6. Create 2 files testfile2 and testfile3 using nano.

```
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ nano testfile2 testfile3
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ ls
file1  file2  lsoutput  testfile2  testfile3
```

(a) Modify the permissions of testfile2 using symbolic mode
i. Add read permission to others

```
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ chmod o+r testfile2
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ ls -l testfile2
-rw-rw-r-- 1 jithu jithu 2 Mar  4 13:11 testfile2
```

ii. revoke write from owner

```
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ chmod u-w testfile2
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ ls -l testfile2
-r--rw-r-- 1 jithu jithu 2 Mar  4 13:11 testfile2
```

iii. set only execute to Group.

```
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ chmod g=x testfile2
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ ls -l testfile2
-r----xr-- 1 jithu jithu 2 Mar  4 13:11 testfile2
```

iv. add write to owner, revoke read from others and set read onlyto group.

```
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ chmod u+w,o-r,g=r testfile2
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ ls -l testfile2
-rw-r----- 1 jithu jithu 2 Mar  4 13:11 testfile2
```

v. set read and write to all

```
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ chmod a+rw testfile2
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ ls -l testfile2
-rw-rw-rw- 1 jithu jithu 2 Mar  4 13:11 testfile2
```

(b) Modify the permissions of testfile3 using numeric mode
i. Set read and write to all

```
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ chmod 666 testfile3
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ ls -l testfile3
-rw-rw-rw- 1 jithu jithu 2 Mar  4 13:11 testfile3
```

ii. set read,write and execute to owner, read and execute to group and read only to others

```
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ chmod 755 testfile3
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ ls -l testfile3
-rwxr-xr-x 1 jithu jithu 2 Mar  4 13:11 testfile3
```

(c) Set the permissions of testfile2 the same as that of testfile3

```
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ chmod --reference=testfile3 testfile2
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ ls -l testfile2 testfile3
-rwxr-xr-x 1 jithu jithu 2 Mar  4 13:11 testfile2
-rwxr-xr-x 1 jithu jithu 2 Mar  4 13:11 testfile3
```

(d) Set the permissions of the tree (the directory, its children , grand children, etc.) rooted at dir1 (Qn. 3) directory to 664

```
jithu@jithu-VirtualBox:~$ sudo chmod -R 664 dir1
jithu@jithu-VirtualBox:~$ ls -l dir1
ls: cannot access 'dir1/dir2': Permission denied
ls: cannot access 'dir1/dir4': Permission denied
total 0
d????????? ? ? ? ?            ? dir2
d????????? ? ? ? ?            ? dir4
```

7.Change the owner and group of the directory tree from dir2 to student.

```
jithu@jithu-VirtualBox:~/dir1$ chown jithu:jithu dir2
jithu@jithu-VirtualBox:~/dir1$ ls -l dir2
total 4
drwxrwxrwx 2 jithu jithu 4096 Mar  4 13:11 dir3
```

8. Display the current directory

```
jithu@jithu-VirtualBox:~/dir1$ pwd
/home/jithu/dir1
```

10. a) Execute ls and store the output to a file lsoutput
b) Execute ls -l and add the output to lsoutput, at the end.

```
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ ls -l >>lsoutput
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ cat lsoutput
file1
file2
lsoutput
total 16
-rwxrwxrwx 1 jithu jithu 204 Feb 25 14:13 file1
-rwxrwxrwx 1 jithu jithu   0 Feb 25 14:00 file2
-rwxrwxrwx 1 jithu jithu  21 Feb 25 14:36 lsoutput
-rwxrwxrwx 1 jithu jithu   2 Mar  4 13:11 testfile2
-rwxrwxrwx 1 jithu jithu   2 Mar  4 13:11 testfile3
```

11. Execute ls -l and feed the result to less command, to scroll through the directory listing.

```
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ ls -l | less

[1]+  Stopped                 ls --color=auto -l | less
```

```
total 16
-rwxrwxrwx 1 jithu jithu 204 Feb 25 14:13 file1
-rwxrwxrwx 1 jithu jithu   0 Feb 25 14:00 file2
-rwxrwxrwx 1 jithu jithu 281 Mar  4 14:20 lsoutput
-rwxrwxrwx 1 jithu jithu   2 Mar  4 13:11 testfile2
-rwxrwxrwx 1 jithu jithu   2 Mar  4 13:11 testfile3
(END)
```

12. (a) Create a file file1 containing the word ”Hello,” using cat and output redirection

```
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ echo "Hello" | cat >file1
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ cat file1
Hello
```

(b) Create another file file2 containing the word ”, Greetings!!”

```
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ cat > file2
,Greetings!!
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ cat file2
,Greetings!!
```

(c) Display the sentence,
Hello,
Your name, Greetings!!
using cat, by concatenating file1, Standard Input and file2

```
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ read name
Jithu
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ cat file1; echo -n $name; cat file2
Hello
Jithu,Greetings!!
```

13. Copy the file file1 to newfile.

```
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ cp file1 newfile
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ cat newfile
Hello
```

(a) If newfile already exists, it should be replaced.

```
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ cp -f file1 newfile
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ cat newfile
Hello
```

(b) If newfile already exists, it should not be replaced.

```
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ cp -n file1 newfile
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ cat newfile
Hello
```

(c) If newfile already exists, it should be replaced, but only with the consent of the user.

```
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ cp -i file1 newfile
cp: overwrite 'newfile'? y
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ cat newfile
Hello
```

(d) If newfile already exists, it should be replaced only if its contents is older than that of newfile.

```
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ cp -u file1 newfile
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ cat newfile
Hello
```

(e) Even if newfile is read only.

```
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ cp -f file1 newfile
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ cat newfile
Hello
```

(f) Create a link instead of copying.

```
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ cp -s file1 newfile1
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ ls
file1  file2  lsoutput  newfile  newfile1  testfile2  testfile3
jithu@jithu-VirtualBox:~/dir1/dir2/dir3$ cat newfile1
Hello
```

(g) Copy the entire directory tree from dir1 of Cycle 1 to a new directory dir5

```
jithu@jithu-VirtualBox:~$ cp -r dir1 dir5
jithu@jithu-VirtualBox:~$ ls dir5
dir2  dir4
```

14. Create a new directory, dir6 inside dir1

```
jithu@jithu-VirtualBox:~$ mkdir dir1/dir6
jithu@jithu-VirtualBox:~$ ls dir1/
dir2  dir4  dir6
```

(a) Move all files in dir5 into it.

```
jithu@jithu-VirtualBox:~$ mv dir5/* dir1/dir6/
jithu@jithu-VirtualBox:~$ ls dir1/dir6
dir2  dir4
```

(b) Rename the file newfile in Qn.4 to oldfile

```
jithu@jithu-VirtualBox:~/dir1/dir6/dir2/dir3$ mv newfile oldfile
jithu@jithu-VirtualBox:~/dir1/dir6/dir2/dir3$ ls
file1  file2  lsoutput  newfile1  oldfile  testfile2  testfile3
```

(c) Move the file file1 in Qn.4 to dir6 with the name file3

```
jithu@jithu-VirtualBox:~/dir1/dir6/dir2/dir3$ mv file1 /home/jithu/dir1/dir6/file3
jithu@jithu-VirtualBox:~/dir1/dir6/dir2/dir3$ ls /home/jithu/dir1/dir6
dir2  dir4  file3
```

(d) Delete all files where name starts with a vowel character, upper or lower case.

```
jithu@jithu-VirtualBox:~/dir1/dir6/dir2/dir3$ rm [aeiouAEIOU]*
jithu@jithu-VirtualBox:~/dir1/dir6/dir2/dir3$ ls
file2  lsoutput  newfile1  testfile2  testfile3
```

(e) Delete all files where the name is at least 3 characters long.

```
jithu@jithu-VirtualBox:~/dir1/dir6/dir2/dir3$ rm ???*
jithu@jithu-VirtualBox:~/dir1/dir6/dir2/dir3$ ls
jithu@jithu-VirtualBox:~/dir1/dir6/dir2/dir3$
```

(f) Delete all hidden folders and files.

```
jithu@jithu-VirtualBox:~$ find dir1 -mindepth 1 -name ".*" -exec rm -rf {} \;
jithu@jithu-VirtualBox:~$ ls -la dir1
total 20
drwxrwxrwx  5 jithu jithu 4096 Mar  4 15:13 .
drwxr-xr-x 21 jithu jithu 4096 Mar  4 15:09 ..
drwxrwxrwx  3 jithu jithu 4096 Feb 25 13:58 dir2
drwxrwxrwx  2 jithu jithu 4096 Feb 25 13:58 dir4
drwxrwxr-x  4 jithu jithu 4096 Mar  4 15:25 dir6
```