Q1)

a) Navigate and List:

a. Start by navigating to your home directory and list its contents. Then, move into a directory named "LinuxAssignment" if it exists; otherwise, create it.

→ List all files, directories = 'ls'

```
cdac@Dell-Vostro:~$ ls
Manisha  abc.txt  file.txt  file1.txt
cdac@Dell-Vostro:~$
```

Navigate through directories or change directory = 'cd directory_name'

to make the directory = 'mkdir directory_name'

```
cdac@Dell-Vostro:~$ mkdir LinuxAssignment
cdac@Dell-Vostro:~$ ls
LinuxAssignment  Manisha  abc.txt  file.txt  file1.txt
cdac@Dell-Vostro:~$ cd LinuxAssignment
cdac@Dell-Vostro:~/LinuxAssignment$
```


b) File Management:

a. Inside the "LinuxAssignment" directory, create a new file named "file1.txt". Display its contents.

→create a file = 'touch filename'

Open with editor = 'nano filename'

Display contents to the console = 'cat filename'

```
cdac@Dell-Vostro:~/LinuxAssignment$ nano file1.txt
cdac@Dell-Vostro:~/LinuxAssignment$ cat file1.txt
hello
this is
file1
in
text format
```

c) Directory Management:

a. Create a new directory named "docs" inside the "LinuxAssignment" directory.

→ to make the directory = ‘mkdir directory_name’

```
cdac@Dell-Vostro:~/LinuxAssignment$ mkdir docs
cdac@Dell-Vostro:~/LinuxAssignment$ ls
docs  file1.txt
cdac@Dell-Vostro:~/LinuxAssignment$
```

d) Copy and Move Files:

a. Copy the "file1.txt" file into the "docs" directory and rename it to "file2.txt".

--> to copy file = ‘cp source detination’

```
cdac@Dell-Vostro:~/LinuxAssignment$ cp file1.txt docs/
cdac@Dell-Vostro:~/LinuxAssignment$ cd docs
cdac@Dell-Vostro:~/LinuxAssignment/docs$ ls
file1.txt
```

to rename file = ‘mv oldname newname’

```
cdac@Dell-Vostro:~/LinuxAssignment/docs$ mv file1.txt file2.txt
cdac@Dell-Vostro:~/LinuxAssignment/docs$ ls
file2.txt
cdac@Dell-Vostro:~/LinuxAssignment/docs$
```

e) Permissions and Ownership:

a. Change the permissions of "file2.txt" to allow read, write, and execute permissions for the owner and only read permissions for others. Then, change the owner of "file2.txt" to the current user

→ to view permission = ‘ls -l’

To allow read, write, execute permission = ‘chmod u+rwx filename’

‘chmod o+r filname’

```
cdac@Dell-Vostro:~/LinuxAssignment/docs$ chmod u+rwx file2.txt
cdac@Dell-Vostro:~/LinuxAssignment/docs$ ls -ls
total 4
4 -rwxr--r-- 1 cdac cdac 36 Mar  1 17:20 file2.txt
cdac@Dell-Vostro:~/LinuxAssignment/docs$ chmod o+r file2.txt
cdac@Dell-Vostro:~/LinuxAssignment/docs$ ls -ls
total 4
4 -rwxr--r-- 1 cdac cdac 36 Mar  1 17:20 file2.txt
cdac@Dell-Vostro:~/LinuxAssignment/docs$ ls -l
total 4
-rwxr--r-- 1 cdac cdac 36 Mar  1 17:20 file2.txt
cdac@Dell-Vostro:~/LinuxAssignment/docs$
```

Change owner = ‘chown owner filename’

```
cdac@Dell-Vostro:~/LinuxAssignment/docs$ sudo chown cdac file2.txt
[sudo] password for cdac:
cdac@Dell-Vostro:~/LinuxAssignment/docs$ ls -l
total 4
-rwxr--r-- 1 cdac cdac 36 Mar  1 17:20 file2.txt
cdac@Dell-Vostro:~/LinuxAssignment/docs$
```

f) Final Checklist:

a. Finally, list the contents of the "LinuxAssignment" directory and the root directory to ensure that all operations were performed correctly.

→

```
cdac@Dell-Vostro:~/LinuxAssignment/docs$ ls
file2.txt
cdac@Dell-Vostro:~/LinuxAssignment/docs$ cd
cdac@Dell-Vostro:~$ ls
LinuxAssignment  Manisha  abc.txt  file.txt  file1.txt
cdac@Dell-Vostro:~$
```

g) File Searching:

a. Search for all files with the extension ".txt" in the current directory and its subdirectories. b. Display lines containing a specific word in a file (provide a file name and the specific word to search).

→ to search files = ‘find -name “*.txt”

```
cdac@Dell-Vostro:~$ find -name "*.txt"
./file.txt
./abc.txt
./LinuxAssignment/docs/file2.txt
./LinuxAssignment/file1.txt
./file1.txt
```

h) System Information:

a. Display the current system date and time.

→to display date and time = ‘date’

```
cdac@Dell-Vostro:~$ date
Sat Mar  1 17:36:42 UTC 2025
```

i) Networking:

a. Display the IP address of the system.

b. Ping a remote server to check connectivity (provide a remote server address to ping)

→ to display ip info = ‘hostname -I’

```
cdac@Dell-Vostro:~$ hostname -I
172.19.67.244
```

To ping a server = ‘ping addr’

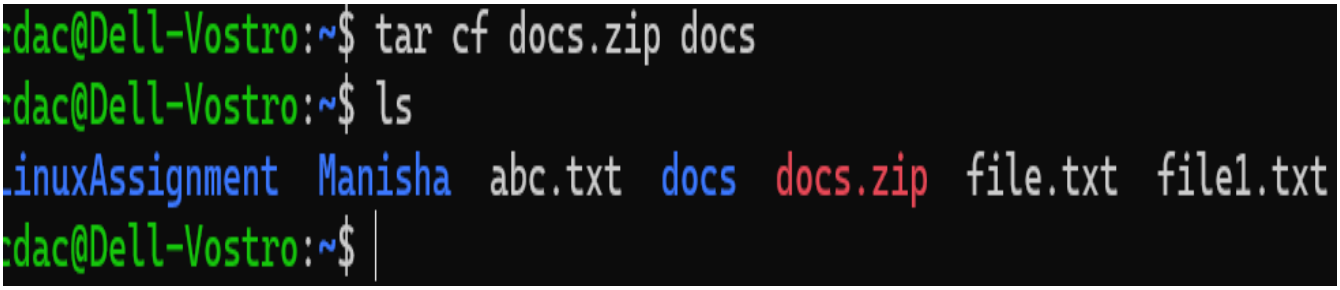
```
cdac@Dell-Vostro:~$ ping google.com
PING google.com (142.250.70.110) 56(84) bytes of data.
64 bytes from pnbomb-ac-in-f14.1e100.net (142.250.70.110): icmp_seq=1 ttl=52 time=55.2 ms
64 bytes from pnbomb-ac-in-f14.1e100.net (142.250.70.110): icmp_seq=2 ttl=52 time=74.7 ms
64 bytes from pnbomb-ac-in-f14.1e100.net (142.250.70.110): icmp_seq=3 ttl=52 time=67.3 ms
64 bytes from pnbomb-ac-in-f14.1e100.net (142.250.70.110): icmp_seq=4 ttl=52 time=105 ms
64 bytes from pnbomb-ac-in-f14.1e100.net (142.250.70.110): icmp_seq=5 ttl=52 time=65.7 ms
64 bytes from pnbomb-ac-in-f14.1e100.net (142.250.70.110): icmp_seq=6 ttl=52 time=73.5 ms
64 bytes from pnbomb-ac-in-f14.1e100.net (142.250.70.110): icmp_seq=7 ttl=52 time=51.8 ms
64 bytes from pnbomb-ac-in-f14.1e100.net (142.250.70.110): icmp_seq=8 ttl=52 time=66.4 ms
64 bytes from pnbomb-ac-in-f14.1e100.net (142.250.70.110): icmp_seq=9 ttl=52 time=57.1 ms
64 bytes from pnbomb-ac-in-f14.1e100.net (142.250.70.110): icmp_seq=10 ttl=52 time=55.2 ms
64 bytes from pnbomb-ac-in-f14.1e100.net (142.250.70.110): icmp_seq=11 ttl=52 time=85.4 ms
64 bytes from pnbomb-ac-in-f14.1e100.net (142.250.70.110): icmp_seq=12 ttl=52 time=77.2 ms
^C
--- google.com ping statistics ---
12 packets transmitted, 12 received, 0% packet loss, time 10999ms
rtt min/avg/max/mdev = 51.757/69.507/104.540/14.402 ms
```

j) File Compression:

a. Compress the "docs" directory into a zip file.

b. Extract the contents of the zip file into a new directory.

→ compress directory = ‘tar cf zipname.zip directory’



To extract from zip= ‘tzr xf zipname.zip’

```
cdac@Dell-Vostro:~$ mkdir new_directory
cdac@Dell-Vostro:~$ mv docs.zip new_directory
cdac@Dell-Vostro:~$ ls
LinuxAssignment  Manisha  abc.txt  docs  file.txt  file1.txt  new_directory
cdac@Dell-Vostro:~$ cd new_directory
cdac@Dell-Vostro:~/new_directory$ ls
docs.zip
cdac@Dell-Vostro:~/new_directory$ tar xf docs.zip
cdac@Dell-Vostro:~/new_directory$ ls
docs  docs.zip
cdac@Dell-Vostro:~/new_directory$
```

k) File Editing:

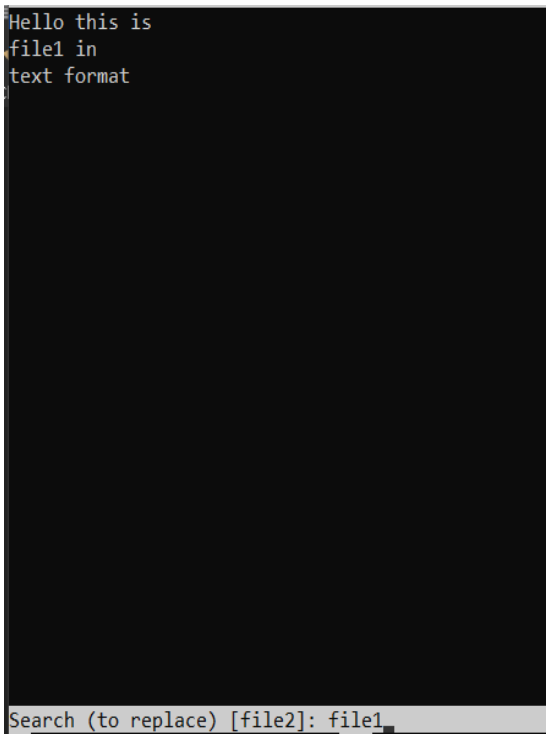
a. Open the "file1.txt" file in a text editor and add some text to it.

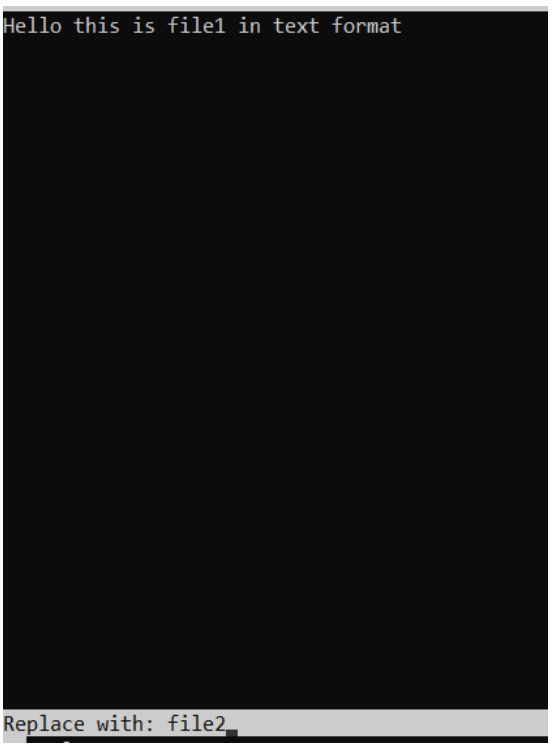
b. Replace a specific word in the "file1.txt" file with another word (provide the original word and the word to replace it with).

→open file in text editor = ‘nano filename’

```
cdac@Dell-Vostro:~/LinuxAssignment$ nano file1.txt
cdac@Dell-Vostro:~/LinuxAssignment$ cat file1.txt
hello this is
file1 in
text format
```

in nano text editor press ‘ctrl+\’ to get replace option search for that word and add the replacement word





Q2)

a. Suppose you have a file named "data.txt" containing important information. Display the first 10 lines of this file to quickly glance at its contents using a command.

→ to display first 10 line = ‘head filename’(default)

```
cdac@Dell-Vostro:~/LinuxAssignment$ nano data.txt
cdac@Dell-Vostro:~/LinuxAssignment$ cat data.txt
line1
line2
line3
line4
line5
line6
line7
line8
line9
line10
line11
line12

cdac@Dell-Vostro:~/LinuxAssignment$ head data.txt
line1
line2
line3
line4
line5
line6
line7
line8
line9
line10
```

b. Now, to check the end of the file for any recent additions, display the last 5 lines of "data.txt" using another command.

→to check end 5 lines = ‘tail -5 filename’

```
cdac@Dell-Vostro:~/LinuxAssignment$ tail -5 data.txt
line8
line9
line10
line11
line12
```

c. In a file named "numbers.txt," there are a series of numbers. Display the first 15 lines of this file to analyze the initial data set.

→to display first 15 lines = ‘head -15 filename’

```
cdac@Dell-Vostro:~/LinuxAssignment$ head -15 numbers.txt
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
```

d. To focus on the last few numbers of the dataset, display the last 3 lines of "numbers.txt".

→to display last 3 lines = ‘tail -3 filename’

```
cdac@Dell-Vostro:~/LinuxAssignment$ tail -3 numbers.txt
18
19
20
```

e. Imagine you have a file named "input.txt" with text content. Use a command to translate all lowercase letters to uppercase in "input.txt" and save the modified text in a new file named "output.txt."

→to translate lower to upper case = ‘tr ‘[:lower:]’ ‘[:upper:]’’

```
cdac@Dell-Vostro:~/LinuxAssignment$ cat > input.txt
my name is manisha gore
^C
cdac@Dell-Vostro:~/LinuxAssignment$ cat input.txt | tr '[:lower:]' [':upper:'] > output.txt
cdac@Dell-Vostro:~/LinuxAssignment$ ls
data.txt  docs  file1.txt  input.txt  numbers.txt  output.txt
cdac@Dell-Vostro:~/LinuxAssignment$ cat output.txt
MY NAME IS MANISHA GORE
cdac@Dell-Vostro:~/LinuxAssignment$
```

f. In a file named "duplicate.txt," there are several lines of text, some of which are duplicates. Use a command to display only the unique lines from "duplicate.txt."

→ to display only unique lines = ‘sort filename | uniq -u’

```
cdac@Dell-Vostro:~$ touch duplicate.txt
cdac@Dell-Vostro:~$ ls
LinuxAssignment  Manisha  abc.txt  docs  duplicate.txt  file.txt  file1.txt  new_directory
cdac@Dell-Vostro:~$ cd LinuxAssignment
cdac@Dell-Vostro:~/LinuxAssignment$ nano duplicate.txt
cdac@Dell-Vostro:~/LinuxAssignment$ cat duplicate.txt
 this is my duplicate file
this can be unique file
but
 this is a duplicate file
created for the
assignment practice purpose

cdac@Dell-Vostro:~/LinuxAssignment$ sort duplicate.txt | uniq -cu
      1
      1  this is a duplicate file
      1  this is my duplicate file
      1 assignment practice purpose
      1 but
      1 created for the
      1 this can be unique file
```

g. In a file named "fruit.txt," there is a list of fruits, but some fruits are repeated. Use a command to display each unique fruit along with the count of its occurrences in "fruit.txt."

→to display each unique fruit with count = ‘sort filename | uniq -c’

```
cdac@Dell-Vostro:~/LinuxAssignment$ touch fruit.txt
cdac@Dell-Vostro:~/LinuxAssignment$ nano fruit.txt
cdac@Dell-Vostro:~/LinuxAssignment$ cat fruit.txt
1 apple
2 banana
3 orange
2 GrrenApple
2 pineApple
1 watermelon
1 kiwi
2 lemon
2 grapes
1 guva
1 drangnfruit
cdac@Dell-Vostro:~/LinuxAssignment$ sort fruit.txt | uniq -c
      1 1 apple
      1 1 drangnfruit
      1 1 guva
      1 1 kiwi
      1 1 watermelon
      1 2 GrrenApple
      1 2 banana
      1 2 grapes
      1 2 lemon
      1 2 pineApple
      1 3 orange
```