

DATE :

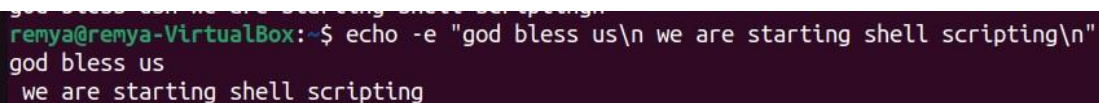
AIM: BASIC LINUX COMMANDS ACTIVITY QUESTIONS

1. Command to display the following message as such (Use " and Newline).

"God! Bless us..
We are starting Shell Scripting"

OUTPUT

->echo -e "God! Bless us...\n We are starting shell scripting"



```
remya@remya-VirtualBox:~$ echo -e "god bless us\n we are starting shell scripting\n"
god bless us
we are starting shell scripting
```

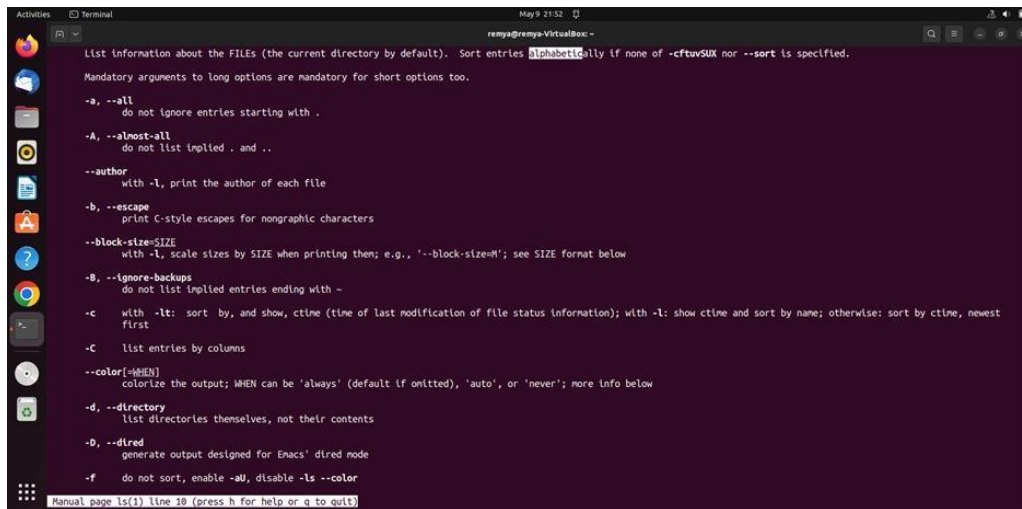
2. Get the manual page of 'ls' command. Search for the word "alphabetic". Find the next occurrence and then find the previous occurrence.

OUTPUT

->man ls press '/' and type

"alphabetic", press enter.

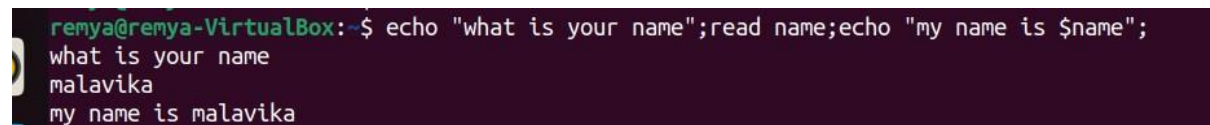
- Press n to find the next occurrence of "alphabetic".
- Press N to find the previous occurrence of "alphabetic".

A terminal window titled 'Terminal' with a dark background. It displays the manual page for the 'ls' command. The text includes: 'List information about the FILES (the current directory by default). Sort entries alphabetically if none of -ctuvSXU nor --sort is specified. Mandatory arguments to long options are mandatory for short options too.' followed by a list of options: -a, --all; -A, --almost-all; --author; -b, --escape; --block-size=SIZE; -B, --ignore-backups; -C; --color[=WHEN]; -d, --directory; -D, --dired; -f. At the bottom, it says 'Manual page ls(1) line 10 (press h for help or q to quit)'.

3. Read your name from the keyboard and display it.

OUTPUT

```
->echo "Enter your name";read name; echo "The name entered is $name";
```

A terminal window showing a shell prompt 'rema@rema-VirtualBox:~\$'. The user enters the command 'echo "what is your name";read name;echo "my name is \$name";'. The output shows 'what is your name', the user input 'malavika', and the final output 'my name is malavika'.

4. Create the directory structure dir1/dir4 and dir1/dir2/dir3 with a single command and then change directory to dir3.

OUTPUT

```
->mkdir -p dir1/dir4 dir1/dir2/dir3  
->cd dir1/dir2/dir3
```

A terminal window showing a shell prompt 'rema@rema-VirtualBox:~\$'. The user enters 'mkdir -p dir1/dir4 dir1/dir2/dir3'. The prompt changes to 'rema@rema-VirtualBox:~\$'. The user enters 'cd dir1/dir2/dir3'. The prompt changes to 'rema@rema-VirtualBox:~/dir1/dir2/dir3\$'.

5. Create some files using Vim.

OUTPUT

- >vimtext.tx, vim text1.txt, vim text3.txt
- > this will create a new text file namedtext
- >press "i" to get into insert mode, Type contents into the filepress
- >'Esc' key to exit insert mode, type ":wq" to save and exit.

```
remya@remya-VirtualBox:~/dir1/dir2/dir3$ vim network.txt
remya@remya-VirtualBox:~/dir1/dir2/dir3$ cat network.txt
ffuhufhehduhd dhdhduhduhd
hdhudeuhduhd
iwkdgthddd
hjikeodhyrthufhbxb
huijsedhtukbftremsjaib
```

6. Display the current directory .

OUTPUT

->pwd

```
remya@remya-VirtualBox:~/dir1/dir2/dir3$ pwd
/home/remya/dir1/dir2/dir3
```

7. Listing Files and folders.

- a. List the contents of dir1 (Qn. 4) and all its descendants.
- b. List the contents of dir3 (Qn. 4) in
 - i. Alphabetical Order.
 - ii. Sorted on Time of modification, newest first.
 - iii. Sorted on Size.
 - iv. Reverse of all above.
 - v. Long listing of files Sorted on Size with smallest first and size.
 - vi. displayed in human readable form.

OUTPUT

-> a) ls -R dir1

-> b)

- i) ls -h
- ii) ls -lt
- iii) ls -s
- iv) ls -r
- v) ls -lSr
- vi) ls -hs

```
remya@remya-VirtualBox:~$ ls -R dir1
dir1:
dir2  dir4

dir1/dir2:
dir3

dir1/dir2/dir3:
network.txt

dir1/dir4:
```

```
remya@remya-VirtualBox:~/dir1/dir2/dir3$ ls
java.txt  network.txt  xxx.txt  yyy.txt
remya@remya-VirtualBox:~/dir1/dir2/dir3$ ls -h
java.txt  network.txt  xxx.txt  yyy.txt
remya@remya-VirtualBox:~/dir1/dir2/dir3$ ls -lt
total 4
-rw-rw-r-- 1 remya remya  0 May  9 22:14 java.txt
-rw-rw-r-- 1 remya remya  0 May  9 22:14 yyy.txt
-rw-rw-r-- 1 remya remya  0 May  9 22:13 xxx.txt
-rw-rw-r-- 1 remya remya 94 May  9 22:03 network.txt
remya@remya-VirtualBox:~/dir1/dir2/dir3$ ls -s
total 4
0 java.txt 4 network.txt 0 xxx.txt 0 yyy.txt
remya@remya-VirtualBox:~/dir1/dir2/dir3$ ls -r
yyy.txt xxx.txt network.txt java.txt
remya@remya-VirtualBox:~/dir1/dir2/dir3$ ls -lSr
total 4
-rw-rw-r-- 1 remya remya  0 May  9 22:14 yyy.txt
-rw-rw-r-- 1 remya remya  0 May  9 22:13 xxx.txt
-rw-rw-r-- 1 remya remya  0 May  9 22:14 java.txt
-rw-rw-r-- 1 remya remya 94 May  9 22:03 network.txt
remya@remya-VirtualBox:~/dir1/dir2/dir3$ ls -h
java.txt  network.txt  xxx.txt  yyy.txt
```

8. Execute ls and store the output to a file lsoutput.

OUTPUT

->ls -lr > lsoutput

```
remya@remya-VirtualBox:~$ cd dir1/dir2/dir3
remya@remya-VirtualBox:~/dir1/dir2/dir3$ ls -lr >lsoutput
remya@remya-VirtualBox:~/dir1/dir2/dir3$ ls
java.txt  lsoutput  network.txt  xxx.txt  yyy.txt
remya@remya-VirtualBox:~/dir1/dir2/dir3$ cat lsoutput
total 4
-rw-rw-r-- 1 remya remya  0 May  9 22:14 yyy.txt
-rw-rw-r-- 1 remya remya  0 May  9 22:13 xxx.txt
-rw-rw-r-- 1 remya remya 94 May  9 22:03 network.txt
-rw-rw-r-- 1 remya remya  0 May  9 22:24 lsoutput
-rw-rw-r-- 1 remya remya  0 May  9 22:14 java.txt
remya@remya-VirtualBox:~/dir1/dir2/dir3$
```

9. Display the file

a. starting with the first 10 lines.

OUTPUT

->more -10 complex.java

```
remya@remya-VirtualBox:~/java$ ls
complex.java      ComplexNo.class  complexx.java    'CPUSRAM.class'  leap.class  leap.java  message.class  symmetric.class  test.class
complexnoaddition  complexx.class  'CPU$Processor.class'  CPU.class  Leap.class  Matrix.class  message.java  symmetric.java  test.java
remya@remya-VirtualBox:~/java$ more -10 complex.java
import java.util.Scanner;
class complex
{
    public static void main(String args[])
    {
        complexno c1=new complexno();
        complexno c2=new complexno();
        c1.add(complex c2)
    }
}
.-More--(38%)
```

b. starting with the 10th line with provision for

i. Scrolling Up

-> more +10 complex.java

ii. Scrolling Up and Down

->less +10 complex.java

```
import java.util.Scanner;
class complex
{
public static void main(String args[])
{
complexno c1=new complexno();
complexno c2=new complexno();
c1.add(complex c2)
}
}
class complex {
int r,i;
Scanner read=new Scanner(System.in);
complexno()
{
System.out.println("enter the complex number");
r=read.nextInt();
i=read.nextInt();
}
void add(complex c2);
{
int rr,ri;
rr=r+c2.r;
ri=i+c2.i;
System.out.println("sum="+rr+"+i"+ri);
}
}
~
~
~
~
~
~
~
~
```

(END)

10. Execute `ls -l` and add the output to `lsoutput`, at the end.

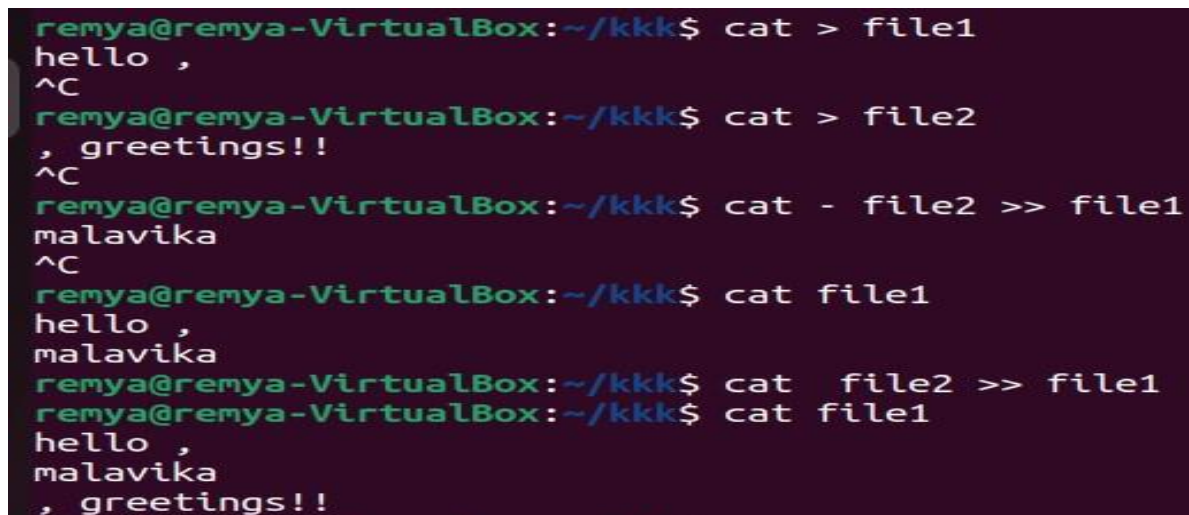
```
->ls -l >lsoutput
```

OUTPUT

12. a. Create a file file1 containing the word "Hello," using cat and output redirection
- b. Create another file file2 containing the word ", Greetings!!"
- c. Display the sentence
Hello,
Yourname
, Greetings!!
using cat, by concatenating file1, Standard Input and file2. Standard input may receive the contents from an echo or a read.

OUTPUT

```
->cat > file1
->cat > file2
-> cat - file2 >> file1
-> cat file2 >> file1
->cat file1
```



```
remya@remya-VirtualBox:~/kkk$ cat > file1
hello ,
^C
remya@remya-VirtualBox:~/kkk$ cat > file2
, greetings!!
^C
remya@remya-VirtualBox:~/kkk$ cat - file2 >> file1
malavika
^C
remya@remya-VirtualBox:~/kkk$ cat file1
hello ,
malavika
remya@remya-VirtualBox:~/kkk$ cat file2 >> file1
remya@remya-VirtualBox:~/kkk$ cat file1
hello ,
malavika
, greetings!!
```

13. Copy the file file1 to newfile.
- a. If newfile already exists, it should be replaced.
- b. If newfile already exists, it should not be replaced.
- c. If newfile already exists, it should be replaced, but only with the consent of the user.

- d. If newfile already exists, it should be replaced only if its contents is older than that of file1.
- e. Even if newfile is read only.
- f. Create a link instead of copying.
- g. Copy the entire directory tree from dir1 of Qn.4 to a new directory dir5.

OUTPUT

- a)-> cp file1 newfile
- b)-> cp -n file1 newfile
- c)-> cp -i file1 newfile
- d)-> cp -u file1 newfile
- e)-> cp -f file1 newfile
- f)-> ln file1 newfile
- g)-> cp -R dir1 dir5

```
remya@remya-VirtualBox:~/kkk$ ls
file1  file2
remya@remya-VirtualBox:~/kkk$ cp file1 newfile
remya@remya-VirtualBox:~/kkk$ cat newfile
hello ,
malavika
, greetings!!
, goodmorning
remya@remya-VirtualBox:~/kkk$ cat >> file1
, how are you?
^C
remya@remya-VirtualBox:~/kkk$ cat file1
hello ,
malavika
, greetings!!
, goodmorning
, how are you?
remya@remya-VirtualBox:~/kkk$ cp -n file1 newfile
remya@remya-VirtualBox:~/kkk$ cat newfile
hello ,
malavika
, greetings!!
, goodmorning
remya@remya-VirtualBox:~/kkk$ cat file1
hello ,
malavika
, greetings!!
, goodmorning
, how are you?
remya@remya-VirtualBox:~/kkk$ cp -i file1 newfile
cp: overwrite 'newfile'? y
remya@remya-VirtualBox:~/kkk$ cat newfile
hello ,
malavika
, greetings!!
, goodmorning
, how are you?
remya@remya-VirtualBox:~/kkk$ cat >> file1
```

```
renya@renya-VirtualBox:~/kkk$ cat >> file1
to you
^C
renya@renya-VirtualBox:~/kkk$ cp -u file1 newfile
renya@renya-VirtualBox:~/kkk$ cat newfile
hello ,
malavika
, greetings!!
, goodmorning

, how are you?
to you
renya@renya-VirtualBox:~/kkk$ chmod 444 newfile
renya@renya-VirtualBox:~/kkk$ cat >> file1
people
^C
renya@renya-VirtualBox:~/kkk$ cp -s file1 newfile
cp: cannot create symbolic link 'newfile' to 'file1': File exists
renya@renya-VirtualBox:~/kkk$ cp -f file1 newfile
renya@renya-VirtualBox:~/kkk$ cat newfile
hello ,
malavika
, greetings!!
, goodmorning

, how are you?
to you
people
renya@renya-VirtualBox:~/kkk$ cp -s file1 newfile
cp: cannot create symbolic link 'newfile' to 'file1': File exists
renya@renya-VirtualBox:~/kkk$ ls -l
total 12
-rw-rw-r-- 1 remya remya 75 May 11 22:55 file1
-rw-rw-r-- 1 remya remya 14 May 11 21:35 file2
-rw-rw-r-- 1 remya remya 75 May 11 22:57 newfile
renya@renya-VirtualBox:~/kkk$ cd
renya@renya-VirtualBox:~$ cp -R dir1 dir5
renya@renya-VirtualBox:~$ ls
datastructure Desktop dir2 dir5 doublylinkedlist.c ds file1.txt java kkk linked lsoutput net Public snap validate.html
dbms dir1 dir3 Documents Downloads file1 file2 java.txt last.py ls Music Pictures s Templates Videos
renya@renya-VirtualBox:~$
```

14. Create a new directory, dir6 inside dir1

- Move all files in dir5 into it.
- Rename the file newfile in Qn.13 to oldfile.
- Move the file file1 in Qn.12 to dir6 with the name file3
- Delete all files where the name starts with a vowel character, upper or lower case.
- Delete all files where the name is at least 3 characters long.
- Delete all hidden folders, and files.

OUTPUT

- >mv dir1/dir5 dir1/dir6
- >mv newfile oldfile
- >mv file1 dir1/dir2/dir3/file3
- > rm [a,e,i,o,u,A,E,I,O,U]*
- > rm ???*

```

renya@renya-VirtualBox:~$ mkdir -p dir1/dir6
renya@renya-VirtualBox:~$ mv dir1/dir5 dir1/dir6
renya@renya-VirtualBox:~$ cd dir1/dir6
renya@renya-VirtualBox:~/dir1/dir6$ ls
dir5
renya@renya-VirtualBox:~/dir1/dir6$ cd ..
renya@renya-VirtualBox:~/dir1$ cd dir2/dir3
renya@renya-VirtualBox:~/dir1/dir2/dir3$ cd ..
renya@renya-VirtualBox:~/dir1/dir2$ cd dir4
bash: cd: dir4: No such file or directory
renya@renya-VirtualBox:~/dir1/dir2$ cd dir2/dir3/dir4
bash: cd: dir2/dir3/dir4: No such file or directory
renya@renya-VirtualBox:~/dir1/dir2$ cd dir2/dir4
bash: cd: dir2/dir4: No such file or directory
renya@renya-VirtualBox:~/dir1/dir2$ cd dir3
renya@renya-VirtualBox:~/dir1/dir2/dir3$ mv newfile oldfile
mv: cannot stat 'newfile': No such file or directory
renya@renya-VirtualBox:~/dir1/dir2/dir3$ touch newfile
renya@renya-VirtualBox:~/dir1/dir2/dir3$ ls
file1 file1.txt file2 file3 java.txt lsoutput network.txt newfile oldfile xxx.txt yyy.txt
renya@renya-VirtualBox:~/dir1/dir2/dir3$ mv newfile oldfile
renya@renya-VirtualBox:~/dir1/dir2/dir3$ ls
file1 file1.txt file2 file3 java.txt lsoutput network.txt oldfile xxx.txt yyy.txt
renya@renya-VirtualBox:~/dir1/dir2/dir3$ mv file1 dir1/dir6/file3
mv: cannot move 'file1' to 'dir1/dir6/file3': No such file or directory
renya@renya-VirtualBox:~/dir1/dir2/dir3$ cd
renya@renya-VirtualBox:~$ mv file1 dir1/dir6/file3
mv: cannot stat 'file1': No such file or directory
renya@renya-VirtualBox:~$ touch file1
renya@renya-VirtualBox:~$ mv file1 dir1/dir6/file3
renya@renya-VirtualBox:~$ cd dir1/dir2/dir3
renya@renya-VirtualBox:~/dir1/dir2/dir3$ rm [a,e,i,o,u,A,E,I,O,U]*
rm: cannot remove 'oldfile': Is a directory
renya@renya-VirtualBox:~/dir1/dir2/dir3$ ls
file1 file1.txt file2 file3 java.txt lsoutput network.txt oldfile xxx.txt yyy.txt
renya@renya-VirtualBox:~/dir1/dir2/dir3$ rm ???*
rm: cannot remove 'file3': Is a directory
rm: cannot remove 'oldfile': Is a directory
renya@renya-VirtualBox:~/dir1/dir2/dir3$ ls
file3 oldfile
renya@renya-VirtualBox:~/dir1/dir2/dir3$ ls -a
. . file3 oldfile
renya@renya-VirtualBox:~/dir1/dir2/dir3$ rm -rf .*
rm: refusing to remove '.' or '..' directory: skipping '.'
rm: refusing to remove '.' or '..' directory: skipping '..'
renya@renya-VirtualBox:~/dir1/dir2/dir3$ ls -a
. . file3 oldfile
renya@renya-VirtualBox:~/dir1/dir2/dir3$

```

15. Create a file testfile1 using vim

OUTPUT

- > vim testfile1

a. Set line number

-> press esc then enter :set number

b. Type your name and address with district and pincode

-> enter i

c. Copy paste the contents 10 times.

-> placed the cursor in the end and enter “yy” then enter “10p”.

d. Replace all occurrence of your district with a neighbouring district.

-> press esc and type “:%s/malapuram/ernakulam/gi”.

```
remya@remya-VirtualBox:~$ vim testfile2
```

```
1 malavika,xxxxyyyzzzz,malapuram,689623
2 malavika,xxxxyyyzzzz,malapuram,689623
3 malavika,xxxxyyyzzzz,malapuram,689623
4 malavika,xxxxyyyzzzz,malapuram,689623
5 malavika,xxxxyyyzzzz,malapuram,689623
6 malavika,xxxxyyyzzzz,malapuram,689623
7 malavika,xxxxyyyzzzz,malapuram,689623
8 malavika,xxxxyyyzzzz,malapuram,689623
9 malavika,xxxxyyyzzzz,malapuram,689623
10 malavika,xxxxyyyzzzz,malapuram,689623
11 malavika,xxxxyyyzzzz,malapuram,689623
```

```
10 more lines
```

```
1 malavika,xxxxyyyzzzz,ernakulam,689623
2 malavika,xxxxyyyzzzz,ernakulam,689623
3 malavika,xxxxyyyzzzz,ernakulam,689623
4 malavika,xxxxyyyzzzz,ernakulam,689623
5 malavika,xxxxyyyzzzz,ernakulam,689623
6 malavika,xxxxyyyzzzz,ernakulam,689623
7 malavika,xxxxyyyzzzz,ernakulam,689623
8 malavika,xxxxyyyzzzz,ernakulam,689623
9 malavika,xxxxyyyzzzz,ernakulam,689623
10 malavika,xxxxyyyzzzz,ernakulam,689623
11 malavika,xxxxyyyzzzz,ernakulam,689623
```

```
11 substitutions on 11 lines
```


16. Create 2 files testfile2 and testfile3 using Vim.

a. Modify the permissions of testfile2 using symbolic mode.

i. Add read permission to other

ii. Revoke write from owner

iii. Set only execute to Group

iv. Add write to owner, revoke read from others and set read only to group

v. Set read and write to all

OUTPUT

i. -> chmod o+r testfile2

ii. -> chmod u-w testfile2

iii.-> chmod g=x testfile2

iv. -> chmod u+w,o-r,g=r testfile2

v. -> chmod a=rw testfile2

```
remya@remya-VirtualBox:~$ vim testfile2
remya@remya-VirtualBox:~$ vim testfile3
remya@remya-VirtualBox:~$ ls -l testfile2
-rw-rw-r-- 1 remya remya 13 May 28 00:09 testfile2
remya@remya-VirtualBox:~$ chmod o+r testfile2
remya@remya-VirtualBox:~$ ls -l testfile2
-rw-rw-r-- 1 remya remya 13 May 28 00:09 testfile2
remya@remya-VirtualBox:~$ chmod u-w testfile2
remya@remya-VirtualBox:~$ ls -l testfile2
-r--rw-r-- 1 remya remya 13 May 28 00:09 testfile2
remya@remya-VirtualBox:~$ chmod g=x testfile2
remya@remya-VirtualBox:~$ ls -l testfile2
-r----xr-- 1 remya remya 13 May 28 00:09 testfile2
remya@remya-VirtualBox:~$ chmod u+w,o-r,g=r testfile2
remya@remya-VirtualBox:~$ ls -l testfile2
-rw-r----- 1 remya remya 13 May 28 00:09 testfile2
remya@remya-VirtualBox:~$ chmod a=rw testfile2
remya@remya-VirtualBox:~$ ls -l testfile2
-rw-rw-rw- 1 remya remya 13 May 28 00:09 testfile2
remya@remya-VirtualBox:~$
```

- b. Modify the permissions of testfile3 using numeric mode i Set read and write to all ii set read,write and execute to owner, read and execute to group and read only to others

OUTPUT

- i. ->chmod 666 testfile3
ii. ->chmod 754 testfile3

```
remya@remya-VirtualBox:~$ ls -l testfile3
-rw-rw-r-- 1 remya remya 9 May 28 00:10 testfile3
remya@remya-VirtualBox:~$ chmod 666 testfile3
remya@remya-VirtualBox:~$ ls -l testfile3
-rw-rw-rw- 1 remya remya 9 May 28 00:10 testfile3
remya@remya-VirtualBox:~$ chmod 754 testfile3
remya@remya-VirtualBox:~$ ls -l testfile3
-rwxr-xr-- 1 remya remya 9 May 28 00:10 testfile3
remya@remya-VirtualBox:~$
```

- c. Set the permissions of testfile2 the same as that of testfile3.

OUTPUT

-> chmod --reference=testfile3 testfile2

```
remya@remya-VirtualBox:~$ ls -l testfile3
-rwxr-xr-- 1 remya remya 9 May 28 00:10 testfile3
remya@remya-VirtualBox:~$ ls -l testfile2
-rw-rw-rw- 1 remya remya 13 May 28 00:09 testfile2
remya@remya-VirtualBox:~$ chmod --reference=testfile3
remya@remya-VirtualBox:~$ ls -l testfile2
-rwxr-xr-- 1 remya remya 13 May 28 00:09 testfile2
remya@remya-VirtualBox:~$
```

17. Using cut filter

- a.Display the filenames from ls -l assuming filenames start at column 44.

OUTPUT

```

remya@remya-VirtualBox:~$ cd java
remya@remya-VirtualBox:~/java$ ls -l
total 84
-rw-rw-r-- 1 remya remya 428 Apr  4 20:24 complex.java
-rw-rw-r-- 1 remya remya 531 Apr  4 20:21 complexnoaddition
-rw-rw-r-- 1 remya remya 1258 Apr  4 20:35 ComplexNo.class
-rw-rw-r-- 1 remya remya 361 Apr  4 20:35 complexx.class
-rw-rw-r-- 1 remya remya 569 Apr  4 20:33 complexx.java
-rw-rw-r-- 1 remya remya 1540 Apr  4 20:42 'CPU$Processor.class'
-rw-rw-r-- 1 remya remya 1437 Apr  4 20:42 'CPU$RAM.class'
-rw-rw-r-- 1 remya remya 637 Apr  4 20:42 CPU.class
-rw-rw-r-- 1 remya remya 56 May 11 21:01 file1
-rw-rw-r-- 1 remya remya 11 May 11 20:56 file2
-rw-rw-r-- 1 remya remya 801 Mar 30 21:06 leap.class
-rw-rw-r-- 1 remya remya 803 Mar 30 21:01 Leap.class
-rw-rw-r-- 1 remya remya 393 Mar 30 21:06 leap.java
-rw-rw-r-- 1 remya remya 1077 May  9 22:40 lsoutput
-rw-rw-r-- 1 remya remya 1173 Mar 30 20:47 Matrix.class
-rw-rw-r-- 1 remya remya 423 Mar 26 15:46 message.class
-rw-rw-r-- 1 remya remya 99 Mar 26 15:46 message.java
-rw-rw-r-- 1 remya remya 1175 Mar 30 20:50 symetric.class
-rw-rw-r-- 1 remya remya 664 Mar 30 20:49 symetric.java
-rw-rw-r-- 1 remya remya 427 Apr  4 20:42 test.class
-rw-rw-r-- 1 remya remya 1193 Apr  4 20:41 test.java
remya@remya-VirtualBox:~/java$ ls -l|cut -c 40-
:24 complex.java
:21 complexnoaddition
:35 ComplexNo.class
:35 complexx.class
:33 complexx.java
:42 CPU$Processor.class
:42 CPU$RAM.class
:42 CPU.class
:01 file1
:56 file2
:06 leap.class
:01 Leap.class
:06 leap.java
:40 lsoutput
:47 Matrix.class
:46 message.class
:46 message.java
:50 symetric.class
:49 symetric.java
:42 test.class
:41 test.java
remya@remya-VirtualBox:~/java$

```

a. -> ls -l|cut -c 40-

b. Display user Id and user name of all users from /etc/passwd.(fields 1 and 3).

-> cut -d: -f 1,3 /etc/passwd

```

remya@remya-VirtualBox:~/java$ cut -d: -f 1,3 /etc/passwd
root:0
daemon:1
bin:2
sys:3
sync:4
games:5
man:6
lp:7
mail:8
news:9
uucp:10
proxy:13
www-data:33
backup:34
list:38
irc:39
gnats:41
nobody:65534
systemd-network:100
systemd-resolve:101
messagebus:102
systemd-timesync:103
syslog:104
_apt:105
tss:106
uidd:107
systemd-oom:108
tcpdump:109

```


18. Using tr

- Piped with cat, display all that are entered in Uppercase
- Squeeze all space characters in `ls -l` and cut the size and name of all files.
- Piped with cat, change the output of Qn.12c to Hello, yourname, Greetings!!

OUTPUT

a. `->cat sample|tr [:lower:] [:upper:]`

b. `->ls -l|tr -s ' '|cut -d ' ' -f 5,9`

c. `-> cat file1 | tr -d "\n"`

```
remya@remya-VirtualBox:~/java$ cd
remya@remya-VirtualBox:~$ cat > sample
malavika manohar
^C
remya@remya-VirtualBox:~$ cat sample|tr [:lower:] [:upper:]
MALAVIKA MANOHAR
remya@remya-VirtualBox:~$ ls -l|tr -s ' '|cut -d ' ' -f 5,9
4096 datastructure
4096 dbms
4096 Desktop
4096 dir1
4096 dir2
4096 dir3
4096 dir5
4096 Documents
4404 doublylinkedlist.c
4096 Downloads
4096 ds
12 file1.txt
4096 java
39 java.txt
4096 kkk
52 last.py
4096 linked
0 ls
1130 lsoutput
4096 Music
4096 net
4096 Pictures
4096 Public
9934 s
17 sample
4096 snap
4096 Templates
13 testfile2
9 testfile3
37 testfile5
1059 validate.html
4096 Videos
```

```
remya@remya-VirtualBox:~/dir1$ gcc11 file1
remya@remya-VirtualBox:~/dir1$ cat file1
hello ,
malavika
, greetings!!!
remya@remya-VirtualBox:~/dir1$ cat file1 | tr -d "\n"
hello ,malavika , greetings!!!remya@remya-VirtualBox:~/dir1$
```


19. Create 3 files containing name, age and marks of 5 students respectively and paste them into a single csv (comma separated values) file.

OUTPUT

-> paste -d "," name age marks >> csvfile

```
remya@remya-VirtualBox:~$ cd dir1
remya@remya-VirtualBox:~/dir1$ cat file1
hello ,
malavika
, greetings!!!
remya@remya-VirtualBox:~/dir1$ cat > name
malu
ponnu
arya
chikku
revathi
^C
remya@remya-VirtualBox:~/dir1$ cat > age
12
14
16
18
22
^C
remya@remya-VirtualBox:~/dir1$ cat > marks
78
77
98
99
98
^C
remya@remya-VirtualBox:~/dir1$ touch csvfile
remya@remya-VirtualBox:~/dir1$ paste -d "," name age marks >> csvfile
remya@remya-VirtualBox:~/dir1$ cat csvfile
malu,12,78
ponnu,14,77
arya,16,98
chikku,18,99
revathi,22,98
remya@remya-VirtualBox:~/dir1$
```

20. Using find

a. piped with wc, display the number of files in a directory that starts with the letter a

- b. Delete all .py files in the parent directory.
- c. Copy all files that starts with "a" to dir2.
- d. Display files in the current directory that were modified in the last 30 minutes.

OUTPUT

- a. -> find a*|wc -l
- b. -> find -name "*.py" -type f -delete
- c. -> find . -type f -name "a*" -exec cp {} dir2 \;
- d. -> find . -type f -mmin -30

```
renya@renya-VirtualBox:~$ cd dirfind
renya@renya-VirtualBox:~/dirfind$ ls
aa.txt  alpha.txt  dir2  ggg.txt
renya@renya-VirtualBox:~/dirfind$ find a*|wc -l
2
renya@renya-VirtualBox:~/dirfind$ cd dir2
renya@renya-VirtualBox:~/dirfind/dir2$ ls
mmm.txt  nnn.py  python.py
renya@renya-VirtualBox:~/dirfind/dir2$ cd ..
renya@renya-VirtualBox:~/dirfind$ find -name "*.py" -type f -delete
renya@renya-VirtualBox:~/dirfind$ cd dir2
renya@renya-VirtualBox:~/dirfind/dir2$ ls
mmm.txt
renya@renya-VirtualBox:~/dirfind/dir2$ cd ..
renya@renya-VirtualBox:~/dirfind$ find . -type f -name "a*" -exec cp {} dir2 \;
cp: './dir2/aa.txt' and 'dir2/aa.txt' are the same file
cp: './dir2/alpha.txt' and 'dir2/alpha.txt' are the same file
renya@renya-VirtualBox:~/dirfind$ cd dir2
renya@renya-VirtualBox:~/dirfind/dir2$ ls
aa.txt  alpha.txt  mmm.txt
renya@renya-VirtualBox:~/dirfind/dir2$ find . -type f -mmin -30
./mmm.txt
./aa.txt
./alpha.txt
renya@renya-VirtualBox:~/dirfind/dir2$
```

21. Use head and tail piped with cat /etc/passwd to display the details of

- a. The first 12 users in the system.
- b. The last 7 users in the system.
- c. All but the first 3.
- d. All but the last 5.
- e. Only the 9th.

OUTPUT

a. -> cat /etc/passwd|head -12

b. -> cat /etc/passwd|tail -7

```
remya@remya-VirtualBox:~$ cat /etc/passwd|head -12
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
remya@remya-VirtualBox:~$ cat /etc/passwd|tail -7
gnome-initial-setup:x:125:65534:./run/gnome-initial-setup:/bin/false
hplip:x:126:7:HPLIP system user,,,:/run/hplip:/bin/false
gdm:x:127:133:Gnome Display Manager:/var/lib/gdm3:/bin/false
remya:x:1000:1000:Remya,,,:/home/remya:/bin/bash
fwupd-refresh:x:128:136:fwupd-refresh user,,,:/run/systemd:/usr/sbin/nologin
vboxadd:x:999:1:./var/run/vboxadd:/bin/false
mysql:x:129:137:MySQL Server,,,:/nonexistent:/bin/false
remya@remya-VirtualBox:~$
```

c. -> cat /etc/passwd|tail +4

```
mysql:x:129:137:MySQL Server,,,:/nonexistent:/bin/false
remya@remya-VirtualBox:~$ cat /etc/passwd|tail +4
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
```

d. -> cat /etc/passwd|head -n -5

```
remya@remya-VirtualBox:~$ cat /etc/passwd|head -n -5
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
```

e. -> `cat /etc/passwd|head -9|tail -1`

```
rema@rema-VirtualBox:~$ cat /etc/passwd|head -9|tail -1
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
rema@rema-VirtualBox:~$
```

22. Use `grep` to

- Display all lines in a file that contains the string “abc”.
- Display all lines in a file that does not contain the string “abc”.
- List names of all .py files that contains a print.
- List names of all .py files that does not contain a print.
- Display the number of import statements in each .py file.
- Display the Line numbers of print in a .py file.
- List names of all files in the directory tree that contain a print
- Display the context of every print in a .py file. i.e., n lines before and every print.
- ls -l starts with d for directories. Use ls -l piped with grep & cut to display the names of all directories in the current directory.

OUTPUT

- > `grep abc file.txt`
- > `grep -v abc file.txt`
- > `grep -l "print" *.py`

- d. -> `grep -L "print" *.py`
- e. -> `grep -c "import" *.py`
- f. -> `grep -n "print" even.py`
- g. -> `grep -lR "print"`

```
remya@remya-VirtualBox:~/dir1/dir2$ cat file.txt
abc
abc is a string
these are english alphabets
remya@remya-VirtualBox:~/dir1/dir2$ grep abc file.txt
abc
abc is a string
remya@remya-VirtualBox:~/dir1/dir2$ grep -v abc file.txt
these are english alphabets
remya@remya-VirtualBox:~/dir1/dir2$ grep -l "print" *.py
even.py
odd.py
palindrome.py
remya@remya-VirtualBox:~/dir1/dir2$ grep -L "print" *.py
sample.py
remya@remya-VirtualBox:~/dir1/dir2$ grep -c "import" *.py
even.py:0
odd.py:0
palindrome.py:1
sample.py:0
remya@remya-VirtualBox:~/dir1/dir2$ ls
dir3 even.py file1.txt file2.txt file.txt odd.py palindrome.py sample.py
remya@remya-VirtualBox:~/dir1/dir2$ cat even.py
n=int(input("enter a number"))
area=n*n
print(area)
remya@remya-VirtualBox:~/dir1/dir2$ grep -n "print" even.py
3:print(area)
remya@remya-VirtualBox:~/dir1/dir2$ grep -lR "print"
palindrome.py
odd.py
even.py
```

- h. -> `grep "print" palindrome.py -A 1`
 - > `grep "print" palindrome.py -B 5 i.`
- > `ls -l`
 - > `ls -l | grep "^d" | cut -d " " -f 10`

```

remya@remya-VirtualBox:~/dir1/dir2$ ls
dir3 even.py file1.txt file2.txt file.txt odd.py palindrome.py sample.py
remya@remya-VirtualBox:~/dir1/dir2$ cat palindrome.py
import java.util.Scanner;
class complex
{
public static void main(String args[])
{
complexno c1=new complexno();
complexno c2=new complexno();
c1.add(complex c2)
}
}
class complex {
int r,i;
Scanner read=new Scanner(System.in);
complexno()
{
System.out.println("enter the complex number");
r=read.nextInt();
i=read.nextInt();
}
void add(complex c2);
{
int rr,ri;
rr=r+c2.r;
ri=i+c2.i;
System.out.println("sum="+rr+"+i"+ri);
}
}
remya@remya-VirtualBox:~/dir1/dir2$ grep "print" palindrome.py -A 1
System.out.println("enter the complex number");
r=read.nextInt();
--
System.out.println("sum="+rr+"+i"+ri);
}
remya@remya-VirtualBox:~/dir1/dir2$ grep "print" palindrome.py -B 5
class complex {
int r,i;
Scanner read=new Scanner(System.in);
complexno()
{
System.out.println("enter the complex number");
--
void add(complex c2);
{

```

```

remya@remya-VirtualBox:~/dir1/dir2$ ls -l
total 28
drwxrwxr-x 4 remya remya 4096 May 22 01:21 dir3
-rw-rw-r-- 1 remya remya  52 May 29 22:01 even.py
-rw-rw-r-- 1 remya remya   0 May  9 23:52 file1.txt
-rw-rw-r-- 1 remya remya  10 May  9 23:52 file2.txt
-rw-rw-r-- 1 remya remya  49 May 29 21:54 file.txt
-rw-rw-r-- 1 remya remya  52 May 29 22:02 odd.py
-rw-rw-r-- 1 remya remya 428 May 29 22:04 palindrome.py
-rw-rw-r-- 1 remya remya  25 May 29 22:05 sample.py

```

23. Using expr

- Read two integers X and Y. Display the sum, difference, product, quotient and remainder of these variables.
- Read a string, S, a position, p and a length l. Display the substring of length l starting at position p from the string S.

OUTPUT

- a) -> read -p "enter two numbers:" x y
-> echo "sum is : `expr \$x + \$y` "
-> echo "difference is : `expr \$x - \$y` "
-> echo "product is : `expr \$x * \$y` "
-> echo "quotient is : `expr \$x / \$y` "
-> echo "remainder is : `expr \$x % \$y` "
b) -> read -p "enter a string: " s
-> read -p "enter the position: " p
-> read -p "enter the length: " l
-> echo "substring : `expr substr \$s \$p \$l`"

```
remya@remya-VirtualBox:~$ read -p "enter two numbers:" x y
enter two numbers:12 5
remya@remya-VirtualBox:~$ echo "sum is : `expr $x + $y` "
sum is : 17
remya@remya-VirtualBox:~$ echo "difference is : `expr $x - $y` "
difference is : 7
remya@remya-VirtualBox:~$ echo "product is : `expr $x \* $y` "
product is : 60
remya@remya-VirtualBox:~$ echo "quotient is : `expr $x / $y` "
quotient is : 2
remya@remya-VirtualBox:~$ echo "remainder is : `expr $x % $y` "
remainder is : 2
remya@remya-VirtualBox:~$ read -p "enter a string: " s
enter a string: notebook
remya@remya-VirtualBox:~$ read -p "enter the position: " p
enter the position: 5
remya@remya-VirtualBox:~$ read -p "enter the length: " l
enter the length: 4
remya@remya-VirtualBox:~$ echo "substring : `expr substr $s $p $l`"
substring : book
remya@remya-VirtualBox:~$
```

24. a. Add a normal user, user1. Create (if it does not exist) the folder /user1 and set /user1 as the home directory of user1. Also set /bin/bash as the login shell (Use a single command).
- b. Modify the user account of user1, to expire it after a specific date.

- c. Change the owner and group of the directory tree from dir2 and all its contents to user1.
- d. Delete the user account user1
 - i. By retaining the home folder.
 - ii. By deleting the home folder.

OUTPUT

- a. ->sudo useradd -s /bin/bash -m -d /home/u_ser1 u_ser1
-> sudo chage -l u_ser1
- b. -> sudo chage -E 2022-05-10 u_ser1
-> sudo chage -l u_ser1
- c. -> sudo chown -R u_ser1:u_ser1 /home/remya/dir1/dir2
- d. -> sudo userdel u_ser1
-> sudo userdel -r u_ser1

```
remya@remya-VirtualBox:~$ sudo useradd -s /bin/bash -m -d /home/u_ser1 u_ser1
[sudo] password for remya:
remya@remya-VirtualBox:~$ sudo chage -l u_ser1
Last password change                : Jun 03, 2023
Password expires                     : never
Password inactive                    : never
Account expires                      : never
Minimum number of days between password change : 0
Maximum number of days between password change : 99999
Number of days of warning before password expires : 7
remya@remya-VirtualBox:~$ sudo chage -E 2022-05-10 u_ser1
remya@remya-VirtualBox:~$ sudo chage -l u_ser1
Last password change                : Jun 03, 2023
Password expires                     : never
Password inactive                    : never
Account expires                      : May 10, 2022
Minimum number of days between password change : 0
Maximum number of days between password change : 99999
Number of days of warning before password expires : 7
```



```

remya@remya-VirtualBox:~$ sudo chown -R u_ser1:u_ser1 /home/remya/dir1/dir2
remya@remya-VirtualBox:~$ cd dir1
remya@remya-VirtualBox:~/dir1$ ls -l
total 36
-rw-rw-r-- 1 remya remya 15 May 28 02:08 age
-rw-rw-r-- 1 remya remya 61 May 28 02:09 csvfile
drwxrwxr-x 3 u_ser1 u_ser1 4096 May 29 22:10 dir2
drwxrwxr-x 2 remya remya 4096 May 9 21:57 dir4
drwxrwxr-x 3 remya remya 4096 May 22 01:18 dir6
-rw-rw-r-- 1 remya remya 33 May 28 01:42 file1
-rw-rw-r-- 1 remya remya 8 May 11 21:03 file1.txt
-rw-rw-r-- 1 remya remya 15 May 28 02:09 marks
-rw-rw-r-- 1 remya remya 31 May 28 02:08 name
remya@remya-VirtualBox:~/dir1$ cd dir2
remya@remya-VirtualBox:~/dir1/dir2$ ls -l
total 28
drwxrwxr-x 4 u_ser1 u_ser1 4096 May 22 01:21 dir3
-rw-rw-r-- 1 u_ser1 u_ser1 52 May 29 22:01 even.py
-rw-rw-r-- 1 u_ser1 u_ser1 0 May 9 23:52 file1.txt
-rw-rw-r-- 1 u_ser1 u_ser1 10 May 9 23:52 file2.txt
-rw-rw-r-- 1 u_ser1 u_ser1 49 May 29 21:54 file.txt
-rw-rw-r-- 1 u_ser1 u_ser1 52 May 29 22:02 odd.py
-rw-rw-r-- 1 u_ser1 u_ser1 428 May 29 22:04 palindrome.py
-rw-rw-r-- 1 u_ser1 u_ser1 25 May 29 22:05 sample.py
remya@remya-VirtualBox:~/dir1/dir2$ cd
remya@remya-VirtualBox:~$ sudo userdel u_ser1
remya@remya-VirtualBox:~$ sudo userdel -r u_ser1
userdel: user 'u_ser1' does not exist

```

25. Miscellaneous

- a. Using tar create a tar.gz file of the folder dir1 of Qn.4 with the name mydir.tar.gz.
- b. Extract the contents of mydir.tar.gz to dir6 of Qn.14.
- c. Use top to display processes sorted on
 - i. ProcessId

1. Type top

2. Press N ii.

CPU%

1.Type top

2. Press P

d. Use ps to display

- i. Processes associated with the current terminal
- ii. All processes in the system
- e. Use df to display the storage available in each partition in human readable form.

OUTPUT

a. -> tar -czvf mydir.tar.gz dir1

```
remya@remya-VirtualBox:~$ tar -czvf mydir.tar.gz dir1
dir1/
dir1/csvfile
dir1/.Testfile2.swp
dir1/marks
dir1/age
dir1/dir4/
dir1/file1.txt
dir1/name
dir1/dir6/
dir1/dir6/dir5/
dir1/dir6/file3
dir1/dir2/
dir1/dir2/dir3/
dir1/dir2/dir3/oldfile/
dir1/dir2/dir3/oldfile/newfile
dir1/dir2/dir3/file3/
dir1/dir2/dir3/file3/file1
dir1/dir2/file.txt
dir1/dir2/file2.txt
dir1/dir2/file1.txt
dir1/dir2/palindrome.py
dir1/dir2/odd.py
dir1/dir2/even.py
dir1/dir2/sample.py
dir1/file1
```

b. -> tar -xzvf mydir.tar.gz -C dir1/dir6

```
remya@remya-VirtualBox:~$ tar -xzvf mydir.tar.gz -C dir1/dir6
dir1/
dir1/csvfile
dir1/.Testfile2.swp
dir1/marks
dir1/age
dir1/dir4/
dir1/file1.txt
dir1/name
dir1/dir6/
dir1/dir6/dir5/
dir1/dir6/file3
dir1/dir2/
dir1/dir2/dir3/
dir1/dir2/dir3/oldfile/
dir1/dir2/dir3/oldfile/newfile
dir1/dir2/dir3/file3/
dir1/dir2/dir3/file3/file1
dir1/dir2/file.txt
dir1/dir2/file2.txt
dir1/dir2/file1.txt
dir1/dir2/palindrome.py
dir1/dir2/odd.py
dir1/dir2/even.py
dir1/dir2/sample.py
dir1/file1
remya@remya-VirtualBox:~$ ls -l mydir.tar.gz
-rw-rw-r-- 1 remya remya 1344 Jun  4 02:04 mydir.tar.gz
```

c. i) -> top -o PID ii) -> top -o %CPU

```
remya@remya-VirtualBox:~$ top -o PID
```

```
top - 02:19:45 up 1:32, 1 user, load average: 0.23, 0.18, 0.16
Tasks: 264 total, 1 running, 263 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.2 us, 0.1 sy, 0.0 ni, 99.7 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 3921.6 total, 501.6 free, 1394.9 used, 2025.1 buff/cache
MiB Swap: 2170.0 total, 2162.5 free, 7.5 used. 2211.8 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
5620	remya	20	0	21884	4280	3424	R	0.3	0.1	0:00.26	top
5587	root	20	0	0	0	0	I	0.0	0.0	0:00.00	kworker/1:2-events
5540	remya	20	0	3007308	63024	48112	S	0.0	1.6	0:00.45	gjs
5523	root	20	0	0	0	0	I	0.0	0.0	0:00.20	kworker/u20:3-events_power_efficient
5504	root	20	0	0	0	0	I	0.0	0.0	0:00.15	kworker/0:0-events
5456	root	20	0	0	0	0	I	0.0	0.0	0:00.00	kworker/9:1
5432	root	20	0	0	0	0	I	0.0	0.0	0:00.00	kworker/2:2-events
5330	root	20	0	0	0	0	I	0.0	0.0	0:00.26	kworker/1:1-events
5323	root	20	0	0	0	0	I	0.0	0.0	0:00.00	kworker/6:1
5040	root	20	0	0	0	0	I	0.0	0.0	0:00.64	kworker/u20:0-events_power_efficient
4846	root	20	0	0	0	0	I	0.0	0.0	0:00.00	kworker/8:2-events
4813	root	20	0	0	0	0	I	0.0	0.0	0:00.00	kworker/5:0-events
4802	remya	20	0	325472	9004	8036	S	0.0	0.2	0:00.08	gvfsd-dnssd
4786	remya	20	0	397376	8792	7844	S	0.0	0.2	0:00.03	gvfsd-network
4149	root	20	0	0	0	0	I	0.0	0.0	0:00.00	kworker/3:3-events
4085	root	20	0	0	0	0	I	0.0	0.0	0:00.36	kworker/3:1-events
4083	root	20	0	0	0	0	I	0.0	0.0	0:00.27	kworker/5:2-ata_sff
4081	root	20	0	0	0	0	I	0.0	0.0	0:00.00	kworker/7:0
3780	remya	20	0	1015524	25840	14784	S	0.0	0.6	0:00.22	snap
3518	root	20	0	0	0	0	I	0.0	0.0	0:01.45	kworker/4:0-events
3237	root	20	0	0	0	0	I	0.0	0.0	0:02.69	kworker/u20:1-events_unbound
3168	root	20	0	0	0	0	I	0.0	0.0	0:00.48	kworker/7:3-events
3166	root	20	0	0	0	0	I	0.0	0.0	0:00.28	kworker/9:2-events
3125	remya	20	0	884328	77212	50732	S	0.0	1.9	0:01.55	nautilus
3051	root	20	0	0	0	0	I	0.0	0.0	0:00.61	kworker/2:0-events

```
remya@remya-VirtualBox:~$ top -o %CPU
```

```
top - 02:21:18 up 1:34, 1 user, load average: 0.15, 0.16, 0.15
Tasks: 264 total, 1 running, 263 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.2 us, 0.1 sy, 0.0 ni, 99.7 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 3921.6 total, 500.8 free, 1395.7 used, 2025.1 buff/cache
MiB Swap: 2170.0 total, 2162.5 free, 7.5 used. 2211.0 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1946	remya	20	0	6408124	448940	145956	S	2.0	11.2	9:33.86	gnome-shell
1001	mysql	20	0	2381436	379296	20976	S	1.3	9.4	1:19.56	mysqld
5622	remya	20	0	21884	4280	3420	R	0.7	0.1	0:00.19	top
1223	root	20	0	304380	2936	2568	S	0.3	0.1	0:01.37	VBoxService
2491	remya	20	0	227504	2192	1832	S	0.3	0.1	0:20.77	VBoxClient
2542	remya	20	0	568288	58112	44476	S	0.3	1.4	0:14.21	gnome-terminal-
2604	root	20	0	0	0	0	I	0.3	0.0	0:00.52	kworker/6:3-events
3168	root	20	0	0	0	0	I	0.3	0.0	0:00.50	kworker/7:3-mm_percpu_wq
1	root	20	0	166836	11832	8120	S	0.0	0.3	0:02.07	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.01	kthreadd
3	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	rcu_gp
4	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	rcu_par_gp
5	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	slub_flushwq
6	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	netns
8	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/0:0H-events_highpri
10	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	mm_percpu_wq
11	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_kthread
12	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_rude_kthread
13	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_tasks_trace_kthread
14	root	20	0	0	0	0	S	0.0	0.0	0:00.04	ksoftirqd/0

d. -> ps -T -> ps -A


```

remya@remya-VirtualBox:~$ ps -T
  PID     SPID TTY          TIME CMD
  2560     2560 pts/0        00:00:00 bash
  5626     5626 pts/0        00:00:00 ps
remya@remya-VirtualBox:~$ ps -A
  PID TTY          TIME CMD
    1 ?            00:00:02 systemd
    2 ?            00:00:00 kthreadd
    3 ?            00:00:00 rcu_gp
    4 ?            00:00:00 rcu_par_gp
    5 ?            00:00:00 slub_flushwq
    6 ?            00:00:00 netns
    8 ?            00:00:00 kworker/0:0H-events_highpri
   10 ?            00:00:00 mm_percpu_wq
   11 ?            00:00:00 rcu_tasks_kthread
   12 ?            00:00:00 rcu_tasks_rude_kthread
   13 ?            00:00:00 rcu_tasks_trace_kthread
   14 ?            00:00:00 ksoftirqd/0
   15 ?            00:00:04 rcu_preempt
   16 ?            00:00:00 migration/0

```

e. -> df -h

```

remya@remya-VirtualBox:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
tmpfs           393M  1.6M  391M   1% /run
/dev/sda3       20G   18G   672M  97% /
tmpfs           2.0G    0  2.0G   0% /dev/shm
tmpfs           5.0M   4.0K  5.0M   1% /run/lock
/dev/sda2       512M   5.3M  507M   2% /boot/efi
tmpfs           393M  120K  393M   1% /run/user/1000
/dev/sr0        51M   51M    0 100% /media/remya/VBox_GAs_7.0.4
remya@remya-VirtualBox:~$

```