

DATE

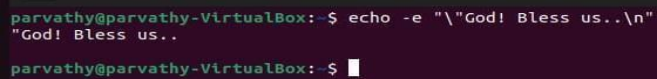
## AIM: BASIC LINUX COMMANDS ACTIVITY QUESTIONS

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

"God! Bless us..

### OUTPUT

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



```
parvathy@parvathy-VirtualBox:~$ echo -e "\"God! Bless us..\n"
"God! Bless us..
parvathy@parvathy-VirtualBox:~$ █
```

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.

```
parvathy@parvathy-VirtualBox: ~
LS(1) User Commands LS(1)
NAME
ls - list directory contents
SYNOPSIS
ls [OPTION]... [FILE]...
DESCRIPTION
List information about the FILES (the current directory by default). Sort entries alphabetically if none of -cftuvSUX
nor --sort is specified.

Mandatory arguments to long options are mandatory for short options too.

-a, --all
do not ignore entries starting with .

-A, --almost-all
do not list implied . and ..

--author
with -l, print the author of each file

-b, --escape
print C-style escapes for nongraphic characters

--block-size=SIZE
with -l, scale sizes by SIZE when printing them; e.g., '--block-size=M'; see SIZE format below

-B, --ignore-backups
do not list implied entries ending with ~

-c
with -lt: sort by, and show, ctime (time of last modification of file status information); with -l: show ctime and
sort by name; otherwise: sort by ctime, newest first
Manual page ls(1) line 1 (press h for help or q to quit)
```

```
parvathy@parvathy-VirtualBox:~$ man ls
parvathy@parvathy-VirtualBox:~$
```

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

## OUTPUT

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

```
parvathy@parvathy-VirtualBox:~/Desktop$ echo "Enter your name";read name;echo "The name entered is $name";
Enter your name
Parvathy j r
The name entered is Parvathy j r
parvathy@parvathy-VirtualBox:~/Desktop$
```

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/dir2/dir3

cd dir1/dir2/dir3

```
parvathy@parvathy-VirtualBox:~/Desktop$ mkdir -p dir1/dir2/dir3
parvathy@parvathy-VirtualBox:~/Desktop$ ls
dir1  dir5  example.txt  java  lsoutput.txt  newfile  newfile.txt  parvathy.pub  'Untitled 1.odt'  vim
parvathy@parvathy-VirtualBox:~/Desktop$ ls -R dir1
dir1:
dir2  dir6

dir1/dir2:
dir3

dir1/dir2/dir3:

dir1/dir6:
parvathy@parvathy-VirtualBox:~/Desktop$ cd dir1/dir2/dir3
parvathy@parvathy-VirtualBox:~/Desktop/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 named text

press "i" to get into insert mode, Type contents into the filepress 'Esc' key to exit insert mode,  
type ":wq" to save and exit.

```
parvathy@parvathy-VirtualBox:~/Desktop$ vim text.txt
parvathy@parvathy-VirtualBox:~/Desktop$ vim text1.txt text3.txt
2 files to edit
parvathy@parvathy-VirtualBox:~/Desktop$
```

[illegible]

6. Display the current directory

### **OUTPUT**

->pwd

```
parvathy@parvathy-VirtualBox:~/Desktop$ pwd
/home/parvathy/Desktop
parvathy@parvathy-VirtualBox:~/Desktop$
```

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

```

parvathy@parvathy-VirtualBox:~/Desktop$ ls -R
.:
dir1  example.txt  lsoutput.txt  newfile.txt  text1.txt  'Untitled 1.odt'
dir5  java         newfile      parvathy.pub  text.txt   vim

./dir1:
dir2  dir6

./dir1/dir2:
dir3

./dir1/dir2/dir3:

./dir1/dir6:

./dir5:
dir2

./dir5/dir2:
dir3

./dir5/dir2/dir3:

./java:
complex.class      'cpu$ram.class'  Even.java        matrix2.java     product.class    rectangle.java
complex.java       cpu.class        Java.class       Matrix.class     product.java     Rectangle.java
Complex.java       cpu.java         Java.java        Matrix.java      rectangle.class  Simple.class
'cpu$processor.class' Even.class      matrix2.class    Matrixs.class    Rectangle.class  Simple.java
parvathy@parvathy-VirtualBox:~/Desktop$

```

b)

i) ls -v

ii) ls --sort='time'

iii) ls --sort='size'

iv) ls -r

v) ls -ls

vi) ls -hs

## OUTPUT

```

parvathy@parvathy-VirtualBox:~/Desktop$ ls --sort='time'
text.txt  vim  dir5  lsoutput.txt  newfile.txt  java
text1.txt  dir1  newfile  example.txt  'Untitled 1.odt'  parvathy.pub
parvathy@parvathy-VirtualBox:~/Desktop$ ls --sort='size'
'Untitled 1.odt'  dir5  parvathy.pub  example.txt  newfile.txt  text1.txt
dir1  java  lsoutput.txt  newfile  text.txt  vim
parvathy@parvathy-VirtualBox:~/Desktop$ ls -r
vim  text.txt  parvathy.pub  newfile  java  dir5
'Untitled 1.odt'  text1.txt  newfile.txt  lsoutput.txt  example.txt  dir1
parvathy@parvathy-VirtualBox:~/Desktop$ ls -ls
total 72
4 drwxrwxr-x 4 parvathy parvathy 4096 Apr 26 00:23 dir1
4 drwxrwxr-x 3 parvathy parvathy 4096 Apr 26 00:21 dir5
4 -rw-rw-r-- 2 parvathy parvathy 29 Apr 25 23:46 example.txt
4 drwxrwxr-x 2 parvathy parvathy 4096 Apr 7 21:36 java
4 -rw-rw-r-- 1 parvathy parvathy 435 Apr 26 00:12 lsoutput.txt
4 -rw-rw-r-- 1 parvathy parvathy 29 Apr 26 00:19 newfile
4 -rw-rw-r-- 2 parvathy parvathy 29 Apr 25 23:46 newfile.txt
4 -rw-rw-r-- 1 parvathy parvathy 582 Apr 4 20:44 parvathy.pub
4 -rw-rw-r-- 1 parvathy parvathy 28 May 4 22:06 text1.txt
4 -rw-rw-r-- 1 parvathy parvathy 29 May 4 22:15 text.txt
32 -rw-rw-r-- 1 parvathy parvathy 28739 Apr 25 23:18 'Untitled 1.odt'
0 -rw-rw-r-- 1 parvathy parvathy 0 Apr 26 00:33 vim
parvathy@parvathy-VirtualBox:~/Desktop$ ls -hs
total 72K
4.0K dir1 4.0K example.txt 4.0K lsoutput.txt 4.0K newfile.txt 4.0K text1.txt 32K 'Untitled 1.odt'
4.0K dir5 4.0K java 4.0K newfile 4.0K parvathy.pub 4.0K text.txt 0 vim
parvathy@parvathy-VirtualBox:~/Desktop$

```

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

## **OUTPUT**

ls > lsoutput.txt

```
parvathy@parvathy-VirtualBox:~/Desktop$ ls >lsoutput.txt
parvathy@parvathy-VirtualBox:~/Desktop$ cat lsoutput.txt
dir1
dir5
example.txt
java
lsoutput.txt
newfile
newfile.txt
parvathy.pub
text1.txt
text.txt
Untitled 1.odt
vim
parvathy@parvathy-VirtualBox:~/Desktop$
```

9. Display the file

a.starting with the first 10 lines and

## **OUTPUT**

-> head labexperiment.txt

```
parvathy@parvathy-VirtualBox:~/Desktop$ head lsoutput.txt
dir1
example.txt
java
lsoutput.txt
parvathy.pub
Untitled 1.odt
parvathy@parvathy-VirtualBox:~/Desktop$
```

b.starting with the 10th line with provision for

i.Scrolling Up

ii.Scrolling Up and Down

## OUTPUT

->i) more -10 labexperiment.txt

ii) less +10 labexperiment.txt

```
parvathy@parvathy-VirtualBox:~/Desktop$ more -10 lsoutput.txt
dir1
example.txt
java
lsoutput.txt
parvathy.pub
Untitled 1.odt
parvathy@parvathy-VirtualBox:~/Desktop$
```

```
parvathy@parvathy-VirtualBox:~/Desktop$ less +10 lsoutput.txt
parvathy@parvathy-VirtualBox:~/Desktop$
```

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

## OUTPUT

```
parvathy@parvathy-VirtualBox:~/Desktop$ ls -l >>lsoutput.txt
parvathy@parvathy-VirtualBox:~/Desktop$ cat lsoutput.txt
dir1
dir5
example.txt
java
lsoutput.txt
newfile
newfile.txt
parvathy.pub
text1.txt
text.txt
Untitled 1.odt
vim
total 72
drwxrwxr-x 4 parvathy parvathy 4096 Apr 26 00:23 dir1
drwxrwxr-x 3 parvathy parvathy 4096 Apr 26 00:21 dir5
-rw-rw-r-- 2 parvathy parvathy 29 Apr 25 23:46 example.txt
drwxrwxr-x 2 parvathy parvathy 4096 Apr 7 21:36 java
-rw-rw-r-- 1 parvathy parvathy 111 May 5 20:24 lsoutput.txt
-rw-rw-r-- 1 parvathy parvathy 29 Apr 26 00:19 newfile
-rw-rw-r-- 2 parvathy parvathy 29 Apr 25 23:46 newfile.txt
-rw-rw-r-- 1 parvathy parvathy 582 Apr 4 20:44 parvathy.pub
-rw-rw-r-- 1 parvathy parvathy 28 May 4 22:06 text1.txt
-rw-rw-r-- 1 parvathy parvathy 29 May 4 22:15 text.txt
-rw-rw-r-- 1 parvathy parvathy 28739 Apr 25 23:18 Untitled 1.odt
-rw-rw-r-- 1 parvathy parvathy 0 Apr 26 00:33 vim
parvathy@parvathy-VirtualBox:~/Desktop$
```



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

## **OUTPUT**

->`ls -l | less`

```
total 100
drwxrwxr-x 4 parvathy parvathy 4096 Apr 26 00:23 dir1
drwxrwxr-x 3 parvathy parvathy 4096 Apr 26 00:21 dir5
-rw-rw-r-- 1 parvathy parvathy 1106 May 6 20:20 Even.class
-rw-rw-r-- 1 parvathy parvathy 278 May 6 20:20 Even.java
-rw-rw-r-- 2 parvathy parvathy 29 Apr 25 23:46 example.txt
drwxrwxr-x 2 parvathy parvathy 4096 Apr 7 21:36 java
-rw-rw-r-- 1 parvathy parvathy 831 May 5 20:28 lsoutput.txt
-rw-rw-r-- 1 parvathy parvathy 642 May 6 20:37 Matrix.java
-rw-rw-r-- 1 parvathy parvathy 29 Apr 26 00:19 newfile
-rw-rw-r-- 2 parvathy parvathy 29 Apr 25 23:46 newfile.txt
-rw-r--r-- 1 parvathy parvathy 582 Apr 4 20:44 parvathy.pub
-rw-rw-r-- 1 parvathy parvathy 1210 May 6 20:12 Rectangle.class
-rw-rw-r-- 1 parvathy parvathy 372 May 6 20:12 Rectangle.java
-rw-rw-r-- 1 parvathy parvathy 421 May 6 19:44 Simple.class
-rw-rw-r-- 1 parvathy parvathy 113 May 6 19:43 Simple.java
-rw-rw-r-- 1 parvathy parvathy 28 May 4 22:06 text1.txt
-rw-rw-r-- 1 parvathy parvathy 29 May 4 22:15 text.txt
-rw-rw-r-- 1 parvathy parvathy 28739 Apr 25 23:18 Untitled 1.odt
-rw-rw-r-- 1 parvathy parvathy 0 Apr 26 00:33 vim
```

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(END)

12. 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 -f file1.txt newfile

b) cp -n file1.txt newfile

c) cp -i file1.txt newfile

d) cp -u file1.txt newfile

e) cp -f file1.txt newfile

f) ln file1.txt newfile.txt

g) cp -r dir1 dir5

```
parvathy@parvathy-VirtualBox:~/Desktop$ cp -f text1.txt newfile
parvathy@parvathy-VirtualBox:~/Desktop$ cat newfile
Hello
welcome to vim editor
parvathy@parvathy-VirtualBox:~/Desktop$ cp -n text1.txt newfile
parvathy@parvathy-VirtualBox:~/Desktop$ cp -i text1.txt newfile
cp: overwrite 'newfile'? y
parvathy@parvathy-VirtualBox:~/Desktop$ cp -u text1.txt newfile
parvathy@parvathy-VirtualBox:~/Desktop$ cat newfile
Hello
welcome to vim editor
parvathy@parvathy-VirtualBox:~/Desktop$ cp -f text1.txt newfile
parvathy@parvathy-VirtualBox:~/Desktop$ ln text1.txt newfile.txt
ln: failed to create hard link 'newfile.txt': File exists
parvathy@parvathy-VirtualBox:~/Desktop$ ln text1.txt newfile1.txt
parvathy@parvathy-VirtualBox:~/Desktop$ cat newfile1.txt
Hello
welcome to vim editor
parvathy@parvathy-VirtualBox:~/Desktop$ cp -r dir1 dir5
parvathy@parvathy-VirtualBox:~/Desktop$ ls
dir1      example.txt  newfile      Rectangle.class  text1.txt
dir5      java         newfile1.txt  Rectangle.java   text.txt
Even.class lsoutput.txt newfile.txt   Simple.class     'Untitled 1.odt'
Even.java Matrix.java  parvathy.pub  Simple.java      vim
parvathy@parvathy-VirtualBox:~/Desktop$
```

13. Create a new directory, dir6 inside dir1

- a. Move all files in dir5 into it.
- b. Delete all files where the name starts with a vowel character, upper or lower case.
- c. Delete all files where the name is at least 3 characters long.
- d. Delete all hidden folders, and files.

## OUTPUT

a) `mkdir dir1/dir6`

`mv dir1/dir5/* dir1/dir6/`

b) `cd dir1/dir6`

`rm[aeiouAEIOU]*`

c) `find dir1/dir6 -type f -name "??*" -exec rm {} +`

d) `find dir1/dir6 -type d -name ".*" -exec rm -r {} +`

`find dir1/dir6 -type f -name ".*" -exec rm {} +`

```
lab@lab-Lenovo-IdeaPad-Z400:~$ mkdir -p dir1/dir6
lab@lab-Lenovo-IdeaPad-Z400:~$ mv dir5 dir1/dir6
lab@lab-Lenovo-IdeaPad-Z400:~$ cd dir1/dir6
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir6$ ls
dir5
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir6$ cd ..
lab@lab-Lenovo-IdeaPad-Z400:~/dir1$ cd dir2/dir3
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2/dir3$ mv newfile oldfile
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2/dir3$ ls
a1.txt  b_file  file1  lsoutput  more  oldfile  test  text
aa_file encrypt.py file2  lsoutput.txt newfile1 sample  testfile1
```

```
lab@lab-Lenovo-IdeaPad-Z400:~$ mv file1 dir1/dir6/file3
lab@lab-Lenovo-IdeaPad-Z400:~$ cd dir1/dir2/dir3
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2/dir3$ rm [a,e,i,o,u,A,E,I,O,U]*
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2/dir3$ ls
b_file file2  lsoutput.txt newfile1 test  text
file1  lsoutput more  sample  testfile1
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2/dir3$ ls
f1  lsoutput  more  s  testfile1 v
file2 lsoutput.txt newfile1 test text
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2/dir3$ rm ???*
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2/dir3$ ls
f1 s v
```

```
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2/dir3$ ls -a
.  ..  f1  .f3  s  v
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2/dir3$ rm -rf .*
rm: refusing to remove '.' or '..' directory: skipping '.'
rm: refusing to remove '.' or '..' directory: skipping '..'
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2/dir3$ ls -a
.  ..  f1  s  v
```

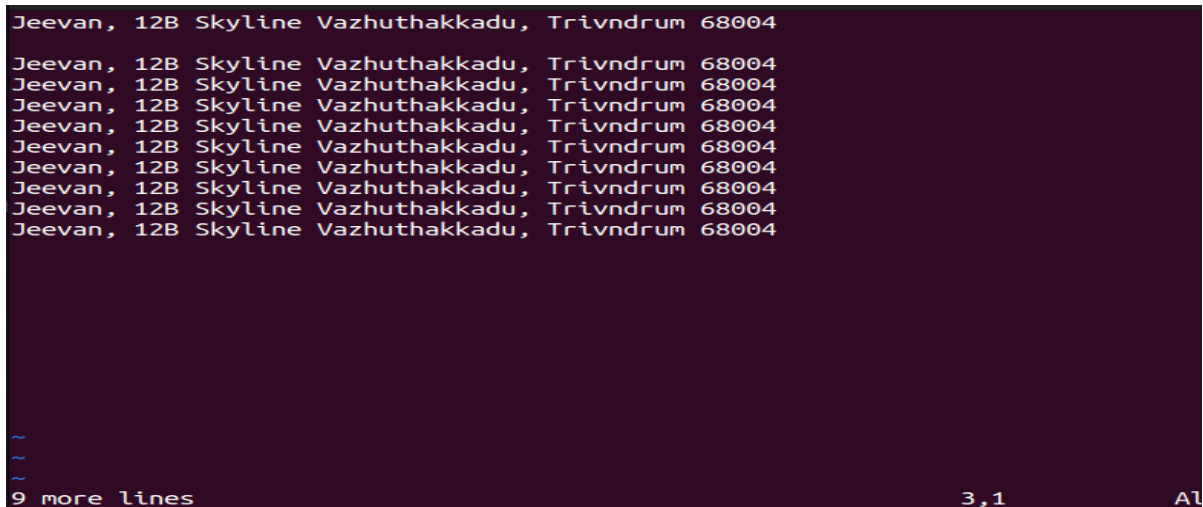
14. Create a file testfile1 using Vim

- a. Set line number.
- b. Type your name and address with district and pincode
- c. Copy paste the contents 10 times
- d. Replace all occurrence of your district with a neighbouring district.

## **OUTPUT**

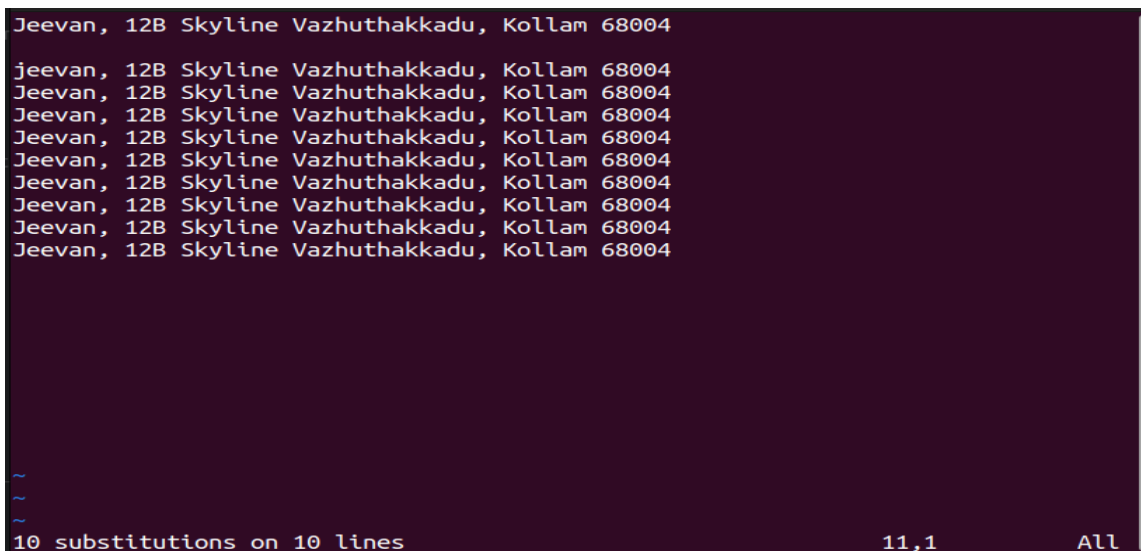
-> vim testfile1

- a) In Vim command mode type “:set number”
- b) Jeevan , 12B Skyline, Vazhuthakkadu, Trivandrum
- c) Move the cursor to the end of the line, in command mode type ‘yy’  
type ‘10p’



```
Jeevan, 12B Skyline Vazhuthakkadu, Trivndrum 68004
Jeevan, 12B Skyline Vazhuthakkadu, Trivndrum 68004
Jeevan, 12B Skyline Vazhuthakkadu, Trivndrum 68004
Jeevan, 12B Skyline Vazhuthakkadu, Trivndrum 68004
Jeevan, 12B Skyline Vazhuthakkadu, Trivndrum 68004
Jeevan, 12B Skyline Vazhuthakkadu, Trivndrum 68004
Jeevan, 12B Skyline Vazhuthakkadu, Trivndrum 68004
Jeevan, 12B Skyline Vazhuthakkadu, Trivndrum 68004
Jeevan, 12B Skyline Vazhuthakkadu, Trivndrum 68004
Jeevan, 12B Skyline Vazhuthakkadu, Trivndrum 68004
~
~
~
9 more lines                                     3,1      All
```

- d) In command mode “:%s/Trivandrum/Kollam/g”



```
Jeevan, 12B Skyline Vazhuthakkadu, Kollam 68004
jeevan, 12B Skyline Vazhuthakkadu, Kollam 68004
Jeevan, 12B Skyline Vazhuthakkadu, Kollam 68004
Jeevan, 12B Skyline Vazhuthakkadu, Kollam 68004
Jeevan, 12B Skyline Vazhuthakkadu, Kollam 68004
Jeevan, 12B Skyline Vazhuthakkadu, Kollam 68004
Jeevan, 12B Skyline Vazhuthakkadu, Kollam 68004
Jeevan, 12B Skyline Vazhuthakkadu, Kollam 68004
Jeevan, 12B Skyline Vazhuthakkadu, Kollam 68004
Jeevan, 12B Skyline Vazhuthakkadu, Kollam 68004
~
~
~
10 substitutions on 10 lines                       11,1      All
```

15. Create 2 files testfile2 and testfile3 using **Vim**.

- a. Modify the permissions of testfile2 using symbolic mode.
  - i. Add read permission to others
  - 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
- b. Modify the permissions of testfile3 using numeric mode
  - vi. Set read and write to all
  - vii. set read, write and execute to owner, read and execute to group and read only to others
- c. Set the permissions of testfile2 the same as that of testfile3

### **OUTPUT**

-> vim testfile2, vim testfile3

a) i) chmodo+r testfile2

ii) chmod u-w testfile2

```
parvathy@parvathy-VirtualBox:~/Desktop$ cp -f text1.txt newfile
parvathy@parvathy-VirtualBox:~/Desktop$ cat newfile
Hello
welcome to vim editor
parvathy@parvathy-VirtualBox:~/Desktop$ cp -n text1.txt newfile
parvathy@parvathy-VirtualBox:~/Desktop$ cp -i text1.txt newfile
cp: overwrite 'newfile'? y
parvathy@parvathy-VirtualBox:~/Desktop$ cp -u text1.txt newfile
parvathy@parvathy-VirtualBox:~/Desktop$ cat newfile
Hello
welcome to vim editor
parvathy@parvathy-VirtualBox:~/Desktop$ cp -f text1.txt newfile
parvathy@parvathy-VirtualBox:~/Desktop$ ln text1.txt newfile.txt
ln: failed to create hard link 'newfile.txt': File exists
parvathy@parvathy-VirtualBox:~/Desktop$ ln text1.txt newfile1.txt
parvathy@parvathy-VirtualBox:~/Desktop$ cat newfile1.txt
Hello
welcome to vim editor
parvathy@parvathy-VirtualBox:~/Desktop$ cp -r dir1 dir5
parvathy@parvathy-VirtualBox:~/Desktop$ ls
dir1      example.txt  newfile      Rectangle.class  text1.txt
dir5      java         newfile1.txt  Rectangle.java   text.txt
Even.class lsoutput.txt newfile.txt   Simple.class     'Untitled 1.odt'
Even.java Matrix.java  parvathy.pub Simple.java      vim
parvathy@parvathy-VirtualBox:~/Desktop$
```

- iii) `chmod g+x testfile2`
- iv) `chmod u+w testfile2`
- v) `chmod o-r testfile2`
- vi) `chmod g+r testfile2`
- vii) `chmod a+rw testfile2`

```
parvathy@parvathy-VirtualBox:~/Desktop$ chmod g+x testfile3
parvathy@parvathy-VirtualBox:~/Desktop$ ls -l testfile3
-r--rwxr-- 1 parvathy parvathy 58 May  7 21:34 testfile3
parvathy@parvathy-VirtualBox:~/Desktop$ chmod u+w testfile3
parvathy@parvathy-VirtualBox:~/Desktop$ ls -l testfile3
-rw-rwxr-- 1 parvathy parvathy 58 May  7 21:34 testfile3
parvathy@parvathy-VirtualBox:~/Desktop$ chmod o-r testfile3
parvathy@parvathy-VirtualBox:~/Desktop$ ls -l testfile3
-rw-rwx--- 1 parvathy parvathy 58 May  7 21:34 testfile3
parvathy@parvathy-VirtualBox:~/Desktop$ chmod g+r testfile3
parvathy@parvathy-VirtualBox:~/Desktop$ ls -l testfile3
-rw-rwx--- 1 parvathy parvathy 58 May  7 21:34 testfile3
parvathy@parvathy-VirtualBox:~/Desktop$ chmod a+rw testfile3
parvathy@parvathy-VirtualBox:~/Desktop$ ls -l testfile3
-rw-rwxrw- 1 parvathy parvathy 58 May  7 21:34 testfile3
parvathy@parvathy-VirtualBox:~/Desktop$
```

b)

i) `chmod 666 testfile3`

ii) `chmod 754 testfile3`

```
parvathy@parvathy-VirtualBox:~/Desktop$ ls -l testfile3
-rw-rwxrw- 1 parvathy parvathy 58 May  7 21:34 testfile3
parvathy@parvathy-VirtualBox:~/Desktop$ chmod 666 testfile3
parvathy@parvathy-VirtualBox:~/Desktop$ ls -l testfile3
-rw-rw-rw- 1 parvathy parvathy 58 May  7 21:34 testfile3
parvathy@parvathy-VirtualBox:~/Desktop$ chmod 754 testfile3
parvathy@parvathy-VirtualBox:~/Desktop$ ls -l testfile3
-rwxr-xr-- 1 parvathy parvathy 58 May  7 21:34 testfile3
parvathy@parvathy-VirtualBox:~/Desktop$
```

c)chmod--reference=testfile3testfile2

```
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2/dir3$ chmod o+r testfile2
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2/dir3$ chmod u-w testfile2
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2/dir3$ ls -l testfile2
-r--rw-r-- 1 lab lab 13 May  7 17:46 testfile2
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2/dir3$ chmod g=x testfile2
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2/dir3$ ls -l testfile2
-r---xr-- 1 lab lab 13 May  7 17:46 testfile2
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2/dir3$ chmod u+w,o-r,g=r testfile2
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2/dir3$ ls -l testfile2
-rw-r----- 1 lab lab 13 May  7 17:46 testfile2
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2/dir3$ chmod a=rw testfile2
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2/dir3$ ls -l testfile2
-rw-rw-rw- 1 lab lab 13 May  7 17:46 testfile2
```



16. 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 9 th.

### **OUTPUT**

->

a) cat /etc/passwd | head -n 12

```
parvathy@parvathy-VirtualBox:~/Desktop$ cat /etc/passwd | head -n 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
parvathy@parvathy-VirtualBox:~/Desktop$
```

b) cat /etc/passwd | tail -n 7

```
parvathy@parvathy-VirtualBox:~/Desktop$ cat /etc/passwd | tail -n 7
user6:x:1006:1006::/user1:/bin/bash
user1:x:1007:1007::/user1:/bin/bash
anu1:x:1008:1008::/anu:/bin/bash
user8:x:1009:1009::/user:/bin/bash
user10:x:1010:1010::/user:/bin/bash
userppp:x:1011:1011::/user:/bin/bash
userl:x:1012:1012::/userl:/bin/bash
parvathy@parvathy-VirtualBox:~/Desktop$
```

c)cat /etc/passwd | tail -n +4

```
parvathy@parvathy-VirtualBox:~/Desktop$ cat /etc/passwd | tail -n +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
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mail List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin)/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:102:105:nonexistent:/usr/sbin/nologin
systemd-timesync:x:103:106:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
syslog:x:104:111:/home/syslog:/usr/sbin/nologin
_apt:x:105:65534:nonexistent:/usr/sbin/nologin
tss:x:106:112:TPM software stack,,:/var/lib/tpm:/bin/false
uuidd:x:107:115:/run/uuidd:/usr/sbin/nologin
systemd-oom:x:108:116:systemd Userspace OOM Killer,,,:/run/systemd:/usr/sbin/nologin
tcpdump:x:109:117:nonexistent:/usr/sbin/nologin
avahi-autoipd:x:110:119:Avahi autoip daemon,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:111:46:usbmux daemon,,:/var/lib/usbmux:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,:/var/lib/misc:/usr/sbin/nologin
kernoops:x:113:65534:Kernel Oops Tracking Daemon,,:/usr/sbin/nologin
avahi:x:114:121:Avahi mDNS daemon,,:/run/avahi-daemon:/usr/sbin/nologin
cups-pk-helper:x:115:122:user for cups-pk-helper service,,:/home/cups-pk-helper:/usr/sbin/nologin
rtkit:x:116:123:RealtimeKit,,:/proc:/usr/sbin/nologin
whoopsie:x:117:124:nonexistent:/bin/false
sssd:x:118:125:SSSD system user,,:/var/lib/sss:/usr/sbin/nologin
speech-dispatcher:x:119:20:speech-dispatcher,,:/usr/lib/speech-dispatcher:/bin/false
```

```

systemd-oom:x:108:116:systemd Userspace OOM Killer,,,:/run/systemd:/usr/sbin/nologin
tcpdump:x:109:117:/:nonexistent:/usr/sbin/nologin
avahi-autoipd:x:110:119:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:111:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
kernoops:x:113:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
avahi:x:114:121:Avahi mDNS daemon,,,:/run/avahi-daemon:/usr/sbin/nologin
cups-pk-helper:x:115:122:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
rtkit:x:116:123:RealtimeKit,,,:/proc:/usr/sbin/nologin
whoopsie:x:117:124:/:nonexistent:/bin/false
sssd:x:118:125:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
speech-dispatcher:x:119:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
fwupd-refresh:x:120:126:fwupd-refresh user,,,:/run/systemd:/usr/sbin/nologin
nm-openvpn:x:121:127:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
saned:x:122:129:/:/var/lib/saned:/usr/sbin/nologin
colord:x:123:130:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:124:131:/:/var/lib/geoclue:/usr/sbin/nologin
pulse:x:125:132:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:126:65534:/:/run/gnome-initial-setup:/bin/false
hplip:x:127:7:HPLIP system user,,,:/run/hplip:/bin/false
gdm:x:128:134:Gnome Display Manager:/var/lib/gdm3:/bin/false
parvathy:x:1000:1000:parvathy,,,:/home/parvathy:/bin/bash
mysql:x:129:137:MySQL Server,,,:nonexistent:/bin/false
user2:x:1002:1002:/:user:/bin/bash
user3:x:1003:1003:/:user:/bin/bash
user5:x:1004:1004:/:user:/bin/bash
cc:x:1005:1005:/:user:/bin/bash
user6:x:1006:1006:/:user1:/bin/bash
user1:x:1007:1007:/:user1:/bin/bash
anu1:x:1008:1008:/:anu:/bin/bash
user8:x:1009:1009:/:user:/bin/bash
user10:x:1010:1010:/:user:/bin/bash
userpp:x:1011:1011:/:user:/bin/bash
userl:x:1012:1012:/:userl:/bin/bash
parvathy@parvathy-VirtualBox:~/Desktop$

```

d)cat /etc/passwd | head -n -5

```

parvathy@parvathy-VirtualBox:~/Desktop$ 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
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
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mail List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:irc:/run/irc:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin)/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:102:105:/:nonexistent:/usr/sbin/nologin
systemd-timesync:x:103:106:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
syslog:x:104:111:/:home/syslog:/usr/sbin/nologin
_apt:x:105:65534:/:nonexistent:/usr/sbin/nologin
tss:x:106:112:TPM software stack,,,:/var/lib/tpm:/bin/false
uuidd:x:107:115:/:run/uuidd:/usr/sbin/nologin
systemd-oom:x:108:116:systemd Userspace OOM Killer,,,:/run/systemd:/usr/sbin/nologin
tcpdump:x:109:117:/:nonexistent:/usr/sbin/nologin
avahi-autoipd:x:110:119:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:111:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
kernoops:x:113:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
avahi:x:114:121:Avahi mDNS daemon,,,:/run/avahi-daemon:/usr/sbin/nologin
cups-pk-helper:x:115:122:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
rtkit:x:116:123:RealtimeKit,,,:/proc:/usr/sbin/nologin

```

```

systemd-timesync:x:103:106:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
syslog:x:104:111::/home/syslog:/usr/sbin/nologin
apt:x:105:65534:/:nonexistent:/usr/sbin/nologin
tss:x:106:112:TPM software stack,,,:/var/lib/tpm:/bin/false
uuidd:x:107:115::/run/uuidd:/usr/sbin/nologin
systemd-oom:x:108:116:systemd Userspace OOM Killer,,,:/run/systemd:/usr/sbin/nologin
tcpdump:x:109:117:/:nonexistent:/usr/sbin/nologin
avahi-autoipd:x:110:119:Avahi autoip daemon,,,:/var/lib/avahi-autoipd:/usr/sbin/nologin
usbmux:x:111:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
dnsmasq:x:112:65534:dnsmasq,,,:/var/lib/misc:/usr/sbin/nologin
kernoops:x:113:65534:Kernel Oops Tracking Daemon,,,:/usr/sbin/nologin
avahi:x:114:121:Avahi mDNS daemon,,,:/run/avahi-daemon:/usr/sbin/nologin
cups-pk-helper:x:115:122:user for cups-pk-helper service,,,:/home/cups-pk-helper:/usr/sbin/nologin
rtkit:x:116:123:RealtimeKit,,,:/proc:/usr/sbin/nologin
whoopsie:x:117:124:/:nonexistent:/bin/false
sssd:x:118:125:SSSD system user,,,:/var/lib/sss:/usr/sbin/nologin
speech-dispatcher:x:119:29:Speech Dispatcher,,,:/run/speech-dispatcher:/bin/false
fwupd-refresh:x:120:126:fwupd-refresh user,,,:/run/systemd:/usr/sbin/nologin
nm-openvpn:x:121:127:NetworkManager OpenVPN,,,:/var/lib/openvpn/chroot:/usr/sbin/nologin
saned:x:122:129:/:/var/lib/saned:/usr/sbin/nologin
colord:x:123:130:colord colour management daemon,,,:/var/lib/colord:/usr/sbin/nologin
geoclue:x:124:131:/:/var/lib/geoclue:/usr/sbin/nologin
pulse:x:125:132:PulseAudio daemon,,,:/run/pulse:/usr/sbin/nologin
gnome-initial-setup:x:126:65534:/:/run/gnome-initial-setup:/bin/false
hplip:x:127:7:HPLIP system user,,,:/run/hplip:/bin/false
gdm:x:128:134:Gnome Display Manager:/var/lib/gdm3:/bin/false
parvathy:x:1000:1000:parvathy,,,:/home/parvathy:/bin/bash
mysql:x:129:137:MySQL Server,,,:/nonexistent:/bin/false
user2:x:1002:1002:/:user:/bin/bash
user3:x:1003:1003:/:user:/bin/bash
user5:x:1004:1004:/:user:/bin/bash
cc:x:1005:1005:/:user:/bin/bash
user6:x:1006:1006:/:user1:/bin/bash
user1:x:1007:1007:/:user1:/bin/bash
parvathy@parvathy-VirtualBox:~/Desktop$

```

e)cat /etc/passwd | head -n 9 | tail -n 1

```

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

```

17. Use grep to

f. Display all lines in a file that contains the string “abc”

g. Display all lines in a file that does not contain the string “abc”

## OUTPUT

->

- a) `grep "abc" /home/vishnu/Documents/Linux/new.txt`
- b) `grep -v "abc" /home/vishnu/Documents/Linux/new.txt`

```
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir6/dir5/dir2$ grep abc txtfile
abc
abc is a string
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir6/dir5/dir2$ grep -v abc txtfile
these are english alphabets
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir6/dir5/dir2$ grep -l "print" *.py
lab3.1.py
lab3.7.py
palindrome.py
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir6/dir5/dir2$ grep -L "print" *.py
pali.py
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir6/dir5/dir2$ grep -c "import" *.py
lab3.1.py:0
lab3.7.py:0
palindrome.py:1
pali.py:1
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir6/dir5/dir2$
```

## 18. Using **expr**

- h. Read two integers X and Y. Display the sum, difference, product, quotient and remainder of these variables.
- i. 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) `echo "Enter the value of X:"`

`read X`

`echo "Enter the value of Y:"`

`read Y`

`sum=`expr $X + $Y``

Echo "Sum : \$sum"

diff=`expr \$X - \$y`

Echo "Difference : \$diff"

prod=`expr \$X \\* \$Y`

echo "Product : \$prod"

quot=`expr \$X / \$Y`

echo "Quotient: \$quot"

rem=`expr \$X % \$Y`

echo "Remainder: \$rem"

b) echo "Enter a string:"

read s

echo "Enter the starting position:"

read p

echo "Enter the length of substring:"

read l

substr=`expr substr "\$s" \$p \$l`

echo "Substring: \$substr"

```
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir6/dir5/dir2$ read -p "enter two numbers: " x y
enter two numbers: 12 5
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir6/dir5/dir2$ echo "sum is : `expr $x + $y`"
sum is : 17
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir6/dir5/dir2$ echo "Difference is : `expr $x - $y`"
Difference is : 7
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir6/dir5/dir2$ echo "Product is : `expr $x \* $y`"
Product is : 60
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir6/dir5/dir2$ echo "Quotient is : `expr $x / $y`"
Quotient is : 2
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir6/dir5/dir2$ echo "Reminder is : `expr $x % $y`"
Reminder is : 2
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir6/dir5/dir2$ read -p "enter a string: " s
enter a string: notebook
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir6/dir5/dir2$ read -p "enter the position: " p
enter the position: 5
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir6/dir5/dir2$ read -p "enter the length: " l
enter the length: 4
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir6/dir5/dir2$ echo "Substring: `expr substr $s $p $l`"
Substring: book
```

19.

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

a. `sudo useradd -m -d /user1 -s /bin/bash user1`

b. `sudo chage -E YYYY-MM-DD user1`

c. `sudo chown -R user1:user1 /path/to/dir2`

d i. `sudo userdel -r user1`

ii. `sudo userdel -r -f user1.`

## **OUTPUT**

```
lab@lab-Lenovo-IdeaPad-Z400:/home$ sudo useradd -s /bin/bash -m -d /home/u_ser1 u_ser1
lab@lab-Lenovo-IdeaPad-Z400:/home$ sudo chage -l u_ser1
Last password change                : May 08, 2022
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
lab@lab-Lenovo-IdeaPad-Z400:/home$ chage -E 2022-05-10 u_ser1
chage: Permission denied.
lab@lab-Lenovo-IdeaPad-Z400:/home$ sudo chage -E 2022-05-10 u_ser1
lab@lab-Lenovo-IdeaPad-Z400:/home$ sudo chage -l u_ser1
Last password change                : May 08, 2022
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
lab@lab-Lenovo-IdeaPad-Z400:/home$ sudo chown -R u_ser1:u_ser1 dir2
chown: cannot access 'dir2': No such file or directory
lab@lab-Lenovo-IdeaPad-Z400:/home$ sudo chown -R u_ser1:u_ser1 /home/lab/dir1/dir2
```

```

lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2$ cd ..
lab@lab-Lenovo-IdeaPad-Z400:~/dir1$ ls -l
total 32
-rw-rw-r-- 1 lab lab 9 Apr 25 21:46 a1.txt
drwxrwxrwx 3 u_ser1 u_ser1 4096 May 7 20:10 dir2
drwxrwxr-x 2 lab lab 4096 Apr 21 20:25 dir4
drwxrwxr-x 4 lab lab 4096 May 7 23:41 dir6
-rw-rw-r-- 1 lab lab 24 Apr 25 21:03 F1
-rw-rw-r-- 1 lab lab 15 Apr 25 21:04 F2
-rw-rw-r-- 1 lab lab 15 Apr 25 21:05 F3
-rw-rw-r-- 1 lab lab 242 Apr 25 22:25 palindrome.py
-rw-rw-r-- 1 lab lab 0 Apr 25 20:08 sample
lab@lab-Lenovo-IdeaPad-Z400:~/dir1$ cd dir2
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2$ ls -l
total 24
drwxrwxr-x 2 u_ser1 u_ser1 4096 May 7 20:10 dir3
-rw-rw-r-- 1 u_ser1 u_ser1 3165 May 6 20:02 out2.txt
-rw-rw-r-- 1 u_ser1 u_ser1 470 May 7 19:20 result
-rw-rw-r-- 1 u_ser1 u_ser1 3521 Mar 12 13:03 set.c
-rw-rw-r-- 1 u_ser1 u_ser1 89 Apr 25 23:14 testfile
-rw-rw-r-- 1 u_ser1 u_ser1 13 Apr 25 23:02 testfile1

```

```

lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2$ cd ..
lab@lab-Lenovo-IdeaPad-Z400:~/dir1$ ls -l
total 32
-rw-rw-r-- 1 lab lab 9 Apr 25 21:46 a1.txt
drwxrwxrwx 3 u_ser1 u_ser1 4096 May 7 20:10 dir2
drwxrwxr-x 2 lab lab 4096 Apr 21 20:25 dir4
drwxrwxr-x 4 lab lab 4096 May 7 23:41 dir6
-rw-rw-r-- 1 lab lab 24 Apr 25 21:03 F1
-rw-rw-r-- 1 lab lab 15 Apr 25 21:04 F2
-rw-rw-r-- 1 lab lab 15 Apr 25 21:05 F3
-rw-rw-r-- 1 lab lab 242 Apr 25 22:25 palindrome.py
-rw-rw-r-- 1 lab lab 0 Apr 25 20:08 sample
lab@lab-Lenovo-IdeaPad-Z400:~/dir1$ cd dir2
lab@lab-Lenovo-IdeaPad-Z400:~/dir1/dir2$ ls -l
total 24
drwxrwxr-x 2 u_ser1 u_ser1 4096 May 7 20:10 dir3
-rw-rw-r-- 1 u_ser1 u_ser1 3165 May 6 20:02 out2.txt
-rw-rw-r-- 1 u_ser1 u_ser1 470 May 7 19:20 result
-rw-rw-r-- 1 u_ser1 u_ser1 3521 Mar 12 13:03 set.c
-rw-rw-r-- 1 u_ser1 u_ser1 89 Apr 25 23:14 testfile
-rw-rw-r-- 1 u_ser1 u_ser1 13 Apr 25 23:02 testfile1

```

```
lab@lab-Lenovo-IdeaPad-Z400:~$ sudo userdel u_ser1
```

```
lab@lab-Lenovo-IdeaPad-Z400:~$ sudo userdel -r u_ser1
```

```
lab@lab-Lenovo-IdeaPad-Z400:~$ sudo userdel u_ser1
```



## 20. 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
  - ii. CPU%
- 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

```
Terminal
lab@lab-Lenovo-IdeaPad-Z400:~/dir1$ cd
lab@lab-Lenovo-IdeaPad-Z400:~$ tar -czvf mydir.tar.gz dir1
dir1/
dir1/F3
dir1/dir2/
dir1/dir2/set.c
dir1/dir2/testfile
dir1/dir2/result
dir1/dir2/out2.txt
dir1/dir2/dir3/
dir1/dir2/dir3/testfile3
dir1/dir2/dir3/v
dir1/dir2/dir3/sample
dir1/dir2/dir3/age
dir1/dir2/dir3/marks
dir1/dir2/dir3/testfile
dir1/dir2/dir3/s
dir1/dir2/dir3/name
dir1/dir2/dir3/csvfile
dir1/dir2/dir3/file1
dir1/dir2/dir3/tesfile
dir1/dir2/dir3/testfile2
```

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

```
lab@lab-Lenovo-IdeaPad-Z400:~$ tar -xzvf mydir.tar.gz -C dir1/dir6
dir1/
dir1/F3
dir1/dir2/
dir1/dir2/set.c
dir1/dir2/testfile
dir1/dir2/resultt
dir1/dir2/out2.txt
dir1/dir2/dir3/
dir1/dir2/dir3/testfile3
dir1/dir2/dir3/v
dir1/dir2/dir3/sample
dir1/dir2/dir3/age
dir1/dir2/dir3/marks
dir1/dir2/dir3/testfile
dir1/dir2/dir3/s
dir1/dir2/dir3/name
dir1/dir2/dir3/csvfile
dir1/dir2/dir3/file1
dir1/dir2/dir3/tesfile
dir1/dir2/dir3/testfile2
dir1/dir2/dir3/testfile1
dir1/dir2/testfile1
dir1/F1
dir1/F2
dir1/palindrome.py
dir1/sample
dir1/dir4/
dir1/dir6/
dir1/dir6/dir5/
dir1/dir6/dir5/testfile3
dir1/dir6/dir5/F2
```

c)

i)top -o PID

```
top - 00:05:26 up 12:05, 1 user, load average: 0.26, 0.32, 0.34
Tasks: 260 total, 1 running, 259 sleeping, 0 stopped, 0 zombie
%Cpu(s): 11.4 us, 2.6 sy, 0.0 ni, 83.5 id, 2.5 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 5797.5 total, 682.1 free, 2352.4 used, 2763.0 buff/cache
MiB Swap: 11443.0 total, 11443.0 free, 0.0 used. 2787.8 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR  S  %CPU  %MEM     TIME+ COMMAND
 35342 lab        20   0   402144   44192  33592 S   15.6   0.7   0:00.47 gnome-screensho
 35333 lab        20   0   21584    4012   3336 R    0.7   0.1   0:00.12 top
 35313 root        20   0         0         0      0 I    0.0   0.0   0:00.00 kworker/0:3-cgroup_destroy
 35244 root        20   0         0         0      0 I    0.0   0.0   0:00.00 kworker/0:0-events
 35241 root        20   0         0         0      0 I    0.0   0.0   0:00.09 kworker/u16:0-events_unbound
 35193 lab        20   0  1108.5g  63928  48524 S    0.0   1.1   0:00.04 chrome
 35181 lab        20   0  1108.5g  166884 101196 S    2.0   2.8   0:16.81 chrome
 35173 lab        20   0    20.3g  42584   31328 S    0.0   0.7   0:00.02 chrome
 35131 root         0 -20     0         0      0 I    0.0   0.0   0:00.00 kworker/u17:0
 35112 root        20   0         0         0      0 I    0.0   0.0   0:00.09 kworker/3:2-events
 35101 root        20   0         0         0      0 I    0.3   0.0   0:00.17 kworker/u16:3-phy0
 35061 lab        20   0    17228   2556   2284 S    0.0   0.0   0:00.14 pager
 35051 lab        20   0    18492   4044   2924 S    0.0   0.1   0:00.01 man
 35043 root        20   0         0         0      0 I    0.0   0.0   0:00.18 kworker/0:2-events
 35025 root        20   0         0         0      0 I    0.0   0.0   0:00.00 kworker/1:0-events
 34983 root        20   0         0         0      0 I    0.0   0.0   0:00.00 kworker/2:0-events
 34874 root        20   0         0         0      0 I    0.0   0.0   0:00.38 kworker/u16:2-iwlwifi
 34870 root         0 -20     0         0      0 I    0.0   0.0   0:00.00 kworker/u17:1-rb_allocator
 34836 root        20   0         0         0      0 I    0.0   0.0   0:00.11 kworker/0:1-cgroup_destroy
 34808 root        20   0         0         0      0 I    0.3   0.0   0:01.18 kworker/2:1-events
 34691 root        20   0         0         0      0 I    0.0   0.0   0:00.78 kworker/u16:1-iwlwifi
 34497 root        20   0         0         0      0 I    0.0   0.0   0:00.24 kworker/3:1-events
 34257 root         0 -20     0         0      0 I    0.7   0.0   0:02.45 kworker/u17:2-i915_flip
 32684 root        20   0         0         0      0 I    0.0   0.0   0:01.28 kworker/1:2-events
 32506 root        20   0   395836  29828  25108 S    0.0   0.5   0:00.67 fwupd
 31950 lab        20   0    18716   4264   3604 S    0.0   0.1   0:00.11 bash
 31576 lab        20   0    18716   4420   3752 S    0.0   0.1   0:00.16 bash
 24267 lab        20   0   434172  71360  45500 S    5.0   1.2   1:24.22 gnome-terminal-
 17368 lab        20   0  3001548 134608  44836 S    0.0   2.3   0:09.03 gjs
 17246 root       -51   0         0         0      0 S    0.0   0.0   0:00.00 irq/28-mei_me
15010 lab        20   0   919828 121340  54424 S    0.0   2.0   1:25.03 nautilus
```

## ii) top -o %CPU

```
top - 00:06:25 up 12:06, 1 user, load average: 0.33, 0.32, 0.34
Tasks: 261 total, 2 running, 259 sleeping, 0 stopped, 0 zombie
%Cpu(s): 13.1 us, 2.0 sy, 0.0 ni, 84.8 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 5797.5 total, 688.6 free, 2354.7 used, 2754.2 buff/cache
MiB Swap: 11443.0 total, 11443.0 free, 0.0 used, 2794.1 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1657	lab	20	0	5584528	306860	129564	S	20.9	5.2	31:54.69	gnome-shell
35416	lab	20	0	402148	43884	33292	R	17.9	0.7	0:00.54	gnome-screensho
24267	lab	20	0	434172	71616	45500	S	4.6	1.2	1:25.27	gnome-terminal-
35181	lab	20	0	1108.5g	164768	101080	S	2.0	2.8	0:18.03	chrome
1501	lab	20	0	10080	6440	4148	S	0.7	0.1	0:06.55	dbus-daemon
2170	lab	20	0	1367192	54320	38040	S	0.7	0.9	0:11.99	xdg-desktop-por
34808	root	20	0	0	0	0	I	0.7	0.0	0:01.30	kworker/2:1-events
35333	lab	20	0	21584	4012	3336	R	0.7	0.1	0:00.41	top
13	root	20	0	0	0	0	I	0.3	0.0	0:35.58	rcu_sched
753	root	20	0	346472	20148	16756	S	0.3	0.3	1:22.36	NetworkManager
1013	mysql	20	0	2155724	379132	33584	S	0.3	6.4	2:24.49	mysqld
2974	lab	20	0	16.5g	275208	159996	S	0.3	4.6	15:51.79	chrome
3019	lab	20	0	16.3g	126916	87036	S	0.3	2.1	6:43.55	chrome
34257	root	0	-20	0	0	0	I	0.3	0.0	0:02.56	kworker/u17:2-i915_flip
35043	root	20	0	0	0	0	I	0.3	0.0	0:00.21	kworker/0:2-events
35101	root	20	0	0	0	0	I	0.3	0.0	0:00.24	kworker/u16:3-iwlwifi
1	root	20	0	164828	10960	7708	S	0.0	0.2	0:03.15	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.03	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
6	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/0:0H-events_highpri
9	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	mm_percpu_wq
10	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcu_tasks_rude_
11	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcu_tasks_trace
12	root	20	0	0	0	0	S	0.0	0.0	0:00.81	ksoftirqd/0
14	root	rt	0	0	0	0	S	0.0	0.0	0:00.22	migration/0
15	root	-51	0	0	0	0	S	0.0	0.0	0:00.00	idle_inject/0
16	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/0
17	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/1
18	root	-51	0	0	0	0	S	0.0	0.0	0:00.00	idle_inject/1
19	root	rt	0	0	0	0	S	0.0	0.0	0:00.31	migration/1

```
lab@lab-Lenovo-IdeaPad-Z400:~$ ps -T
  PID  SPID  TTY      TIME  CMD
 31576 31576 pts/0    00:00:00 bash
 35866 35866 pts/0    00:00:00 ps
lab@lab-Lenovo-IdeaPad-Z400:~$ ps -A
  PID  TTY      TIME  CMD
  1 ?        00:00:03 systemd
  2 ?        00:00:00 kthreadd
  3 ?        00:00:00 rcu_gp
  4 ?        00:00:00 rcu_par_gp
  6 ?        00:00:00 kworker/0:0H-events_highpri
  9 ?        00:00:00 mm_percpu_wq
 10 ?        00:00:00 rcu_tasks_rude_
 11 ?        00:00:00 rcu_tasks_trace
 12 ?        00:00:00 ksoftirqd/0
 13 ?        00:00:36 rcu_sched
 14 ?        00:00:00 migration/0
 15 ?        00:00:00 idle_inject/0
 16 ?        00:00:00 cpuhp/0
 17 ?        00:00:00 cpuhp/1
 18 ?        00:00:00 idle_inject/1
 19 ?        00:00:00 migration/1
 20 ?        00:00:00 ksoftirqd/1
 22 ?        00:00:00 kworker/1:0H-kblockd
 23 ?        00:00:00 cpuhp/2
 24 ?        00:00:00 idle_inject/2
 25 ?        00:00:00 migration/2
 26 ?        00:00:00 ksoftirqd/2
 28 ?        00:00:00 kworker/2:0H-events_highpri
 29 ?        00:00:00 cpuhp/3
 30 ?        00:00:00 idle_inject/3
 31 ?        00:00:00 migration/3
 32 ?        00:00:00 ksoftirqd/3
 34 ?        00:00:00 kworker/3:0H-events_highpri
 35 ?        00:00:00 kdevtmpfs
 36 ?        00:00:00 netns
 37 ?        00:00:00 inet_frag_wq
 38 ?        00:00:00 kauditd
 39 ?        00:00:00 dbus-daemon
```

i) Processes associated with the current terminal.

ii) All processes in the system.

```
lab@lab-Lenovo-IdeaPad-Z400:~$ ps -T
  PID   SPID TTY          TIME CMD
  31576   31576 pts/0        00:00:00 bash
  35866   35866 pts/0        00:00:00 ps
lab@lab-Lenovo-IdeaPad-Z400:~$ ps -A
  PID TTY          TIME CMD
    1 ?           00:00:03 systemd
    2 ?           00:00:00 kthreadd
    3 ?           00:00:00 rcu_gp
    4 ?           00:00:00 rcu_par_gp
    6 ?           00:00:00 kworker/0:0H-events_highpri
    9 ?           00:00:00 mm_percpu_wq
   10 ?           00:00:00 rcu_tasks_rude_
   11 ?           00:00:00 rcu_tasks_trace
   12 ?           00:00:00 ksoftirqd/0
   13 ?           00:00:36 rcu_sched
   14 ?           00:00:00 migration/0
   15 ?           00:00:00 idle_inject/0
   16 ?           00:00:00 cpuhp/0
   17 ?           00:00:00 cpuhp/1
   18 ?           00:00:00 idle_inject/1
   19 ?           00:00:00 migration/1
   20 ?           00:00:00 ksoftirqd/1
   22 ?           00:00:00 kworker/1:0H-kblockd
   23 ?           00:00:00 cpuhp/2
   24 ?           00:00:00 idle_inject/2
   25 ?           00:00:00 migration/2
   26 ?           00:00:00 ksoftirqd/2
   28 ?           00:00:00 kworker/2:0H-events_highpri
   29 ?           00:00:00 cpuhp/3
   30 ?           00:00:00 idle_inject/3
   31 ?           00:00:00 migration/3
   32 ?           00:00:00 ksoftirqd/3
   34 ?           00:00:00 kworker/3:0H-events_highpri
   35 ?           00:00:00 kdevtmpfs
   36 ?           00:00:00 netns
   37 ?           00:00:00 inet_frag_wq
   38 ?           00:00:00 kauditd
   39 ?           00:00:00 kthreadd
```

e) df -h

```
lab@lab-Lenovo-IdeaPad-Z400:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
tmpfs            580M  1.9M  578M   1% /run
/dev/sda7       281G   19G  248G   8% /
tmpfs            2.9G   93M  2.8G   4% /dev/shm
tmpfs            5.0M  4.0K  5.0M   1% /run/lock
tmpfs            4.0M    0  4.0M   0% /sys/fs/cgroup
tmpfs            580M  1.3M  579M   1% /run/user/1000
```

Result: Program run successfully and output is obtained.