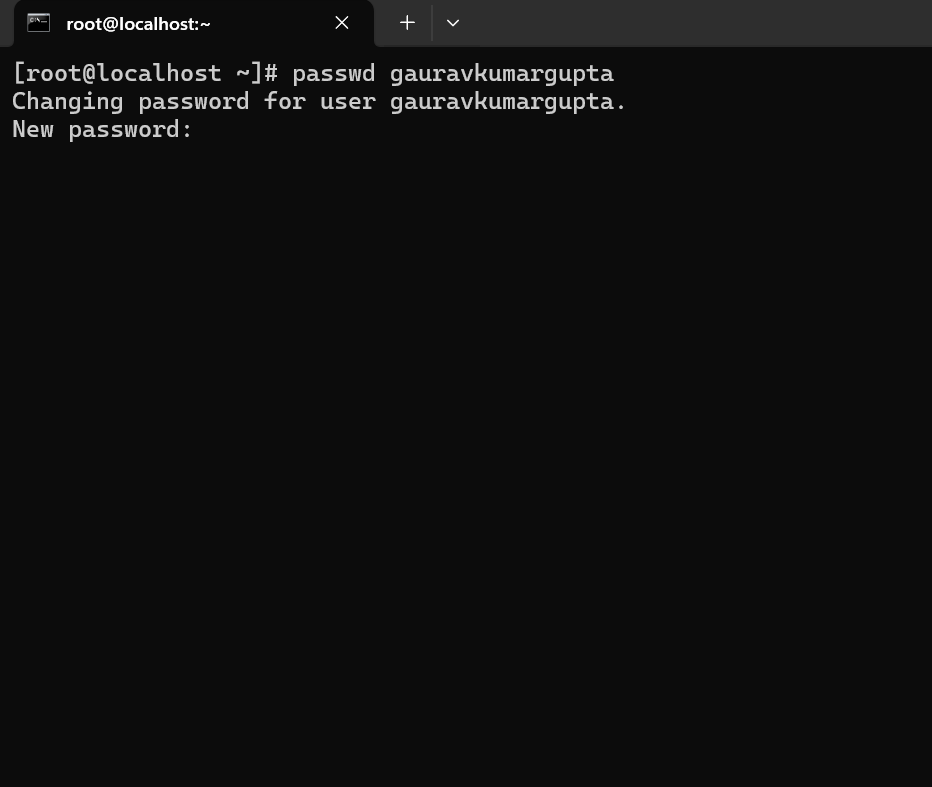
New password:- **enter the new password**

Retype new password:-**re-enter your password.**

Now suppose we type command **passwd** in the root prompt it will change the root password like this:-



Now suppose we type the command **passwd <userid>** it will change the password the user like this



**File System**

It is a system used by and operating system to manage files. The system controls how data is saved or retrieved.

Operating system stored files and directories in an organized and structured way like in windows:-

Operating system—windows directory

Application 🡪program/program86 directory

Users data🡪user directory

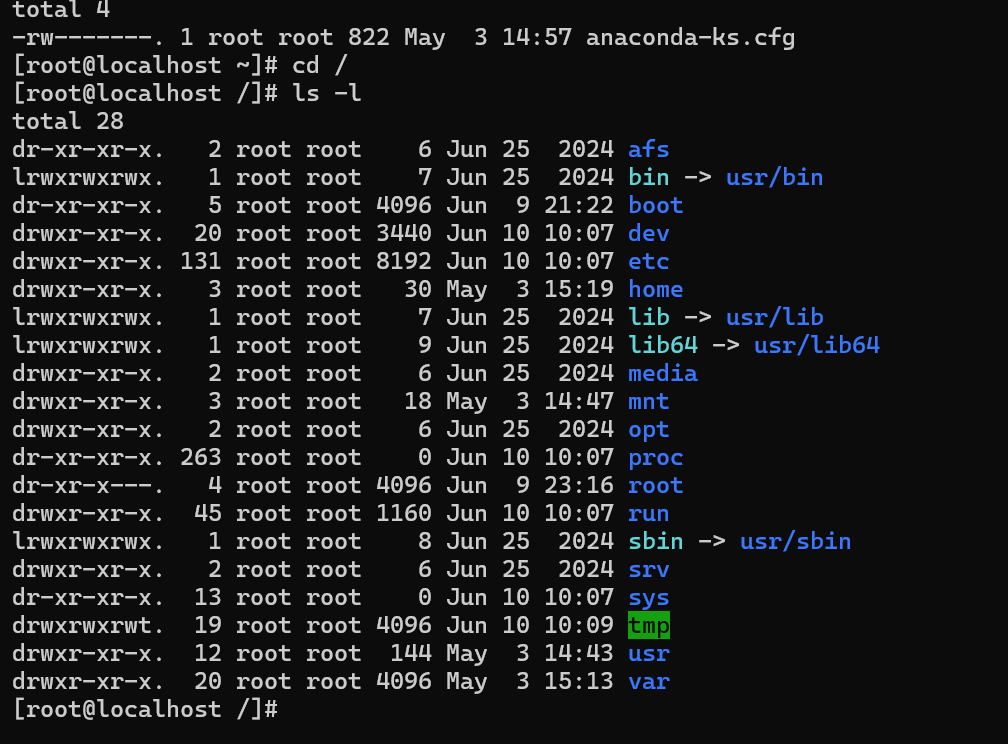
There are many different types of file systems. In generals, improvements have been made to file system with new release of operating system and each new file system has given different names:-

**e.g. ext3,ext4,xfs,NTFS,FAT etc.**

**To see the directory in linux we use**

**Command :- cd / 🡪 This command will open the root directory as / represent root directory and then type**

**Command :- ls –l 🡪 This command will list all the directories with more details in it.**



**File System Structure and its Description:-**

| **Directory** | **Description** |
| --- | --- |
| /afs | Used by the Andrew File System (AFS) – a distributed network file system. Rarely used unless AFS is configured. |
| **/bin -> usr/bin** | Symbolic link to /usr/bin, which contains essential user commands (e.g., ls, cp, mv). |
| **/boot** | Contains bootloader files like the Linux kernel (vmlinuz), initramfs, and GRUB config. |
| **/dev** | Virtual directory containing device files (e.g., /dev/sda, /dev/null). |
| **/etc** | Contains system-wide configuration files (e.g., /etc/passwd, /etc/fstab). |
| **/home** | User home directories (e.g., /home/user1). |
| **/lib -> usr/lib** | C programming library files needed by commands and apps(**strace –e open <command>🡪**It will show how to use the command) |
| /lib64 -> usr/lib64 | Symlink to /usr/lib64. Used on 64-bit systems for 64-bit libraries. |
| **/media** | Mount point for removable media (USB, CDROms). |
| **/mnt** | To mount external filesystem(e.g. NFS) |
| **/opt** | Optional/add-on software packages installed manually.(used for third party apps) |
| **/proc** | Virtual filesystem (e.g., /proc/cpuinfo).(It creates files for running program and deletes it when we shut) |
| /root | Home directory of the root user.it is not same as / |
| **/run** | Temporary filesystem for system information (runtime data like PID files). |
| **/sbin -> usr/sbin** | Symlink to /usr/sbin/System files. Contains system administration binaries (e.g., reboot, ifconfig). |
| /srv | Contains data for services (e.g., web or FTP servers). |
| /sys | Interface to kernel, similar to /proc, often for device and driver info. |
| **/tmp** | Temporary files created by applications. World-writable, cleared on reboot. |
| /usr | Secondary hierarchy for read-only user data; contains most user binaries and libraries. |
| **/var** | Sytem logs /Variable data files (e.g., logs in /var/log, mail in /var/mail, spool files). |

**Navigating File System**

🡺When navigating a unix FileSystem, there are few important commands

**“cd”🡪**Change directory

**“pwd”🡪**print working directory

**“ls -l”🡪**Listing of directory alphabetically

“**ls-ltr:🡪**list of directory/file according to creation / old files in the top and new files in the bottom

**“cd ..”🡪** It will move backword one step.

**How to know if the file is directory or file in the linux:-**

**Linux File or Directory Properties**

Each file or directory in Linux has details information or properties

* d🡪directory
* l🡪link
* - 🡪 regular test files

**File System Paths**

**There are two paths to navigate to a filesystem:-**

**🡺Absolute path**

**🡺Relative path**

🡺 An absolute path always begin with a “/”. This indicates that the path starts at the root directory. An example of an absolute path is **cd /var/log/samba**

**🡺**A relative path does not begin with a “/”. It indicates a location relative to your current position. An example of a relative path is :- suppose you are in **var directory like:-**

**cd /var**

now you want to go to log directory

**cd log**

then you want to go into samba directory:-

**cd samba**

so in relative path we simple navigate from the current directory.

**Creating Files and Directories**

**Create Files**

* **touch🡪** Create an empty file or update the timestamp of an existing file.
* **cp🡪** Copy files or directories.
* **Vi🡪** Open the vi (or vim) text editor to create or edit files.

**Create Directories**

* **Mkdir**

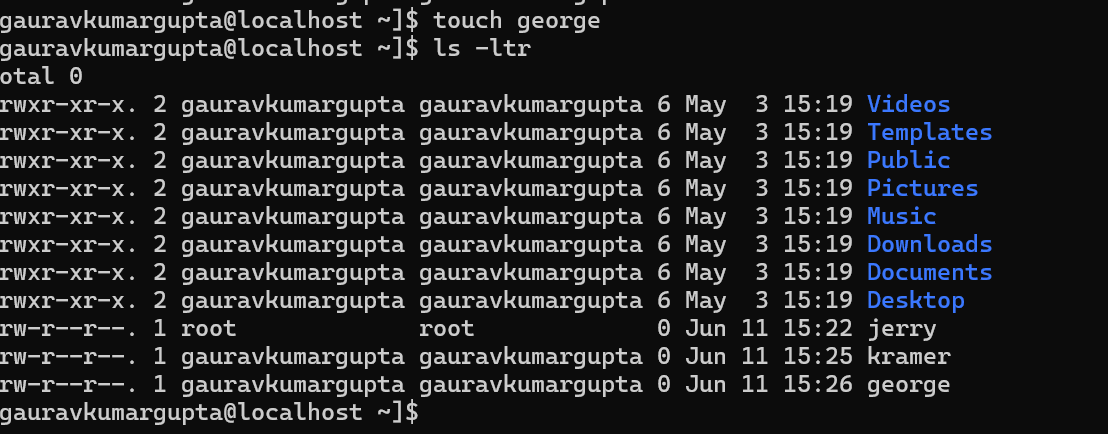
**🡺touch 🡪** this command is used to create an new empty file or update the timestamp of an existing file like described below:-

🡺touch George

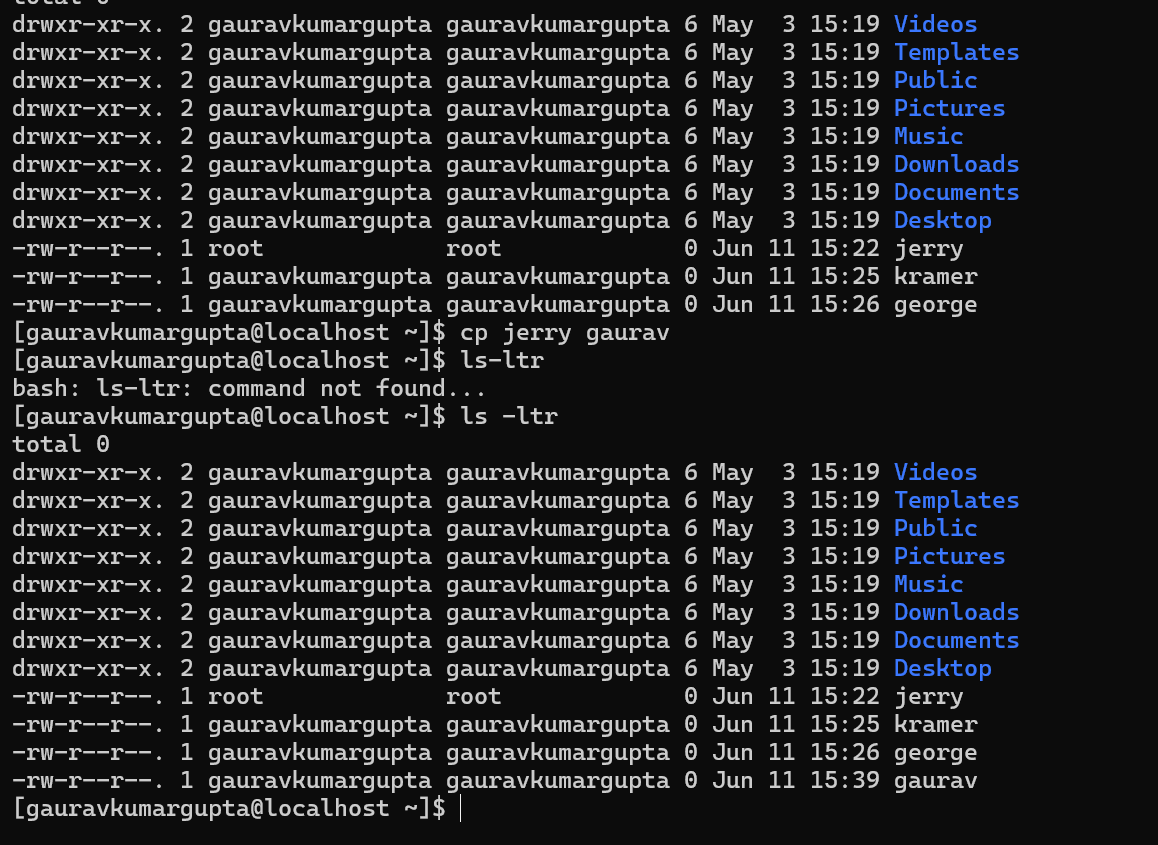
It will create the file in the present working directory

Using touch command we can create multiple file at once

**🡺touch Rahul gaurav gautam**



**🡺cp🡪** This command is used to copy the file and directory and creates a new file with different name like described below:-



**🡺cp jerry gaurav**

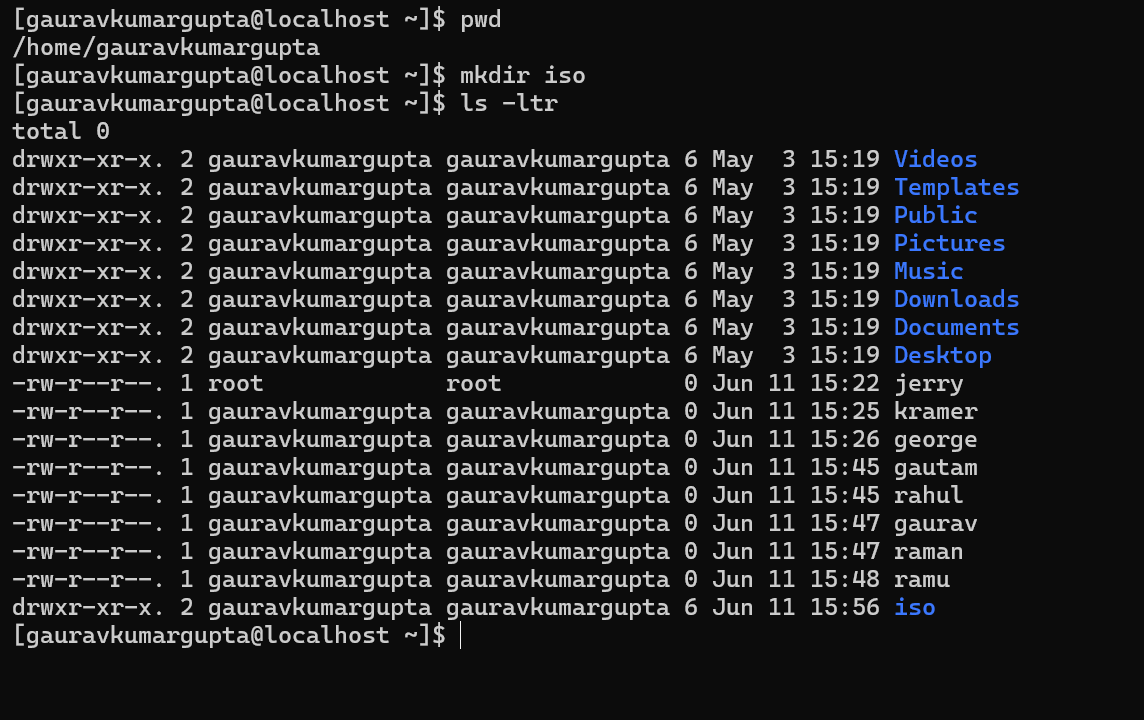
It will make the copy of the jerry and will create a new file with the name gaurav as describe in the picture.

🡺**vi🡪**it open the text editor to create a or edit the file.like:-

🡺vi gaurav🡪 it will open the text editor and after we write everything we need to use the command.

We need to use **:wq(write and quit)** this command is used to close the editor after writing.

**mkdir(make directory)🡺** This command is used to create the new directory in the present working directory. Like:-



🡺**mkdir iso**

It will create the directory in the present working directory with the name **iso**

We can create the multiple directory at once using mkdir with spaces

mkdir gaurav kumar gupta

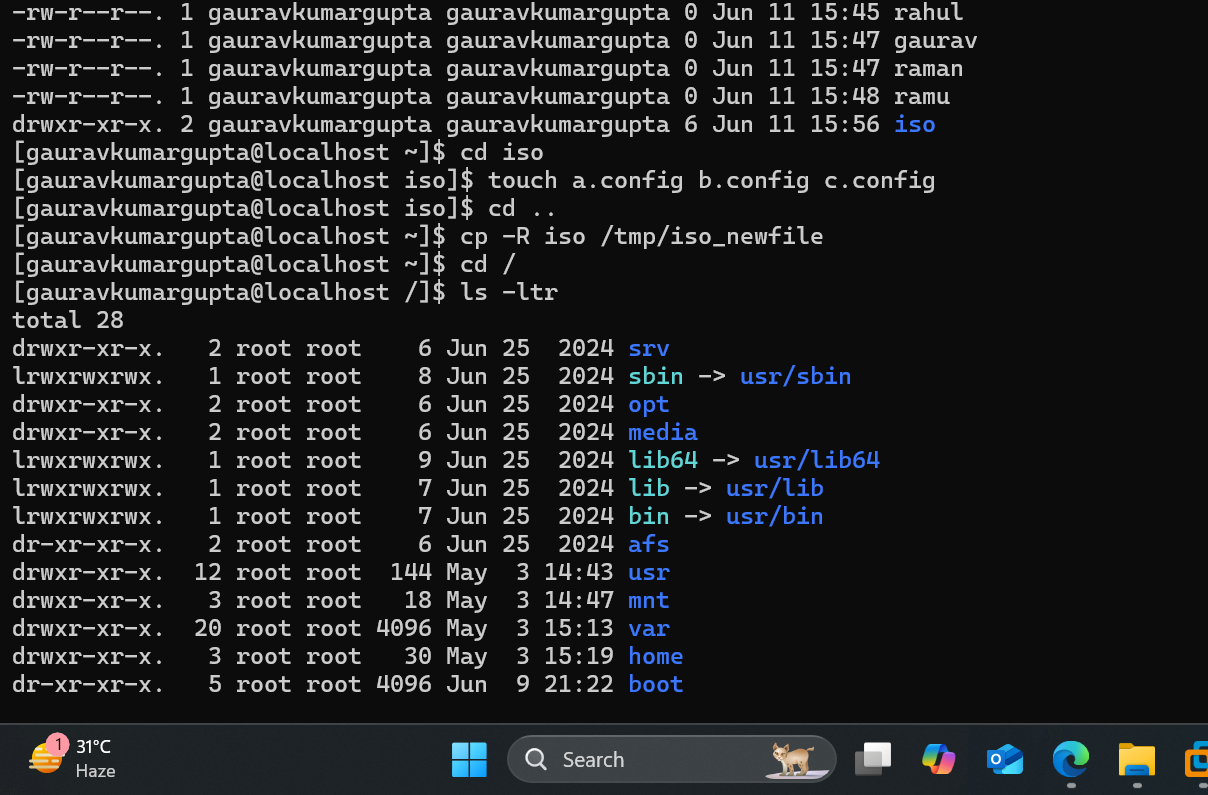
**Copying Directories**

* Command to copy a directory

**🡺cp**

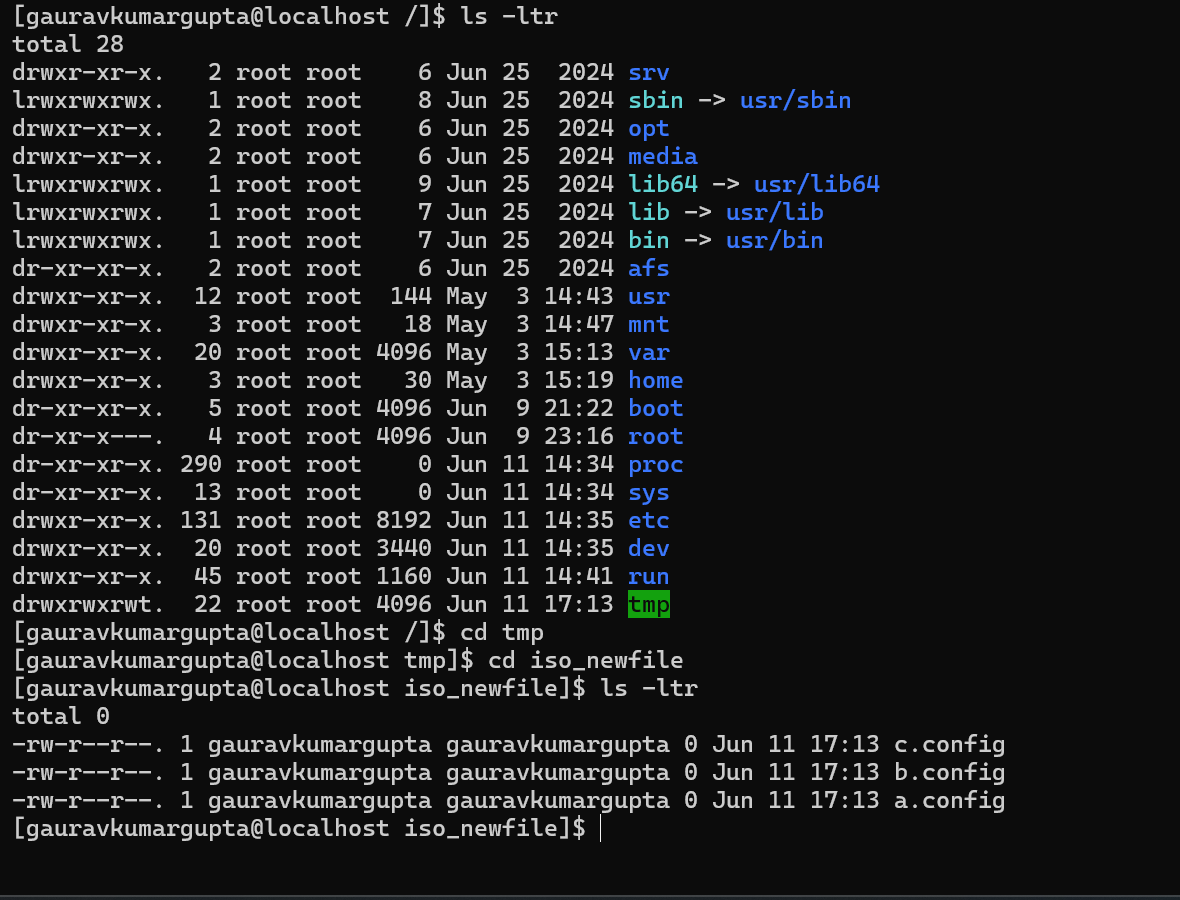
* To copy a directory on linux, you have to execute the “**cp”** command with the **“-R”** option for recursive and specify the source and destination directories to be copied
* **cp –R <source\_folder> <destination forlder>**

we have created the **iso** directory in home directory and try to copy it in the root/temp



**cp –R iso /tmp/iso\_newfile**

here we have copy the **iso** directory in the **/tmp directory** with the new name i.e. **iso\_newfile**



**Find Files and Directories**

Two main command are used to find files/directories

* find
* locate