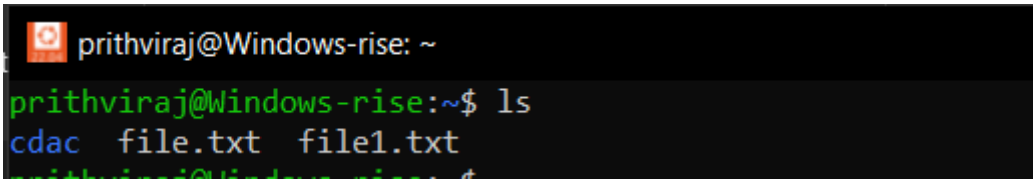
Q1)

a) Navigate and List:

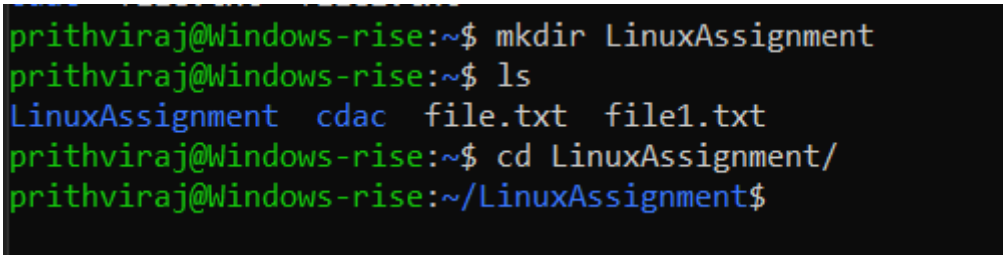
a. Start by navigating to your home directory and list its contents. Then, move into a directory named "LinuxAssignment" if it exists; otherwise, create it.

→ List all files, directories = ’ls’



Navigate through directories or change directory = ‘cd directory_name’

to make the directory = ‘mkdir directory_name’



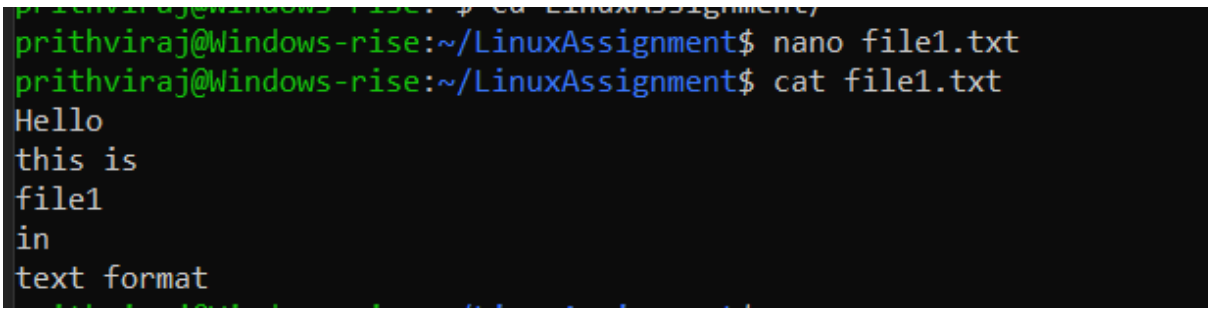
b) File Management:

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’



c) Directory Management:

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

→ to make the directory = ‘mkdir directory_name’

```
prithviraj@Windows-rise:~/LinuxAssignment$ mkdir docs
prithviraj@Windows-rise:~/LinuxAssignment$ ls
docs  file1.txt
```

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’

```
prithviraj@Windows-rise:~/LinuxAssignment$ cp file1.txt docs/
prithviraj@Windows-rise:~/LinuxAssignment$ cd docs
prithviraj@Windows-rise:~/LinuxAssignment/docs$ ls
file1.txt
```

to rename file = ‘mv oldname newname’

```
prithviraj@Windows-rise:~/LinuxAssignment/docs$ mv file1.txt file2.txt
prithviraj@Windows-rise:~/LinuxAssignment/docs$ ls
file2.txt
```

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’

```
prithviraj@Windows-rise:~/LinuxAssignment/docs$ chmod u+rwx file2.txt
prithviraj@Windows-rise:~/LinuxAssignment/docs$ ls -ls
total 0
0 -rwxr--r-- 1 prithviraj prithviraj 0 Aug 28 18:43 file2.txt
prithviraj@Windows-rise:~/LinuxAssignment/docs$ chmod o+r file2.txt
prithviraj@Windows-rise:~/LinuxAssignment/docs$ ls -ls
total 0
0 -rwxr--r-- 1 prithviraj prithviraj 0 Aug 28 18:43 file2.txt
prithviraj@Windows-rise:~/LinuxAssignment/docs$ ls -l
total 0
-rwxr--r-- 1 prithviraj prithviraj 0 Aug 28 18:43 file2.txt
prithviraj@Windows-rise:~/LinuxAssignment/docs$
```

Change owner = ‘chown owner filename’

```
prithviraj@Windows-rise:~/LinuxAssignment/docs$ sudo chown cdac file2.txt
prithviraj@Windows-rise:~/LinuxAssignment/docs$ ls -l
total 0
-rwxr--r-- 1 cdac prithviraj 0 Aug 28 18:43 file2.txt
```

f) Final Checklist:

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

→

```
prithviraj@Windows-rise:~/LinuxAssignment$ ls
docs  file1.txt
prithviraj@Windows-rise:~/LinuxAssignment$ cd ..
prithviraj@Windows-rise:~$ ls
LinuxAssignment  file1.txt
prithviraj@Windows-rise:~$
```

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”

```
prithviraj@Windows-rise:~$ find -name "*.txt"
./file1.txt
./LinuxAssignment/docs/file2.txt
./LinuxAssignment/file1.txt
prithviraj@Windows-rise:~$
```

h) System Information:

a. Display the current system date and time.

→to display date and time = ‘date’

```
prithviraj@Windows-rise:~$ date
Wed Aug 28 19:15:00 IST 2024
prithviraj@Windows-rise:~$
```

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’

```
prithviraj@Windows-rise:~/LinuxAssignment$ hostname -I
192.168.56.1 192.168.43.107 192.168.137.1
prithviraj@Windows-rise:~/LinuxAssignment$
```

To ping a server = ‘ping addr’

```
prithviraj@Windows-rise:~$ ping google.com
PING google.com(bom07s33-in-x0e.1e100.net (2404:6800:4009:826::200e)) 56 data bytes
64 bytes from bom07s33-in-x0e.1e100.net (2404:6800:4009:826::200e): icmp_seq=1 ttl=115 time=74.2 ms
64 bytes from bom07s33-in-x0e.1e100.net (2404:6800:4009:826::200e): icmp_seq=2 ttl=115 time=35.8 ms
64 bytes from bom07s33-in-x0e.1e100.net (2404:6800:4009:826::200e): icmp_seq=3 ttl=115 time=78.2 ms
64 bytes from bom07s33-in-x0e.1e100.net (2404:6800:4009:826::200e): icmp_seq=4 ttl=115 time=71.7 ms
64 bytes from bom07s33-in-x0e.1e100.net (2404:6800:4009:826::200e): icmp_seq=5 ttl=115 time=73.3 ms
64 bytes from bom07s33-in-x0e.1e100.net (2404:6800:4009:826::200e): icmp_seq=6 ttl=115 time=71.0 ms
64 bytes from bom07s33-in-x0e.1e100.net (2404:6800:4009:826::200e): icmp_seq=7 ttl=115 time=67.9 ms
64 bytes from bom07s33-in-x0e.1e100.net (2404:6800:4009:826::200e): icmp_seq=8 ttl=115 time=66.9 ms
^C
--- google.com ping statistics ---
8 packets transmitted, 8 received, 0% packet loss, time 7007ms
rtt min/avg/max/mdev = 35.750/67.379/78.229/12.409 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’

```
prithviraj@Windows-rise:~/LinuxAssignment$ tar cf docs.zip docs
prithviraj@Windows-rise:~/LinuxAssignment$ ls
docs  docs.zip  file1.txt
```

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

```
prithviraj@Windows-rise:~/LinuxAssignment$ mkdir new_directory
prithviraj@Windows-rise:~/LinuxAssignment$ mv docs.zip new_directory/
prithviraj@Windows-rise:~/LinuxAssignment$ ls
docs  file1.txt  new_directory
prithviraj@Windows-rise:~/LinuxAssignment$ cd new_directory/
prithviraj@Windows-rise:~/LinuxAssignment/new_directory$ ls
docs.zip
prithviraj@Windows-rise:~/LinuxAssignment/new_directory$ tar xf docs.zip
prithviraj@Windows-rise:~/LinuxAssignment/new_directory$ ls
docs  docs.zip
prithviraj@Windows-rise:~/LinuxAssignment/new_directory$
```

k) File Editing:

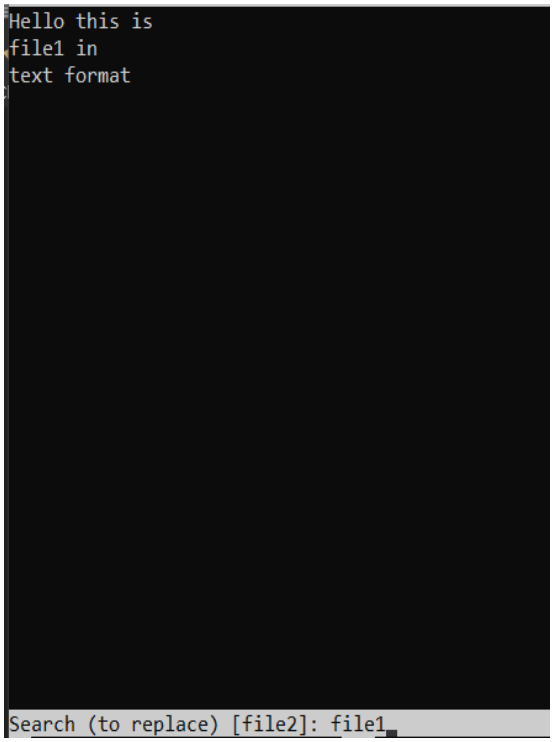
a. Open the "file1.txt" file in a text editor and add some text to it.

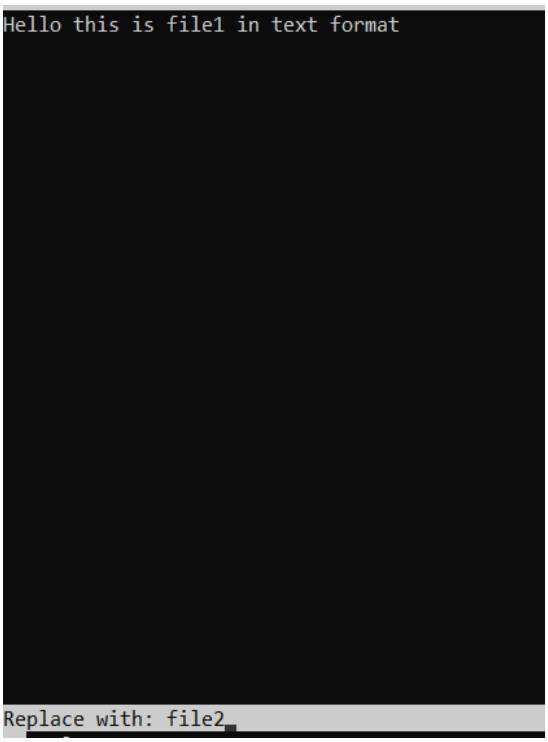
b. Replace a specific word in the "file1.txt" file with another word (provide the original word and the word to replace it with).

→open file in text editor = ‘nano filename’

```
prithviraj@Windows-rise:~/LinuxAssignment$ nano file1.txt
prithviraj@Windows-rise:~/LinuxAssignment$ cat file1.txt
Hello this is
file1 in
text format
prithviraj@Windows-rise:~/LinuxAssignment$
```

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)

```
prithviraj@Windows-rise:~/LinuxAssignment$ nano data.txt
prithviraj@Windows-rise:~/LinuxAssignment$ ls
data.txt  docs  file1.txt  new_directory
prithviraj@Windows-rise:~/LinuxAssignment$ cat data.txt
line1
line2
line3
line4
line5
line6
line7
line8
line9
line10
line11
line12
prithviraj@Windows-rise:~/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’

```
prithviraj@Windows-rise:~/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’

```
prithviraj@Windows-rise:~/LinuxAssignment$ nano numbers.txt
prithviraj@Windows-rise:~/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’

```
prithviraj@Windows-rise:~/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:]’’

```
prithviraj@Windows-rise:~/LinuxAssignment$ cat > input.txt
This is input Text File
^C
prithviraj@Windows-rise:~/LinuxAssignment$ cat input.txt
This is input Text File
prithviraj@Windows-rise:~/LinuxAssignment$ input.txt
input.txt: command not found
prithviraj@Windows-rise:~/LinuxAssignment$ cat input.txt | tr '[:lower:]' [':upper:'] > output.txt
prithviraj@Windows-rise:~/LinuxAssignment$ ls
data.txt  docs  file1.txt  input.txt  new_directory  numbers.txt  output.txt
prithviraj@Windows-rise:~/LinuxAssignment$ cat output.txt
THIS IS INPUT TEXT FILE
```

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’

```
prithviraj@Windows-rise:~/LinuxAssignment$ cat duplicate.txt
This is a duplicate file.
this can be unique file.
but.
This is a duplicate file.
created for the.
assignment purpose.
prithviraj@Windows-rise:~/LinuxAssignment$ sort duplicate.txt | uniq -cu
      1 assignment 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’