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.

```
shraddha@DESKTOP-77VTGMJ:~$ cd ..
shraddha@DESKTOP-77VTGMJ:/home$ pwd
/home
shraddha@DESKTOP-77VTGMJ:/home$ cd ~
shraddha@DESKTOP-77VTGMJ:~$ pwd
/home/shraddha
shraddha@DESKTOP-77VTGMJ:~$ mkdir LinuxAssignment
shraddha@DESKTOP-77VTGMJ:~$ ls
LinuxAssignment
```

b) File Management: a. Inside the "LinuxAssignment" directory, create a new file named "file1.txt". Display its contents.

```
shraddha@DESKTOP-77VTGMJ:~$ cd LinuxAssignment
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$ touch file1.txt
```

```
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$ nano file1.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$ nano file1.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$ nano file1.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$ nano file1.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$ cat file1.txt
Hello
Good morning
Welcome
Cdac
```

c) Directory Management: a. Create a new directory named "docs" inside the "LinuxAssignment" directory.

```
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$ mkdir docs
shraddha@DESKTOP-77VTGMJ:~/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".

```
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$ cp file1.txt docs/
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$ cd docs
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ ls
file1.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ mv file1.txt file2.txt
shraddha@DESKTOP-77VTGMJ:~/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.

```
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ chmod u+rwx file2.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ chmod g-rwx file2.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ ls
file2.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ chmod o-rwx file2.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ ls-l
ls-l: command not found
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ ls-l
ls-l: command not found
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ ls -l
total 0
-rwx------ 1 shraddha shraddha 48 Aug 28 21:13 file2.txt
shraddha@DESKTOP-77VTGMJ:~/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.

```
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$ ls -l
total 0
drwxr-xr-x 1 shraddha shraddha 4096 Aug 28 21:16 docs
-rw-r--r-- 1 shraddha shraddha   48 Aug 28 20:21 file1.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$ ls /
bin   dev  home  lib    lib64   media  opt   root  sbin  srv  tmp  var
boot  etc  init  lib32  libx32  mnt    proc  run   snap  sys  usr
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$
```

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).

```
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$ find . -type f -name "*.txt"
./docs/file2.txt
./file1.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$ grep "Good morning" file1.txt
Good morning
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$ grep "Have a good day" file2.txt
grep: file2.txt: No such file or directory
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$ grep "Have a good day" file1.txt
Have a good day
```

h) System Information: a. Display the current system date and time.

```
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$ date
Thu Aug 29 11:06:19 IST 2024
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$
```

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).

```
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ hostname -I
192.168.1.5 2404:ba00:1:dddc:bc43:3c00:ec15:9d6c 2404:ba00:1:dddc:2:2:2:2 2404:ba00:1:dddc:a8d7:546e:98c2:def1
```

```
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ ping google.com
PING google.com(bom12s19-in-x0e.1e100.net (2404:6800:4009:82f::200e)) 56 data bytes
64 bytes from bom12s19-in-x0e.1e100.net (2404:6800:4009:82f::200e): icmp_seq=1 ttl=120 time=30.7 ms
64 bytes from bom12s19-in-x0e.1e100.net (2404:6800:4009:82f::200e): icmp_seq=2 ttl=120 time=32.0 ms
64 bytes from bom12s19-in-x0e.1e100.net (2404:6800:4009:82f::200e): icmp_seq=3 ttl=120 time=31.4 ms
64 bytes from bom12s19-in-x0e.1e100.net (2404:6800:4009:82f::200e): icmp_seq=4 ttl=120 time=16.2 ms
64 bytes from bom12s19-in-x0e.1e100.net (2404:6800:4009:82f::200e): icmp_seq=5 ttl=120 time=12.6 ms
64 bytes from bom12s19-in-x0e.1e100.net (2404:6800:4009:82f::200e): icmp_seq=6 ttl=120 time=13.1 ms
^C
--- google.com ping statistics ---
6 packets transmitted, 6 received, 0% packet loss, time 5007ms
rtt min/avg/max/mdev = 12.587/22.655/32.043/8.801 ms
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$
```

j) File Compression: a. Compress the "docs" directory into a zip file. b. Extract the contents of the zip file into a new directory.

```
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ zip -r docs.zip file2.txt
  adding: file2.txt (stored 0%)
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ ls
docs.zip  file2.txt  file3.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ unzip docs.zip -d docs
Archive:  docs.zip
 extracting: docs/file2.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$
```

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).

```
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$ nano file1.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$ nano file1.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$ nano file1.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$ sed -i 's/Hello/hi/g' file1.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$ nano file1.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment$
```

Without replacement

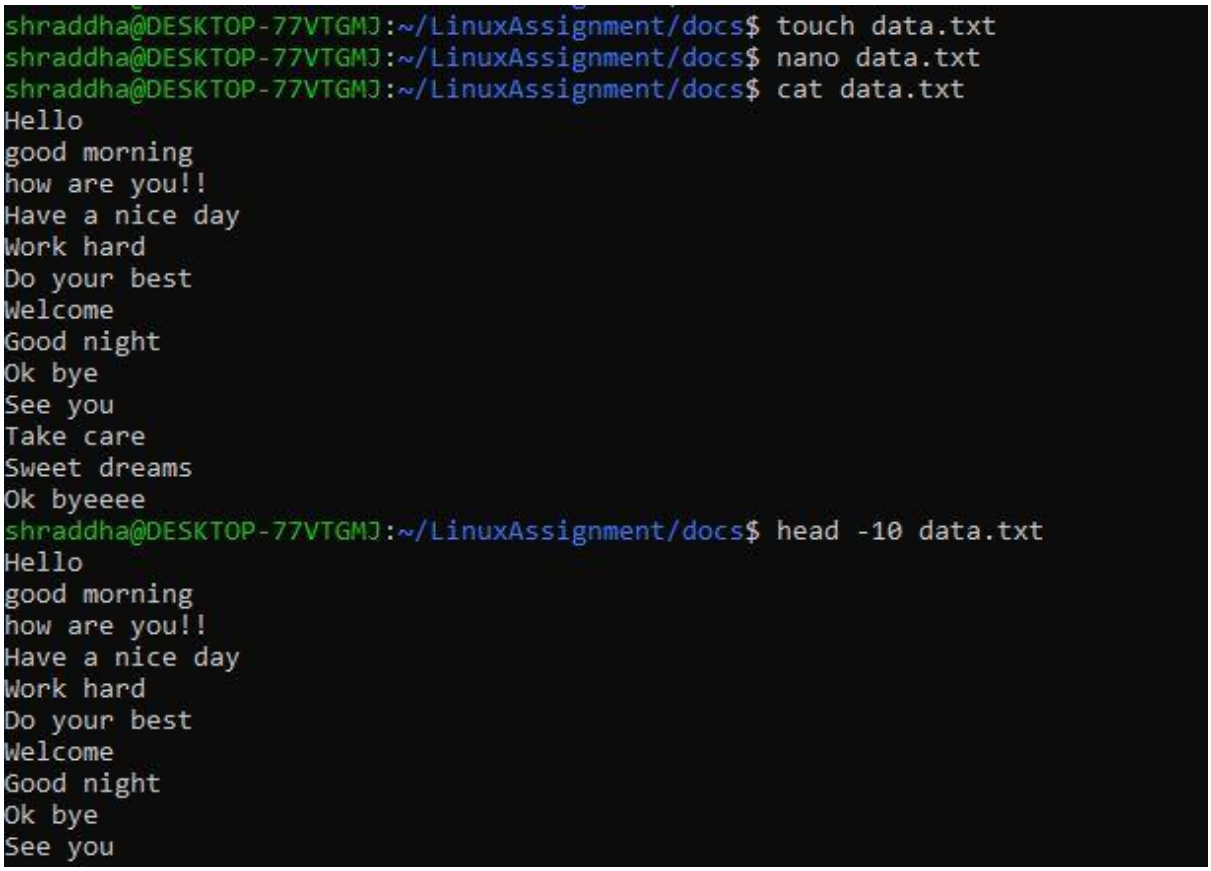
```
Hello
Good morning
Welcome
Cdac
Have a good day
Work hard
```

With replacement

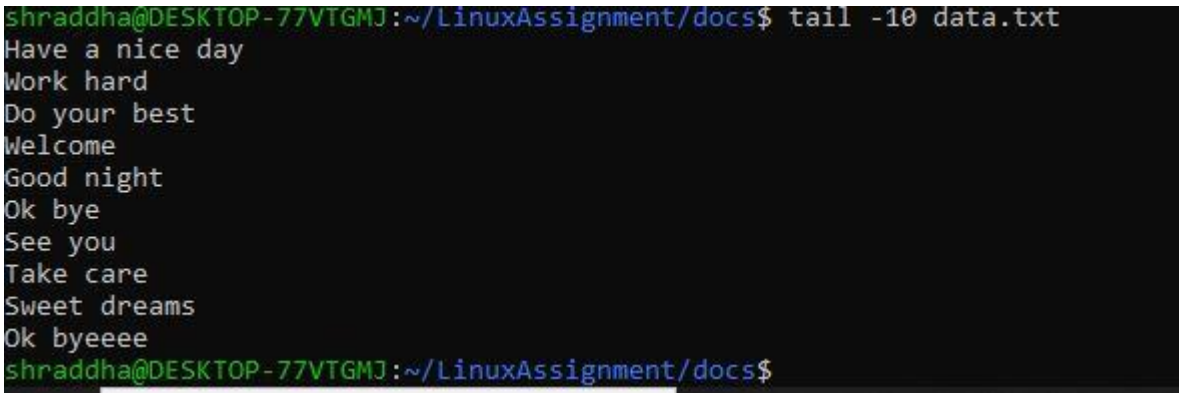
```
hi
Good morning
Welcome
Cdac
Have a good day
Work hard
```

Problem 2: Read the instructions carefully and answer accordingly. If there is any need to insert some data then do that as well.

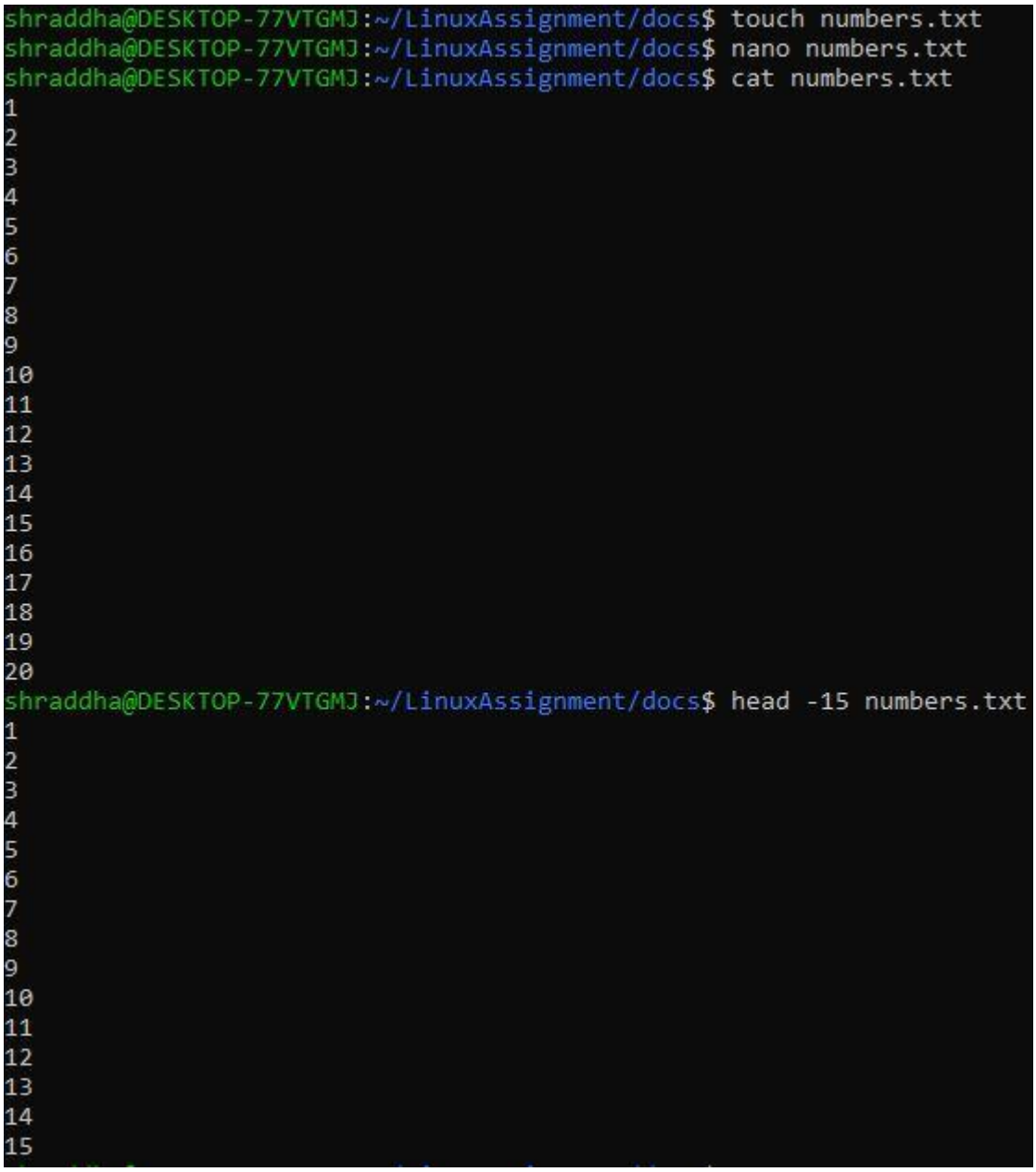
a. Suppose you have a file named "data.txt" containing important information. Display the first 10 lines of this file to quickly glance at its contents using a command.



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



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.



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

```
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ 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."

```
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ touch input.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ nano input.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ touch output.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ cat input.txt
a
b
c
d
A
B
C
D
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ tr 'a-z' 'A-Z' < input.txt > output.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ cat output.txt
A
B
C
D
A
B
C
D
```

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."

Input:

```
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ touch duplicate.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ nano duplicate.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ cat duplicate.txt
Hello
Hiii
Hiii
Good morning
```

Output:

```
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ sort duplicate.txt | uniq
Good morning
Hello
Hiii
```

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."

```
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ touch fruit.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ nano fruit.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ cat fruit.txt
Apple
Banana
Mango
Oranage
Apple
Grapes
Mango
Strawberries
Apple
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ cat fruit.txt | sort | uniq; wc -l fruit.txt
Apple
Banana
Grapes
Mango
Oranage
Strawberries
9 fruit.txt
shraddha@DESKTOP-77VTGMJ:~/LinuxAssignment/docs$ sort fruit.txt | uniq -c
      3 Apple
      1 Banana
      1 Grapes
      2 Mango
      1 Oranage
      1 Strawberries
```