

DATE

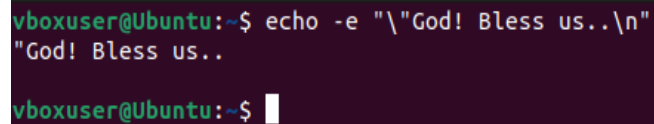
AIM: BASIC LINUX COMMANDS ACTIVITY QUESTIONS

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"



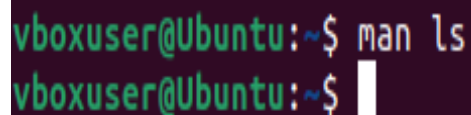
```
vboxuser@Ubuntu:~$ echo -e "\"God! Bless us..\n"
"God! Bless us..
vboxuser@Ubuntu:~$
```

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.



```
vboxuser@Ubuntu:~$ man ls
vboxuser@Ubuntu:~$
```

```

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

-C      list entries by columns

--color[=WHEN]
    colorize the output; WHEN can be 'always' (default if omitted), 'auto', or 'never'; more info below

-d, --directory
    list directories themselves, not their contents

-D, --dired
    generate output designed for Emacs' dired mode

-f      do not sort, enable -aU, disable -ls --color

-F, --classify
    append indicator (one of */=>@|) to entries

--file-type
    likewise, except do not append '*'

--format=WORD
    across -x, commas -m, horizontal -x, long -l, single-column -1, verbose -l, vertical -C
Manual page ls(1) line 1 (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";
```

```

vboxuser@Ubuntu:~$ echo "Enter your Name";read name;echo "The name entered is $name";
Enter your Name
vboxuser
The name entered is vboxuser
vboxuser@Ubuntu:~$ ~

```

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
```

```
vboxuser@Ubuntu:~$ mkdir -p dir1/dir2/dir3
vboxuser@Ubuntu:~$ ls
a.txt  capita  cycle.txt  dir1  Downloads  file5.txt  file.tar  index.html.1  lastlog.sh  marks.txt  Network  Pictures  pwd.png  simple.java  snap  Templates  vbox.pub  xyz.txt
b.txt  capital  Desktop  Documents  d.txt  file.5txt  index.html  index.html.2  mail.txt  Music  NetworkLab  Public  simple.class  simple.txt  states  vbox  Videos

vboxuser@Ubuntu:~$ ls -R dir1
dir1:
dir2

dir1/dir2:
dir3

dir1/dir2/dir3:
vboxuser@Ubuntu:~$ cd dir1/dir2/dir3
vboxuser@Ubuntu:~/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$
```

```
Hello
Welcome to Vim editor
~
~
~
~
~
~
~
```

6. Display the current directory

OUTPUT

->pwd

```
vboxuser@Ubuntu:~/NetworkLab$ pwd
/home/vboxuser/NetworkLab
vboxuser@Ubuntu:~/NetworkLab$
```

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 displayed in human readable form
 - vi.

OUTPUT

->a)ls -R

```
vboxuser@Ubuntu:~$ ls -R
.:
a.txt  capita  cycle.txt  dir1  Downloads  files.txt  file.tar  index.html.1  lastlog.sh  marks.txt  Network  Pictures  pwd.png  simple.java  snap  Templates  vbox.pub  xyz.txt
b.txt  capital  Desktop  Documents  d.txt  file.5txt  index.html  index.html.2  mail.txt  Music  NetworkLab  Public  simple.class  simple.txt  states  vbox  Videos

./Desktop:

./dir1:
dir2

./dir1/dir2:
dir3

./dir1/dir2/dir3:

./Documents:

./Downloads:
'Screenshot from 2023-04-18 11-58-22.png'

./Music:

./Network:
simple.txt

./NetworkLab:

./Pictures:
commands  Screenshots

./Pictures/commands:
cat.png  cp.png  df.png  du.png  find.png  history.png  ls.png  'man pwd.png'  paste.png  pwd.png  rm.png  sudo.png  top.png  uname.png  userdel.png
cd.png  cut.png  diff.png  echo.png  grep.png  hostname.png  'ls -R.png'  mkdir.png  ping.png  rmdir.png  ssh-keygen.png  tail.png  touchfile.png  unzip.png  wget.png
chmod.png  'df -n.png'  'du -b.png'  expr.png  head.png  'ls 2.png'  nan.png  mv.png  ps.png  rfile.png  ssh.png  tar.png  touch.png  useradd.png  zip.png

./Pictures/Screenshots:
q1.png  q2.1.png  q2.png  q3.png  q4.png  q6.png

./Public:

./snap:
firefox  snapd-desktop-integration
```

b)

- i) ls -v
- ii) ls --sort='time'
- iii) ls --sort='size'
- iv) ls -ls
- v) ls -hs

OUTPUT

```
vboxuser@Ubuntu:~$ ls --sort=time
dir1 Desktop vbox capital states index.html.2 index.html mail.txt xyz.txt simple.txt a.txt file5.txt NetworkLab lastlog.sh simple.java Documents Public Videos
Pictures Downloads vbox.pub capita marks.txt index.html.1 file.tar Network Pictures snap Videos vbox.pub simple.class mail.txt states b.txt a.txt simple.txt capita file5.txt
vboxuser@Ubuntu:~$ ls --sort=size
index.html index.html.2 file.tar dir1 Downloads Network Pictures snap Videos vbox.pub simple.class mail.txt states b.txt a.txt simple.txt capita file5.txt
index.html.1 pwd.png Desktop Documents Music NetworkLab Public Templates vbox lastlog.sh simple.java capital marks.txt d.txt cycle.txt xyz.txt
vboxuser@Ubuntu:~$ ls -lr
xyz.txt vbox.pub Templates snap simple.java pwd.png Pictures Network marks.txt lastlog.sh index.html.1 file.tar file5.txt Downloads dir1 cycle.txt capita a.txt
Videos vbox states simple.txt simple.class Public NetworkLab Music marks.txt index.html.2 index.html file5.txt d.txt Documents Desktop capital b.txt
vboxuser@Ubuntu:~$ ls -ls
total 1244
4 -rw-r--r-- 1 vboxuser vboxuser 12 Jun 17 20:56 a.txt
4 -rw-r--r-- 1 vboxuser vboxuser 15 Jun 17 20:56 b.txt
0 -rw-r--r-- 1 vboxuser vboxuser 0 Jun 18 14:55 capita
4 -rw-r--r-- 1 vboxuser vboxuser 42 Jun 18 14:56 capital
4 -rw-r--r-- 1 vboxuser vboxuser 12 Jun 17 21:01 cycle.txt
4 drwxr-xr-x 2 vboxuser vboxuser 4096 Jun 18 15:34 Desktop
4 drwxrwxr-x 3 vboxuser vboxuser 4096 Jun 18 15:49 dir1
4 drwxr-xr-x 2 vboxuser vboxuser 4096 Jun 5 21:39 Documents
4 drwxr-xr-x 2 vboxuser vboxuser 4096 Jun 18 15:26 Downloads
4 -rw-r--r-- 1 vboxuser vboxuser 15 Jun 17 20:58 d.txt
0 -rw-r--r-- 1 vboxuser vboxuser 0 Jun 17 20:53 file5.txt
0 -rw-r--r-- 1 vboxuser vboxuser 0 Jun 17 20:52 file5.txt
12 -rw-r--r-- 1 vboxuser vboxuser 10240 Jun 18 13:58 file.tar
376 -rw-r--r-- 1 vboxuser vboxuser 384478 Jun 18 14:27 index.html
372 -rw-r--r-- 1 vboxuser vboxuser 379609 Jun 18 14:29 index.html.1
352 -rw-r--r-- 1 vboxuser vboxuser 359599 Jun 18 14:29 index.html.2
4 -rw-rwxr-x 1 vboxuser vboxuser 491 Jun 13 22:00 lastlog.sh
4 -rw-r--r-- 1 vboxuser vboxuser 83 Jun 18 13:54 mail.txt
4 -rw-r--r-- 1 vboxuser vboxuser 36 Jun 18 14:50 marks.txt
4 drwxr-xr-x 2 vboxuser vboxuser 4096 Jun 5 21:39 Music
4 drwxrwxr-x 2 vboxuser vboxuser 4096 Jun 17 21:34 Network
4 drwxrwxr-x 2 vboxuser vboxuser 4096 Jun 17 20:19 NetworkLab
4 drwxr-xr-x 4 vboxuser vboxuser 4096 Jun 18 15:38 Pictures
4 drwxr-xr-x 2 vboxuser vboxuser 4096 Jun 5 21:39 Public
24 -rw-r--r-- 1 vboxuser vboxuser 23864 Jun 17 20:18 pwd.png
4 -rw-r--r-- 1 vboxuser vboxuser 418 Jun 13 20:40 simple.class
4 -rw-r--r-- 1 vboxuser vboxuser 102 Jun 13 20:40 simple.java
4 -rw-r--r-- 1 vboxuser vboxuser 12 Jun 17 21:00 simple.txt
4 drwx----- 4 vboxuser vboxuser 4096 Jun 12 22:56 snap
4 -rw-r--r-- 1 vboxuser vboxuser 41 Jun 18 14:55 states
4 drwxr-xr-x 2 vboxuser vboxuser 4096 Jun 5 21:39 Templates
4 -rw----- 1 vboxuser vboxuser 2602 Jun 18 15:00 vbox
4 -rw-r--r-- 1 vboxuser vboxuser 569 Jun 18 15:00 vbox.pub
4 drwxr-xr-x 2 vboxuser vboxuser 4096 Jun 5 21:39 Videos
4 -rw-r--r-- 1 vboxuser vboxuser 4 Jun 17 21:08 xyz.txt
vboxuser@Ubuntu:~$
```

```
vboxuser@Ubuntu:~$ ls -hs
total 1.3M
4.0K a.txt 4.0K capital 4.0K dir1 4.0K d.txt 12K file.tar 352K index.html.2 4.0K marks.txt 4.0K NetworkLab 24K pwd.png 4.0K simple.txt 4.0K Templates 4.0K Videos
4.0K b.txt 4.0K cycle.txt 4.0K Documents 0 file5.txt 376K index.html 4.0K lastlog.sh 4.0K Music 4.0K Pictures 4.0K simple.class 4.0K snap 4.0K vbox 4.0K xyz.txt
0 capita 4.0K Desktop 4.0K Downloads 0 file5.txt 372K index.html.1 4.0K mail.txt 4.0K Network 4.0K Public 4.0K simple.java 4.0K states 4.0K vbox.pub
vboxuser@Ubuntu:~$
```

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

OUTPUT

ls > lsoutput.txt

```
vboxuser@Ubuntu:~$ ls >lsoutput.txt
vboxuser@Ubuntu:~$ cat lsoutput.txt
a.txt
b.txt
capita
capital
cycle.txt
Desktop
dir1
Documents
Downloads
d.txt
file5.txt
file5.txt
file.tar
index.html
index.html.1
index.html.2
lastlog.sh
lsoutput.txt
mail.txt
marks.txt
Music
Network
NetworkLab
Pictures
Public
pwd.png
simple.class
simple.java
simple.txt
snap
states
Templates
vbox
vbox.pub
Videos
xyz.txt
vboxuser@Ubuntu:~$
```

9. Display the file

- a. starting with the first 10 lines and
- b. starting with the 10th line with provision for

- i. Scrolling Up
- ii. Scrolling Up and Down

OUTPUT

a. head labexperiment.txt

```
vboxuser@Ubuntu:~$ head lsoutput.txt
a.txt
b.txt
capita
capital
cycle.txt
Desktop
dir1
Documents
Downloads
d.txt
vboxuser@Ubuntu:~$
```

i) more -10 labexperiment.txt

```
vboxuser@Ubuntu:~$ more -10 lsoutput.txt
a.txt
b.txt
capita
capital
cycle.txt
Desktop
dir1
Documents
Downloads
d.txt
--More-- (23%)
```

ii) less +10 labexperiment.txt

```
a.txt
b.txt
capita
capital
cycle.txt
Desktop
dir1
Documents
Downloads
d.txt
file5.txt
file5txt
file.tar
index.html
index.html.1
index.html.2
lastlog.sh
lsoutput.txt
mail.txt
marks.txt
Music
Network
NetworkLab
Pictures
Public
pwd.png
simple.class
simple.java
simple.txt
snap
states
Templates
vbox
vbox.pub
Videos
xyz.txt
~
~
~
```

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

OUTPUT

```
vboxuser@Ubuntu:~$ ls -l >>lsoutput.txt
vboxuser@Ubuntu:~$ cat lsoutput.txt
a.txt
b.txt
capita
capital
cycle.txt
Desktop
dir1
Documents
Downloads
d.txt
file5.txt
file.5txt
file.tar
index.html
index.html.1
index.html.2
lastlog.sh
lsoutput.txt
mail.txt
marks.txt
Music
Network
NetworkLab
Pictures
Public
pwd.png
simple.class
simple.java
simple.txt
snap
states
Templates
vbox
vbox.pub
Videos
xyz.txt
total 1248
-rw-r--r-- 1 vboxuser vboxuser 12 Jun 17 20:56 a.txt
-rw-rw-r-- 1 vboxuser vboxuser 15 Jun 17 20:56 b.txt
-rw-rw-r-- 1 vboxuser vboxuser 0 Jun 18 14:55 capita
-rw-rw-r-- 1 vboxuser vboxuser 42 Jun 18 14:56 capital
-rw-rw-r-- 1 vboxuser vboxuser 12 Jun 17 21:01 cycle.txt
drwxr-xr-x 2 vboxuser vboxuser 4096 Jun 18 15:34 Desktop
drwxrwxr-x 3 vboxuser vboxuser 4096 Jun 18 15:49 dir1
drwxr-xr-x 2 vboxuser vboxuser 4096 Jun 5 21:39 Documents
drwxr-xr-x 2 vboxuser vboxuser 4096 Jun 18 15:26 Downloads
-rw-rw-r-- 1 vboxuser vboxuser 15 Jun 17 20:58 d.txt
-rw-rw-r-- 1 vboxuser vboxuser 0 Jun 17 20:53 file5.txt
-rw-rw-r-- 1 vboxuser vboxuser 0 Jun 17 20:52 file.5txt
-rw-rw-r-- 1 vboxuser vboxuser 10240 Jun 18 13:58 file.tar
-rw-rw-r-- 1 vboxuser vboxuser 384478 Jun 18 14:27 index.html
-rw-rw-r-- 1 vboxuser vboxuser 379609 Jun 18 14:29 index.html.1
-rw-rw-r-- 1 vboxuser vboxuser 359599 Jun 18 14:29 index.html.2
-rwxrwxr-x 1 vboxuser vboxuser 491 Jun 13 22:00 lastlog.sh
```

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

OUTPUT

->`ls -l | less`

```
total 1252
-rw-r--r-- 1 vboxuser vboxuser 12 Jun 17 20:56 a.txt
-rw-rw-r-- 1 vboxuser vboxuser 15 Jun 17 20:56 b.txt
-rw-rw-r-- 1 vboxuser vboxuser 0 Jun 18 14:55 capita
-rw-rw-r-- 1 vboxuser vboxuser 42 Jun 18 14:56 capital
-rw-rw-r-- 1 vboxuser vboxuser 12 Jun 17 21:01 cycle.txt
drwxr-xr-x 2 vboxuser vboxuser 4096 Jun 18 15:34 Desktop
drwxrwxr-x 3 vboxuser vboxuser 4096 Jun 18 15:49 dir1
drwxr-xr-x 2 vboxuser vboxuser 4096 Jun 5 21:39 Documents
drwxr-xr-x 2 vboxuser vboxuser 4096 Jun 18 15:26 Downloads
-rw-rw-r-- 1 vboxuser vboxuser 15 Jun 17 20:58 d.txt
-rw-rw-r-- 1 vboxuser vboxuser 0 Jun 17 20:53 file5.txt
-rw-rw-r-- 1 vboxuser vboxuser 0 Jun 17 20:52 file.5txt
-rw-rw-r-- 1 vboxuser vboxuser 10240 Jun 18 13:58 file.tar
-rw-rw-r-- 1 vboxuser vboxuser 384478 Jun 18 14:27 index.html
-rw-rw-r-- 1 vboxuser vboxuser 379609 Jun 18 14:29 index.html.1
-rw-rw-r-- 1 vboxuser vboxuser 359599 Jun 18 14:29 index.html.2
-rwxrwxr-x 1 vboxuser vboxuser 491 Jun 13 22:00 lastlog.sh
-rw-rw-r-- 1 vboxuser vboxuser 4657 Jun 18 16:08 lsoutput.txt
-rw-rw-r-- 1 vboxuser vboxuser 83 Jun 18 13:54 mail.txt
-rw-rw-r-- 1 vboxuser vboxuser 36 Jun 18 14:50 marks.txt
drwxr-xr-x 2 vboxuser vboxuser 4096 Jun 5 21:39 Music
drwxrwxr-x 2 vboxuser vboxuser 4096 Jun 17 21:34 Network
drwxrwxr-x 2 vboxuser vboxuser 4096 Jun 17 20:19 NetworkLab
drwxr-xr-x 4 vboxuser vboxuser 4096 Jun 18 15:38 Pictures
drwxr-xr-x 2 vboxuser vboxuser 4096 Jun 5 21:39 Public
-rw-rw-r-- 1 vboxuser vboxuser 23864 Jun 17 20:18 pwd.png
-rw-rw-r-- 1 vboxuser vboxuser 418 Jun 13 20:40 simple.class
-rw-rw-r-- 1 vboxuser vboxuser 102 Jun 13 20:40 simple.java
-rw-rw-r-- 1 vboxuser vboxuser 12 Jun 17 21:00 simple.txt
drwx----- 4 vboxuser vboxuser 4096 Jun 12 22:56 snap
-rw-rw-r-- 1 vboxuser vboxuser 41 Jun 18 14:55 states
drwxr-xr-x 2 vboxuser vboxuser 4096 Jun 5 21:39 Templates
-rw----- 1 vboxuser vboxuser 2602 Jun 18 15:00 vbox
-rw-rw-r-- 1 vboxuser vboxuser 569 Jun 18 15:00 vbox.pub
drwxr-xr-x 2 vboxuser vboxuser 4096 Jun 5 21:39 videos
-rw-rw-r-- 1 vboxuser vboxuser 4 Jun 17 21:08 xyz.txt
~
~
~
~
```

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`

```
vboxuser@Ubuntu:~/NetworkLab$ cp -f txt1.txt newfile
vboxuser@Ubuntu:~/NetworkLab$ cat newfile
Hello
Welcome to vim editor
vboxuser@Ubuntu:~/NetworkLab$ cp -n txt1.txt newfile
vboxuser@Ubuntu:~/NetworkLab$ cp -i txt1.txt newfile
cp: overwrite 'newfile'? y
vboxuser@Ubuntu:~/NetworkLab$ cp -u txt1.txt newfile
vboxuser@Ubuntu:~/NetworkLab$ cat newfile
Hello
Welcome to vim editor
vboxuser@Ubuntu:~/NetworkLab$ ln txt1.txt newfile1.txt
vboxuser@Ubuntu:~/NetworkLab$ cat newfile1.txt
Hello
Welcome to vim editor
vboxuser@Ubuntu:~/NetworkLab$ cp -r dir1 dir5
vboxuser@Ubuntu:~/NetworkLab$ ls
dir1  dir1.txt  dir5  newfile  newfile1.txt  newfile.txt  txt1.txt
vboxuser@Ubuntu:~/NetworkLab$
```

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

- 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

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

iii) chmodg+x testfile2

iv) chmodu+w testfile2

v) chmod o-r testfile2

vi)chmodg+r testfile2

vii)chmoda+rw testfile2

```
vboxuser@Ubuntu:~/NetworkLab$ chmod g+x testfile3
vboxuser@Ubuntu:~/NetworkLab$ ls -l testfile3
-rw-rwxr-- 1 vboxuser vboxuser 20 Jun 18 16:20 testfile3
vboxuser@Ubuntu:~/NetworkLab$ chmod u+w testfile3
vboxuser@Ubuntu:~/NetworkLab$ ls -l testfile3
-rw-rwxr-- 1 vboxuser vboxuser 20 Jun 18 16:20 testfile3
vboxuser@Ubuntu:~/NetworkLab$ chmod o-r testfile3
vboxuser@Ubuntu:~/NetworkLab$ ls -l testfile3
-rw-rwx--- 1 vboxuser vboxuser 20 Jun 18 16:20 testfile3
vboxuser@Ubuntu:~/NetworkLab$ chmod g+r testfile3
vboxuser@Ubuntu:~/NetworkLab$ ls -l testfile3
-rw-rwx--- 1 vboxuser vboxuser 20 Jun 18 16:20 testfile3
vboxuser@Ubuntu:~/NetworkLab$ chmod a+rw testfile3
vboxuser@Ubuntu:~/NetworkLab$ ls -l testfile3
-rw-rwxrw- 1 vboxuser vboxuser 20 Jun 18 16:20 testfile3
vboxuser@Ubuntu:~/NetworkLab$
```

b)

i) chmod 666 testfile3

ii) chmod 754 testfile3

```
vboxuser@Ubuntu:~/NetworkLab$ ls -l testfile3
-rw-rwxrw- 1 vboxuser vboxuser 20 Jun 18 16:20 testfile3
vboxuser@Ubuntu:~/NetworkLab$ chmod 666 testfile3
vboxuser@Ubuntu:~/NetworkLab$ ls -l testfile3
-rw-rw-rw- 1 vboxuser vboxuser 20 Jun 18 16:20 testfile3
vboxuser@Ubuntu:~/NetworkLab$ chmod 754 testfile3
vboxuser@Ubuntu:~/NetworkLab$ ls -l testfile3
-rwxr-xr-- 1 vboxuser vboxuser 20 Jun 18 16:20 testfile3
vboxuser@Ubuntu:~/NetworkLab$
```

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----x-- 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

- The first 12 users in the system.
- The last 7 users in the system.
- All but the first 3.
- All but the last 5.
- Only the 9 th.

OUTPUT

->

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

```
vboxuser@Ubuntu:~/NetworkLab$ 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
vboxuser@Ubuntu:~/NetworkLab$
```

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

```
vboxuser@Ubuntu:~/NetworkLab$ cat /etc/passwd | tail -n 7
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
vboxuser:x:1000:1000:vboxuser,,,:/home/vboxuser:/bin/bash
mysql:x:129:137:MySQL Server,,,:/nonexistent:/bin/false
vboxuser@Ubuntu:~/NetworkLab$
```

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

```
vboxuser@Ubuntu:~/NetworkLab$ 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:119:29: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
vboxuser:x:1000:1000:vboxuser,,,:/home/vboxuser:/bin/bash
mysql:x:129:137:MySQL Server,,,:/nonexistent:/bin/false
vboxuser@Ubuntu:~/NetworkLab$
```

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

```
vboxuser@Ubuntu:~/NetworkLab$ 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: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:119:29: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
vboxuser@Ubuntu:~/NetworkLab$
```

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

```
vboxuser@Ubuntu:~/NetworkLab$ cat /etc/passwd | head -n 9 | tail -n 1
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
vboxuser@Ubuntu:~/NetworkLab$
```

17. 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”

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

- 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) 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. 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

OUTPUT

- 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.`

```
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
drwxrwxr-x 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

- Using **tar** create a tar.gz file of the folder dir1 of Qn.4 with the name *mydir.tar.gz*
- Extract the contents of *mydir.tar.gz* to dir6 of Qn.14
- Use **top** to display processes sorted on
 - ProcessId
 - CPU%
- Use **ps** to display
 - Processes associated with the current terminal
 - All processes in the system
- Use **df** to display the storage available in each partition

OUTPUT

->

a) tar -czvf mydir.tar.gz dir1

```

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/testfile
dir1/dir2/dir3/testfile2
dir1/dir2/dir3/testfile1

```

a) 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/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/testfile
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/F3

```

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-iwlfwif
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-iwlfwif
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	lrq/28-me1_me
15010	lab	20	0	919828	121340	54424	S	0.0	2.0	1:25.03	nautilus

i) 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 kthreadd
```

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.