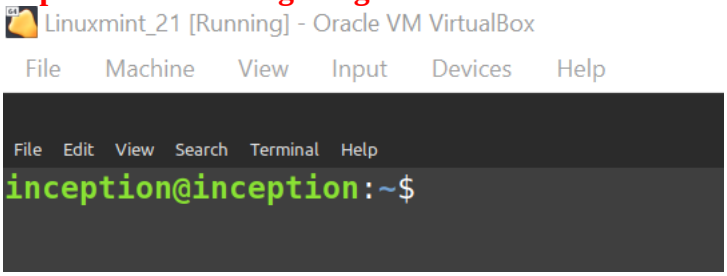
How to launch the Terminal?

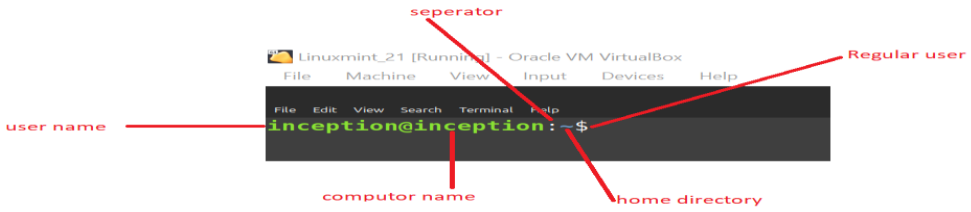
1. Go to the Dash and type terminal.
   OR
2. press **CTRL** + **Alt** + **T** to launch the Terminal

Which command is used to increase or decrease the terminal's font size?

To increase font size --→ ctrl++
To decrease font size --→ ctrl+-

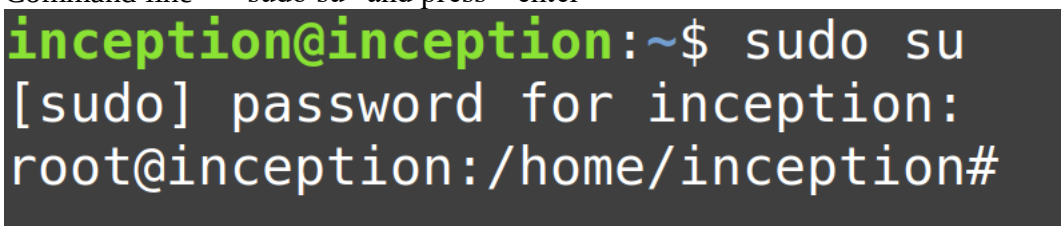
Explain the following image.





How to activate the root user-

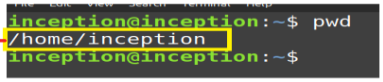
Command line – " sudo su" and press " enter"



How to find the present working directory?

The directory that you are currently browsing is called the Present working directory. You log on to the home directory when you boot your PC. If you want to determine the directory you are presently working on, use the command – pwd
pwd command stands for the p**rint** w**orking** d**irectory**

present working directory



How to change your current directory use the 'cd' command.

```
inception@inception:~$ cd /tmp
inception@inception:/tmp$ cd /bin
inception@inception:/bin$ cd /usr
inception@inception:/usr$ cd /tmp
inception@inception:/tmp$
```

Here, we moved from directory /tmp to /bin to /usr and then back to /tmp.

How to navigate to the home directory

```
inception@inception:/tmp$ cd
inception@inception:~$
```

OR

```
inception@inception:/tmp$ cd ~
inception@inception:~$
```

How to move to the root directory.

```
inception@inception:~$ cd /
inception@inception:/$
```

How to navigate through multiple directories at the same time

```
inception@inception:/$ cd /dev/cpu
inception@inception:/dev/cpu$
```

We can navigate through multiple directories at the same time by specifying its complete path.

How navigating up one directory level

```
inception@inception:/dev/cpu$ cd ..
inception@inception:/dev$
```

How to see the list of files on your Linux system

use the '**ls'** command. It shows the files /directories in your current directory.

```
inception@inception:/dev$ ls
autofs           hpet          net       sr0     tty23  tty42  tty61     ttyS21  urandom    vcsu1
block            hugepages     null      stderr  tty24  tty43  tty62     ttyS22  userio     vcsu2
bsg              hwrng         nvram     stdin   tty25  tty44  tty63     ttyS23  vboxguest  vcsu3
btrfs-control    i2c-0         port      stdout  tty26  tty45  tty7      ttyS24  vboxuser   vcsu4
bus              initctl       ppp       tty     tty27  tty46  tty8      ttyS25  vcs        vcsu5
cdrom            input         psaux     tty0    tty28  tty47  tty9      ttyS26  vcs1       vcsu6
char             kmsg          ptmx      tty1    tty29  tty48  ttyprintk ttyS27  vcs2       vcsu7
console          log           pts       tty10   tty3   tty49  ttyS0     ttyS28  vcs3       vfio
core             loop0         random    tty11   tty30  tty5   ttyS1     ttyS29  vcs4       vga_arbiter
cpu              loop1         rfkill    tty12   tty31  tty50  ttyS10    ttyS3   vcs5       vhci
cpu_dma_latency  loop2         rtc       tty13   tty32  tty51  ttyS11    ttyS30  vcs6       vhost-net
cuse             loop3         rtc0      tty14   tty33  tty52  ttyS12    ttyS31  vcs7       vhost-vsock
disk             loop4         sda       tty15   tty34  tty53  ttyS13    ttyS4   vcsa       zero
dma_heap         loop5         sda1      tty16   tty35  tty54  ttyS14    ttyS5   vcsa1      zfs
dri              loop6         sda2      tty17   tty36  tty55  ttyS15    ttyS6   vcsa2
ecryptfs         loop7         sda3      tty18   tty37  tty56  ttyS16    ttyS7   vcsa3
fb0              loop-control  sg0       tty19   tty38  tty57  ttyS17    ttyS8   vcsa4
fd               mapper        sg1       tty2    tty39  tty58  ttyS18    ttyS9   vcsa5
full             mcelog        shm       tty20   tty4   tty59  ttyS19    udmabuf vcsa6
fuse             mem           snapshot  tty21   tty40  tty6   ttyS2     uhid    vcsa7
hidraw0          mqueue        snd       tty22   tty41  tty60  ttyS20    uinput  vcsu
```

- **Blue**: Directory
- **Green**: Executable or recognized data file
- **Cyan** (Sky Blue): Symbolic link file
- **Yellow with black background**: Device
- **Magenta** (Pink): Graphic image file
- **Red**: Archive file
- **Red with black background**: Broken link

OR

'ls -R' to show all the files not only in directories but also in subdirectories.

```
./disk/by-path:
pci-0000:00:01.1-ata-1          pci-0000:00:01.1-ata-1.0-part3  pci-0000:00:01.1-ata-2
pci-0000:00:01.1-ata-1.0        pci-0000:00:01.1-ata-1-part1    pci-0000:00:01.1-ata-2
pci-0000:00:01.1-ata-1.0-part1  pci-0000:00:01.1-ata-1-part2
pci-0000:00:01.1-ata-1.0-part2  pci-0000:00:01.1-ata-1-part3

./disk/by-uuid:
2022-07-19-21-57-51-86  8C29-85B8  fb5be626-4ee7-4c47-adb7-f3da594f7e3f

./dma_heap:
system

./dri:
by-path  card0  renderD128

./dri/by-path:
pci-0000:00:02.0-card  pci-0000:00:02.0-render
```

QR

'ls -al' gives detailed information about the files. The command provides information in a columnar format.

```
inception@inception:/dev$ ls -al
total 4
drwxr-xr-x  19 root    root        4100 Aug 25 17:15 .
drwxr-xr-x  19 root    root        4096 Aug 24 13:29 ..
crw-r--r--   1 root    root     10, 235 Aug 25 17:15 autofs
drwxr-xr-x   2 root    root         300 Aug 25 17:15 block
drwxr-xr-x   2 root    root          80 Aug 25 17:15 bsg
crw-rw----   1 root    disk     10, 234 Aug 25 17:15 btrfs-control
drwxr-xr-x   3 root    root          60 Aug 25 17:15 bus
lrwxrwxrwx   1 root    root           3 Aug 25 17:15 cdrom -> sr0
```

How to view hidden files

Any Directory/file starting with a '.' will not be seen unless you request it.

```
inception@inception:/dev$ ls -a
.               fuse          mem      snapshot  tty21  tty40  tty6   ttyS2   uhid        vcsa7
..              hidraw0       mqueue   snd       tty22  tty41  tty60  ttyS20  uinput      vcsu
autofs          hpet          net      sr0       tty23  tty42  tty61  ttyS21  urandom     vcsu1
block           hugepages     null     stderr    tty24  tty43  tty62  ttyS22  userio      vcsu2
bsg             hwrng         nvram    stdin     tty25  tty44  tty63  ttyS23  vboxguest   vcsu3
btrfs-control   i2c-0         port     stdout    tty26  tty45  tty7   ttyS24  vboxuser    vcsu4
bus             initctl       ppp      tty       tty27  tty46  tty8   ttyS25  vcs         vcsu5
```

How to clear terminal

```
File  Edit  View  Search  Terminal  Help
inception@inception:/dev$ clear
```

How to view history-

Command line- " history" and press " enter "

```
inception@inception:~/Desktop/my_dic$ history
    1  sudo apt update
    2  sudo apt install built-essential dkms linux-headers-$(uname -r)
    3  sudo apt-get purge build-essential
    4  sudo apt built-essential dkms linux-headers-$(uname -r)
    5  sudo dpt update
    6  sudo apt update
    7  apt --upgradable
    8  sudo apt install build-essential manpages-dev
    9  sudo apt install gobjc gfortran gnat
   10  gcc --version
   11  g++ version
   12  sudo apt install g++
   13  g++ version
   14  0
   15  sudo apt install build-essential
   16  sudo apt install build-essential dkms linux-headers-$(uname -r)
   17  exit
   18  pwd
   19  cd ~/Desktop
   20  cd Directory_1
   21  ls
   22  cat > file_2
   23  cat file_2
   24  cat > file_3
   25  ls
   26  cat >>file_2
   27  cat file_2
   28  pwd
   29  cat file_2file_3 > file_4
   30  cat file_2 file_3 > file_4
   31  ls
   32  cat file_4
   33  tac file_4
   34  touch file_1
   35  ls
   36  stat file_1
   37  touch file_1
   38  stat file_1
   39  touch -a file_1
   40  stat file_1
   41  touch -m file_1
   42  stat file_1
   43  vi file_5
   44  ls
   45  cat file_1
   46  tac file_1
   47  vi file_1
   48  cat file_1
   49  vi file_1
   50  s ~/Desktop
   51  cd ~/Desktop
   52  cd Directort_1
   53  cd Directory_1
   54  ls
   55  cat file_5
   56  nano file_6
   57  ls
   58  cat file_6
   59  nano file_6
```

To know the name of the working machine-

Command line – “ hostname ” and press “ enter”

```
root@inception:/home/inception# hostname
inception
root@inception:/home/inception#
```

To display the version of the operating system-

Command line – “ cat /etc/os-release ” and press “ enter”

```
inception@inception:~$ sudo su
[sudo] password for inception:
root@inception:/home/inception# cat /etc/os-release
NAME="Linux Mint"
VERSION="21 (Vanessa)"
ID=linuxmint
ID_LIKE="ubuntu debian"
PRETTY_NAME="Linux Mint 21"
VERSION_ID="21"
HOME_URL="https://www.linuxmint.com/"
SUPPORT_URL="https://forums.linuxmint.com/"
BUG_REPORT_URL="http://linuxmint-troubleshooting-guide.readthedocs.io/en/latest/"
PRIVACY_POLICY_URL="https://www.linuxmint.com/"
VERSION_CODENAME=vanessa
UBUNTU_CODENAME=jammy
root@inception:/home/inception#
```

To display all the interfaces available, even if they are down. [use " -a "]

Command line – ifconfig -a

```
root@inception:/home/inception# ifconfig -a
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.0.2.15  netmask 255.255.255.0  broadcast 10.0.2.255
        inet6 fe80::a13a:f3:3804:70b4  prefixlen 64  scopeid 0x20<link>
        ether 08:00:27:cb:bc:59  txqueuelen 1000  (Ethernet)
        RX packets 2767  bytes 3866056 (3.8 MB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 1792  bytes 127167 (127.1 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 220  bytes 20087 (20.0 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 220  bytes 20087 (20.0 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

root@inception:/home/inception#
```

To display a short list, instead of details. [use " -s "]

Command line – ifconfig -s

```
root@inception:/home/inception# ifconfig -s
Iface      MTU    RX-OK RX-ERR RX-DRP RX-OVR    TX-OK TX-ERR TX-DRP TX-OVR Flg
enp0s3    1500     2781      0      0 0          1807      0      0      0 BMRU
lo       65536      224      0      0 0           224      0      0      0 LRU
root@inception:/home/inception#
```

To run the command in verbose mode – log more details about execution. [use " -v "]

Command line – ifconfig -v

```
root@inception:/home/inception# ifconfig -v
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.0.2.15  netmask 255.255.255.0  broadcast 10.0.2.255
        inet6 fe80::a13a:f3:3804:70b4  prefixlen 64  scopeid 0x20<link>
        ether 08:00:27:cb:bc:59  txqueuelen 1000  (Ethernet)
        RX packets 2784  bytes 3867730 (3.8 MB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 1810  bytes 128651 (128.6 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 228  bytes 20871 (20.8 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 228  bytes 20871 (20.8 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

To activate the driver for the given interface-
Command line – ifconfig interface up

```
root@inception:/home/inception# ifconfig interface up
interface: ERROR while getting interface flags: No such device
root@inception:/home/inception#
```

To deactivate the driver for the given interface.
Command line – ifconfig interface down

```
root@inception:/home/inception# ifconfig interface down
interface: ERROR while getting interface flags: No such device
root@inception:/home/inception#
```

To add an IPv6 address to an interface-
Command line – ifconfig interface add addr/prefixlen

To remove an IPv6 address from an interface.
Command line – ifconfig interface del addr/prefixlen

To enable/disable the use of ARP protocol on an interface.
Command line – ifconfig interface [-] arp

To enable/disable the promiscuous mode on an interface. If it is selected, all the packets on the network will be received by the interface.
Command line – ifconfig interface [-] allmulti

To set the Maximum Transfer Unit(MTU).
Command line – ifconfig interface [-] allmulti

To display help related to ifconfig command.
Command line – ifconfig – help

YELLOWDOG UPDATER MODIFIED (yum) –
It is a default package in Linux. It helps to install, update and remove the package in a system. It is by default connected with the apache server.
To install –

Command line – yum install package_name -y
e.g.- yum install httpd -y
Here '-y' allows all the permission which are wanted by packages.

To update-

Command line – yum update package_name -y

To remove-

Command line – yum remove package_name -y

To activate the installed packages-

Command line – service package name start

To activate the status of packages-

Command line – service package_name status

To list all installed packages-

Command line – yum package_name installed

To automate the packages –

To on

Command line – chkconfig httpd on

To off

Command line – chkconfig httpd off

To check the status of any particular package

Command line – which package name

To know what is my role in a system

Command line – whoami

To create a user -

With this command, we can create a user in a system. Creating a user will also be seen in the group list by default.
Command line – useradd user_name
Check – cat /etc/password

To create a group –
With this command, we can create a group in a system.
Command line – groupadd group_name
Check – cat /etc/group

To add a user in a created group –
We have to create a user first.
With this command, we can add a single user to a group in a system.
Command line – gpasswd-a user_name group_name
we can add multiple users to a group in a system.
Command line – gpasswd-M user1,user2,user3 group_name
Check – cat /etc/group

Hard link and soft link –
In Linux, links to files are created in the same way that references to files are created in most common programming languages. These links are divided into two categories: hard and soft links.
Hard link –
It is effectively an identical replica of the file, therefore the hard link and the actual file will both have the same inode.
soft link –
It is also known as a symbolic link and functions similarly to a shortcut or pointer to a file. It is not an exact replica of the file, but rather a pointer to the original.

Parameter	Soft Link	Hard Link
Inode number	Different inode number than the original file.	Same inode number as the original file.
Directory	Soft links can link directories	Hard links can not link directories across.
Original File deletes	The link will not operate if the original file is deleted since it does not access the data in the original file. It's nothing more than a shortcut to the original file.	The Hard link will continue to operate even if the original file is deleted since it accesses the same data as the original.
Speed	Soft links are slower	Hard links are faster than soft links.
Memory Consumption	More	Less

Command to create a soft link: ln -s source_file soft_name

```
root@inception:/home/inception# ln -s my_file s_myfile
root@inception:/home/inception# ls
Desktop  Documents  Downloads  Music  Pictures  Public  s_myfile  Templates  Videos
root@inception:/home/inception#
```

Check: ls -l

```
root@inception:/home/inception# ls -l
total 32
drwxr-xr-x 4 inception inception 4096 Aug 31 21:33 Desktop
drwxr-xr-x 2 inception inception 4096 Aug 24 13:55 Documents
drwxr-xr-x 2 inception inception 4096 Aug 24 13:55 Downloads
drwxr-xr-x 2 inception inception 4096 Aug 24 13:55 Music
drwxr-xr-x 2 inception inception 4096 Aug 24 13:55 Pictures
drwxr-xr-x 2 inception inception 4096 Aug 24 13:55 Public
lrwxrwxrwx 1 root      root         7 Sep  6 15:42 s_myfile -> my_file
drwxr-xr-x 2 inception inception 4096 Aug 24 13:55 Templates
drwxr-xr-x 2 inception inception 4096 Aug 24 13:55 Videos
root@inception:/home/inception#
```

Command to create a hard link: ln source_file soft_name

```
inception@inception:~/Desktop/my_dic$ ln test_echo hard_test
inception@inception:~/Desktop/my_dic$ ls
dic_b  hard_test  my_file  test_echo
inception@inception:~/Desktop/my_dic$
```

Tar –

Tar is an archiver used to combine multiple files into one. Tar stands for tape archive. The command is used to create and extract the archive file in the Linux system. tar is an important tool as it provides archiving functionality in the system. An archive file compresses all the files and collects them together in a single file. It uses less storage in the device.

Command to create a tar: tar -cvf source_name new_tarfile_name and press enter
Check: ls

To untar the file: tar -xvf new_tarfile_name and press enter
Check: ls

To zip the file
Command to zip the file: gzip new_tarfile_name and press enter
Check: ls

To unzip the file
Command to unzip the file: gunzip zipped_tarfile_name and press enter
Check: ls

Some Important Options used with tar command

```
-c : This option creates the archive file.
-f : This option is used to specify the archive file.
-x : It extracts the content from the archive file.
-t : It displays the list of files inside the archive file.
-v : This option shows the detailed or verbose information.
-r : It updates the archive file by adding newer files.
-j : It is used to filter the archive through bzip2.
-z : It filters the archive through gzip.
```

Wget-

Wget is the non-interactive network downloader. Wget is a command-line utility for downloading files from the web. With Wget, you can download files using HTTP, HTTPS, and FTP protocols. Wget provides a number of options allowing you to download multiple files, resume downloads, limit the bandwidth, recursive downloads, download in the background, mirror a website, and much more.

Command: wget <url>

```
root@inception:/home/inception# wget https://omnitruck.chef.io/install.sh | sudo bash
--2022-09-08 17:32:17--  https://omnitruck.chef.io/install.sh
Resolving omnitruck.chef.io (omnitruck.chef.io)... 151.101.18.110
Connecting to omnitruck.chef.io (omnitruck.chef.io)|151.101.18.110|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 23526 (23K) [application/x-sh]
Saving to: 'install.sh'

install.sh              100%[=============================>]  22.97K  --.-KB/s    in 0.02s

2022-09-08 17:32:21 (1.26 MB/s) - 'install.sh' saved [23526/23526]
```

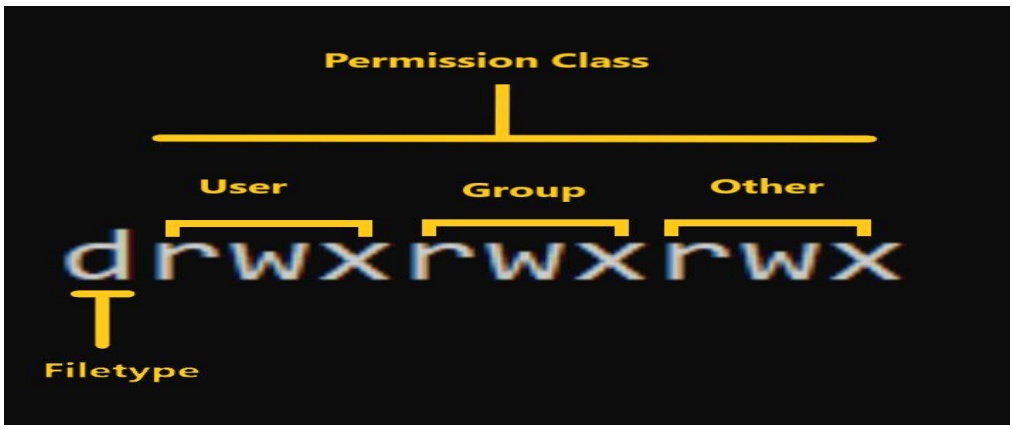
Access modes/permissions –

Now we know about users and groups. Let's see how we can view the permissions of a file or folder.

Command: ls -l

```
inception@inception:~/Desktop$ ls -l
total 8
drwxrwxr-x 2 inception inception 4096 Sep  8 18:07 dic_x
-rw-rw-r-- 1 inception inception    0 Sep  8 18:07 file_x
drwxrwxr-x 3 inception inception 4096 Sep  6 19:35 my_dic
```

MODE | OWNER | GROUP | SIZE | MODIFICATION DATE | FILE/FOLDER NAME



How to Read Symbolic Permissions -

The rwx representation is known as the Symbolic representation of permissions. In the set of permissions,

- r stands for **read**. It is indicated in the first character of the triad.

- w stands for **write**. It is indicated in the second character of the triad.
- x stands for **execution**. It is indicated in the third character of the triad.

Understanding symbolic permissions

Read

For regular files, read permissions allow the file to be opened and read-only. Users can't modify the file. Similarly, for directories, read permissions allow the listing of directory content without any modification in the directory.

Write

When files have to write permissions, the user can modify (edit, delete) the file and save it. For folders, write permissions enable a user to modify its contents (create, delete, and rename the files inside it), and modify the contents of files that the user has write permissions to.

Execute

For files, execute permissions allows the user to run an executable script. For directories, the user can access them, and access details about files in the directory.

Examples of Permissions in Linux

Now we know how to read permissions. Let's see some examples.

- -rwx------: A file that is only accessible and executable by its owner.
- -rw-rw-r--: A file that is open to modification by its owner and group but not by others.
- drwxrwx---: A directory that can be modified by its owner and group.

There are 2 ways to use the command –

1. In numerical representation,
2. In symbolic representation

numerical representation -

In this mode, file permissions are not represented as characters but as three-digit octal numbers.

The table below gives numbers for all permissions types.

Permission Type	Symbol	Octal value
No Permission	-	0

Read	r - -	4
Write	- w -	2
Execute	- - x	1

Problem 1-

If we want to give all permissions-

rwx rwx rwx

4+2+1 4+2+1 4+2+1

7 7 7

Chmod command –
It is used to change the access mode of a file or directory.

Command: chmod value file_name

```
inception@inception:~/Desktop$ ls -l
total 8
drwxrwxr-x 2 inception inception 4096 Sep  8 18:07 dic_x
-rw-rw-r-- 1 inception inception    0 Sep  8 18:07 file_x
drwxrwxr-x 3 inception inception 4096 Sep  6 19:35 my_dic
inception@inception:~/Desktop$ chmod 777 file_x
inception@inception:~/Desktop$ ls -l
total 8
drwxrwxr-x 2 inception inception 4096 Sep  8 18:07 dic_x
-rwxrwxrwx 1 inception inception    0 Sep  8 18:07 file_x
drwxrwxr-x 3 inception inception 4096 Sep  6 19:35 my_dic
inception@inception:~/Desktop$
```

OR

Command: chmod value directory_name

rwx rwx rwx

4+2+1 4+2+1 4+2+1

7 7 7

```
inception@inception:~/Desktop$ ls -l
total 8
drwxrwxr-x 2 inception inception 4096 Sep  8 18:07 dic_x
-r--rwx-wx 1 inception inception    0 Sep  8 18:07 file_x
drwxrwxr-x 3 inception inception 4096 Sep  6 19:35 my_dic
inception@inception:~/Desktop$ chmod 777 my_dic
inception@inception:~/Desktop$ ls -l
total 8
drwxrwxr-x 2 inception inception 4096 Sep  8 18:07 dic_x
-r--rwx-wx 1 inception inception    0 Sep  8 18:07 file_x
drwxrwxrwx 3 inception inception 4096 Sep  6 19:35 my_dic
inception@inception:~/Desktop$
```

Problem 2-

If we want to give the following permissions-

--x rw- -w-

0+0+1 4+2+0 0+2+0

1 6 2

```
inception@inception:~/Desktop$ ls -l
total 8
drwxrwxr-x 2 inception inception 4096 Sep  8 18:07 dic_x
-rwxrwxrwx 1 inception inception    0 Sep  8 18:07 file_x
drwxrwxr-x 3 inception inception 4096 Sep  6 19:35 my_dic
inception@inception:~/Desktop$ chmod 162 file_x
inception@inception:~/Desktop$ ls -l
total 8
drwxrwxr-x 2 inception inception 4096 Sep  8 18:07 dic_x
---xrw--w- 1 inception inception    0 Sep  8 18:07 file_x
drwxrwxr-x 3 inception inception 4096 Sep  6 19:35 my_dic
inception@inception:~/Desktop$
```

OR

Command: chmod value directory_name

--x rw- -w-

0+0+1 4+2+0 0+2+0

1 6 2

```
inception@inception:~/Desktop$ ls -l
total 8
drwxrwxr-x 2 inception inception 4096 Sep  8 18:07 dic_x
-r--rwx-wx 1 inception inception    0 Sep  8 18:07 file_x
drwxrwxrwx 3 inception inception 4096 Sep  6 19:35 my_dic
inception@inception:~/Desktop$ chmod 162 my_dic
inception@inception:~/Desktop$ ls -l
total 8
drwxrwxr-x 2 inception inception 4096 Sep  8 18:07 dic_x
-r--rwx-wx 1 inception inception    0 Sep  8 18:07 file_x
d--xrw--w- 3 inception inception 4096 Sep  6 19:35 my_dic
inception@inception:~/Desktop$
```

symbolic representation –

We have the following **options** in the symbolic form:

- "**u**" indicates file **owner**.
- "**g**" indicates **groups**.
- "**o**" indicates **others**.
- "**a**" indicates **all users** as owner, group, and others (ugo)

In the Absolute mode, you change permissions for all 3 owners. In the symbolic mode, you can modify the permissions of a specific owner. It makes use of mathematical symbols to modify the Unix file permissions.

Operator	Description
=	Sets the permission and overrides the permissions set earlier.
+	Adds permission to a file or directory
-	Removes the permission

Command: chmod u=value, g=value, o=value file_name

Problem 1-

If we want to give the following permissions-

r-- rwx -wx

chmod u=r,g=rwx,o=wx file_x

```
inception@inception:~/Desktop$ ls -l
total 8
drwxrwxr-x 2 inception inception 4096 Sep  8 18:07 dic_x
---xrw--w- 1 inception inception    0 Sep  8 18:07 file_x
drwxrwxr-x 3 inception inception 4096 Sep  6 19:35 my_dic
inception@inception:~/Desktop$ chmod u=r,g=rwx,o=wx file_x
inception@inception:~/Desktop$ ls -l
total 8
drwxrwxr-x 2 inception inception 4096 Sep  8 18:07 dic_x
-r--rwx-wx 1 inception inception    0 Sep  8 18:07 file_x
drwxrwxr-x 3 inception inception 4096 Sep  6 19:35 my_dic
inception@inception:~/Desktop$
```

OR

chmod u-wx,g+w,o=wx directoy_name

```
inception@inception:~/Desktop$ ls -l
total 8
drwxrwxr-x 2 inception inception 4096 Sep  8 18:07 dic_x
-r--rwx-wx 1 inception inception    0 Sep  8 18:07 file_x
d--xrw--w- 3 inception inception 4096 Sep  6 19:35 my_dic
inception@inception:~/Desktop$ chmod u-wx,g+w,o=wx my_dic
inception@inception:~/Desktop$ ls -l
total 8
drwxrwxr-x 2 inception inception 4096 Sep  8 18:07 dic_x
-r--rwx-wx 1 inception inception    0 Sep  8 18:07 file_x
d---rw--wx 3 inception inception 4096 Sep  6 19:35 my_dic
inception@inception:~/Desktop$
```

If a file has permissions 000, who or what can access the file? What can they do to it?

If we make the file permission as 000. No one can Read from/Write into the file. But the owner of the file can change the permission accordingly so that the owner/everyone can read/write the file. If we make the file permission as 000. If file/dir has permissions 000, then **only the root can do any changes to that file**. Neither the owner nor others can make any changes. The owner can't even access the file/dir or delete the same.