Making a directory with name of main, then making a file in main directory with name of file.txt and writing your name in it.

```
fast@HALAB-12:~$ cd Desktop/
fast@HALAB-12:~/Desktop$ mkdir main
fast@HALAB-12:~/Desktop$ cd main
fast@HALAB-12:~/Desktop/main$ vim file.txt
fast@HALAB-12:~/Desktop/main$
```

In Vim text editor writing my name:

```
Ahmed Ali
~
```

Checking the Default permission:

```
fast@HALAB-12:~/Desktop/main$ ls -lh
total 4.0K
-rw-rw-r-- 1 fast fast 10 11:24 30  ستمبر file.txt
fast@HALAB-12:~/Desktop/main$
```

changing the permission to read, write and execute:

```
fast@HALAB-12:~/Desktop/main$ chmod 761 file.txt
fast@HALAB-12:~/Desktop/main$ ls -lh
total 4.0K
-rwxrw---x 1 fast fast 10 11:24 30  ستمبر file.txt
fast@HALAB-12:~/Desktop/main$
```

Calculation:

Implementation:

Taking All permissions:

Giving Only Permission to read and Write:

To allow others to execute file:

```
fast@HALAB-12:~/Desktop/main$ chmod o+x file.txt
fast@HALAB-12:~/Desktop/main$ ls -l
total 8
drwxrwxr-x 2 fast fast 4096 11:38 30 ستمبر abc
-rw------x 1 fast fast   18 12:07 30 ستمبر file.txt
fast@HALAB-12:~/Desktop/main$
```

To give permission to others to write file
 where w stands for write permissions.

```
fast@HALAB-12:~/Desktop/main$ chmod o+w file.txt
fast@HALAB-12:~/Desktop/main$ ls -l
total 8
drwxrwxr-x 2 fast fast 4096 11:38 30 ستمبر abc
-rw-----wx 1 fast fast   18 12:07 30 ستمبر file.txt
fast@HALAB-12:~/Desktop/main$
```

chmod o+wx file.txt --------> Give both permissions to others

```
fast@HALAB-12:~/Desktop/main$ chmod o+wx file.txt
fast@HALAB-12:~/Desktop/main$ ls -l
total 8
drwxrwxr-x 2 fast fast 4096 11:38 30 ستمبر abc
-rw-----wx 1 fast fast   18 12:07 30 ستمبر file.txt
fast@HALAB-12:~/Desktop/main$
```

chmod o+rwx file.txt --------> Give all permissions to users

```
fast@HALAB-12:~/Desktop/main$ chmod o+rwx file.txt
fast@HALAB-12:~/Desktop/main$ ls -l
total 8
drwxrwxr-x 2 fast fast 4096 11:38 30 ستمبر abc
-rw----rwx 1 fast fast   18 12:07 30 ستمبر file.txt
fast@HALAB-12:~/Desktop/main$
```

2) Take permission from others

chmod o-w file.txt -----------> Take write permission from others

```
fast@HALAB-12:~/Desktop/main$ chmod o-w file.txt
fast@HALAB-12:~/Desktop/main$ ls -l
total 8
drwxrwxr-x 2 fast fast 4096 11:38 30 ستمبر abc
-rw----r-x 1 fast fast   18 12:07 30 ستمبر file.txt
fast@HALAB-12:~/Desktop/main$
```

chmod o-wx file.txt ----------->Take write and executable permission from others

chmod o-rwx file.txt -------------------->Take all permissions from users

2. Permission to Group

3. Permission to User(on next page)

To give permission to everybody or take permission from every body:

chmod ug=rwx file.txt ----------->To give all permissions to user and group

chmod ugo=rwx file.txt ----->To give all permissions to user and group and others

chmod ugo+rwx file.txt-------->To give all permissions to user and group and others

chmod ugo-rwx file.txt ----> To take all permissions to user and group and others

```
fast@HALAB-12:~/Desktop/main$ chmod ugo-rwx file.txt
fast@HALAB-12:~/Desktop/main$ ls -l
total 8
drwxrwxr-x 2 fast fast 4096 11:38 30 ستمبر abc
---------- 1 fast fast   18 12:07 30 ستمبر file.txt
fast@HALAB-12:~/Desktop/main$
```

chmod a+rwx file.txt --------> a stand for all (Give all permissions to all)

```
fast@HALAB-12:~/Desktop/main$ chmod a+rwx file.txt
fast@HALAB-12:~/Desktop/main$ ls -l
total 8
drwxrwxr-x 2 fast fast 4096 11:38 30 ستمبر abc
-rwxrwxrwx 1 fast fast   18 12:07 30 ستمبر file.txt
fast@HALAB-12:~/Desktop/main$
```

chmod a-rwx file.txt --------> (take all permissions from all)

```
fast@HALAB-12:~/Desktop/main$ chmod a-rwx file.txt
fast@HALAB-12:~/Desktop/main$ ls -l
total 8
drwxrwxr-x 2 fast fast 4096 11:38 30 ستمبر abc
---------- 1 fast fast   18 12:07 30 ستمبر file.txt
fast@HALAB-12:~/Desktop/main$
```

6. Directory Permissions

Before going we will take all permissions:

chmod o-rwx test------------------->Take all permissions from users

```
root@HALAB-12:/home/fast/Desktop/main# ls
abc  a.out  file.txt  test
root@HALAB-12:/home/fast/Desktop/main# chmod o-rwx test
root@HALAB-12:/home/fast/Desktop/main# ls -l
total 12
drwxrwxr-x 2 fast fast 4096 11:38 30 ستمبر abc
-rw-rw-r-- 1 fast fast    0 12:56 30 ستمبر a.out
-rwx------ 1 root fast   18 12:07 30 ستمبر file.txt
drwxr-x--- 2 root root 4096 13:05 30 ستمبر test
root@HALAB-12:/home/fast/Desktop/main#
```

ls -l
chmod u-w test ----------->Take write permission from user
ls-l

```
root@HALAB-12:/home/fast/Desktop/main# chmod u-w test
root@HALAB-12:/home/fast/Desktop/main# ls -l
total 12
drwxrwxr-x 2 fast fast 4096 11:38 30 ستمبر abc
-rw-rw-r-- 1 fast fast    0 12:56 30 ستمبر a.out
-rwx------ 1 root fast   18 12:07 30 ستمبر file.txt
dr-xr-x--- 2 root root 4096 13:05 30 ستمبر test
root@HALAB-12:/home/fast/Desktop/main#
```

chmod u+wrx test ----------->Give all permission to user

```
root@HALAB-12:/home/fast/Desktop/main# chmod u+wrx test
root@HALAB-12:/home/fast/Desktop/main# ls -l
total 12
drwxrwxr-x 2 fast fast 4096 11:38 30 ستمبر abc
-rw-rw-r-- 1 fast fast    0 12:56 30 ستمبر a.out
-rwx------ 1 root fast   18 12:07 30 ستمبر file.txt
drwxr-x--- 2 root root 4096 13:05 30 ستمبر test
root@HALAB-12:/home/fast/Desktop/main#
```

chmod u=wrx test ----------->Give all permission to user

```
root@HALAB-12:/home/fast/Desktop/main# chmod u=wrx test
root@HALAB-12:/home/fast/Desktop/main# ls -l
total 12
drwxrwxr-x 2 fast fast 4096 11:38 30 ستمبر abc
-rw-rw-r-- 1 fast fast    0 12:56 30 ستمبر a.out
-rwx------ 1 root fast   18 12:07 30 ستمبر file.txt
drwxr-x--- 2 root root 4096 13:05 30 ستمبر test
root@HALAB-12:/home/fast/Desktop/main#
```

chmod u-wrx test ----------->Take all permissions from user

```
root@HALAB-12:/home/fast/Desktop/main# chmod u-wrx test
root@HALAB-12:/home/fast/Desktop/main# ls -l
total 12
drwxrwxr-x 2 fast fast 4096 11:38 30 ستمبر abc
-rw-rw-r-- 1 fast fast    0 12:56 30 ستمبر a.out
-rwx------ 1 root fast   18 12:07 30 ستمبر file.txt
d---r-x--- 2 root root 4096 13:05 30 ستمبر test
root@HALAB-12:/home/fast/Desktop/main#
```

```
fast@HALAB-12:~/Desktop/main$ cd test
bash: cd: test: Permission denied
```

```
root@HALAB-12:/home/fast/Desktop/main# cd test
root@HALAB-12:/home/fast/Desktop/main/test#
```

```
fast@HALAB-12:~/Desktop/main$ mkdir test4
fast@HALAB-12:~/Desktop/main$
```

```
fast@HALAB-12:~/Desktop$ chmod u+w test
```

```
root@HALAB-12:/home/fast/Desktop/main/test# ls
test4
root@HALAB-12:/home/fast/Desktop/main/test# ls -l
total 4
drwxr-xr-x 2 root root 4096 13:22 30 ستمبر test4
root@HALAB-12:/home/fast/Desktop/main/test#
```

```
root@HALAB-12:/home/fast/Desktop/main/test# cd ..
root@HALAB-12:/home/fast/Desktop/main# chmod u+r test
root@HALAB-12:/home/fast/Desktop/main# chmod u+r test
root@HALAB-12:/home/fast/Desktop/main# cd test
root@HALAB-12:/home/fast/Desktop/main/test#
```

2. Permission to Group

chmod g+wrx test ----------->Give all permission to group

```
root@HALAB-12:/home/fast/Desktop/main# chmod g+wrx test
root@HALAB-12:/home/fast/Desktop/main# ls -l
total 12
drwxrwxr-x 2 fast fast 4096 11:38 30 ستمبر abc
-rw-rw-r-- 1 fast fast    0 12:56 30 ستمبر a.out
-rwx------ 1 root fast   18 12:07 30 ستمبر file.txt
dr-xrwx--- 3 root root 4096 13:22 30 ستمبر test
root@HALAB-12:/home/fast/Desktop/main#
```

chmod g-wrx test ----------->Take all permissions from group

```
root@HALAB-12:/home/fast/Desktop/main# chmod g-wrx test
root@HALAB-12:/home/fast/Desktop/main# ls -l
total 12
drwxrwxr-x 2 fast fast 4096 11:38 30 ستمبر abc
-rw-rw-r-- 1 fast fast    0 12:56 30 ستمبر a.out
-rwx------ 1 root fast   18 12:07 30 ستمبر file.txt
-rw-r--r-- 1 root root    0 13:28 30 ستمبر Take
dr-x------ 3 root root 4096 13:22 30 ستمبر test
root@HALAB-12:/home/fast/Desktop/main#
```

3. Permission to Others

chmod o+wrx test ----------->Give all permission to other

```
root@HALAB-12:/home/fast/Desktop/main# chmod o+wrx test
root@HALAB-12:/home/fast/Desktop/main# ls -l
total 12
drwxrwxr-x 2 fast fast 4096 11:38 30 ستمبر abc
-rw-rw-r-- 1 fast fast    0 12:56 30 ستمبر a.out
-rwx------ 1 root fast   18 12:07 30 ستمبر file.txt
-rw-r--r-- 1 root root    0 13:28 30 ستمبر Take
dr-x---rwx 3 root root 4096 13:22 30 ستمبر test
root@HALAB-12:/home/fast/Desktop/main#
```

chmod o-wrx test ----------->Take all permissions from other

```
root@HALAB-12:/home/fast/Desktop/main# chmod o-wrx test
root@HALAB-12:/home/fast/Desktop/main# ls -l
total 12
drwxrwxr-x 2 fast fast 4096 11:38 30 ستمبر abc
-rw-rw-r-- 1 fast fast    0 12:56 30 ستمبر a.out
-rwx------ 1 root fast   18 12:07 30 ستمبر file.txt
-rw-r--r-- 1 root root    0 13:28 30 ستمبر Take
dr-x------ 3 root root 4096 13:22 30 ستمبر test
root@HALAB-12:/home/fast/Desktop/main#
```

A file owner name can be changed by chown command:
chown <username> <filename>

```
fast@HALAB-12:~/Desktop/main$ ls -lh
total 8.0K
drwxrwxr-x 2 fast fast 4.0K 11:38 30 ستمبر abc
-rw-rw-r-- 1 fast fast    0 12:56 30 ستمبر a.out
---------- 1 fast fast   18 12:07 30 ستمبر file.txt
fast@HALAB-12:~/Desktop/main$ chown root file.txt
chown: changing ownership of 'file.txt': Operation not permitted
fast@HALAB-12:~/Desktop/main$ sudo chown root file.txt
[sudo] password for fast:
fast@HALAB-12:~/Desktop/main$ ls -lh
total 8.0K
drwxrwxr-x 2 fast fast 4.0K 11:38 30 ستمبر abc
-rw-rw-r-- 1 fast fast    0 12:56 30 ستمبر a.out
---------- 1 root fast   18 12:07 30 ستمبر file.txt
fast@HALAB-12:~/Desktop/main$
```

If you want to change only group-owner name: use below command

```
fast@HALAB-12:~/Desktop/main$ sudo chgrp fast file.txt
[sudo] password for fast:
fast@HALAB-12:~/Desktop/main$ ls -lh
total 12K
drwxrwxr-x 2 fast fast 4.0K 11:38 30 ستمبر abc
-rw-rw-r-- 1 fast fast    0 12:56 30 ستمبر a.out
-rwx------ 1 root fast   18 12:07 30 ستمبر file.txt
-rw-r--r-- 1 root root    0 13:28 30 ستمبر Take
dr-x------ 3 root root 4.0K 13:22 30 ستمبر test
fast@HALAB-12:~/Desktop/main$
```

creating file and writing code in file using vim
gcc hello.c -o hello command create the executable file.
./hello this will execute the file

```
#include<stdio.h>
#include<stdlib.h>
int main()
{
        printf("Running linux commands using C program.\n");
        system("ls -lh");
        return 0;
}
```

cat command to show what is in file

```
fast@HALAB-12:~/Desktop/main$ vim hello.c
fast@HALAB-12:~/Desktop/main$ cat hello.c
#include<stdio.h>
#include<stdlib.h>
int main()
{
        printf("Running linux commands using C program.\n");
        system("ls -lh");
        return 0;
}
fast@HALAB-12:~/Desktop/main$
```

executing the file mad through vim using gcc: (see below)

```
fast@HALAB-12:~/Desktop/main$ gcc hello.c -o hello
fast@HALAB-12:~/Desktop/main$ ./hello
Running linux commands using C program.
total 32K
drwxrwxr-x 2 fast fast 4.0K 11:38 30  ستمبر abc
-rw-rw-r-- 1 fast fast    0 12:56 30  ستمبر a.out
-rwx------ 1 root fast   18 12:07 30  ستمبر file.txt
-rwxrwxr-x 1 fast fast  16K 13:46 30  ستمبر hello
-rw-rw-r-- 1 fast fast  136 13:44 30  ستمبر hello.c
-rw-r--r-- 1 root root    0 13:28 30  ستمبر Take
dr-x------ 3 root root 4.0K 13:22 30  ستمبر test
fast@HALAB-12:~/Desktop/main$
```

To shut down PC Command, write this in vim:

```
#include<stdio.h>
#include<stdlib.h>
int main()
{
        printf("Window shutdown\n");
        system("sudo shutdown -h now");
        return 0;
}
~
```

```
fast@HALAB-12:~/Desktop/main$ cat shutdown.c
#include<stdio.h>
#include<stdlib.h>
int main()
{
        printf("Window shutdown\n");
        system("sudo shutdown -h now");
        return 0;
}
fast@HALAB-12:~/Desktop/main$
```