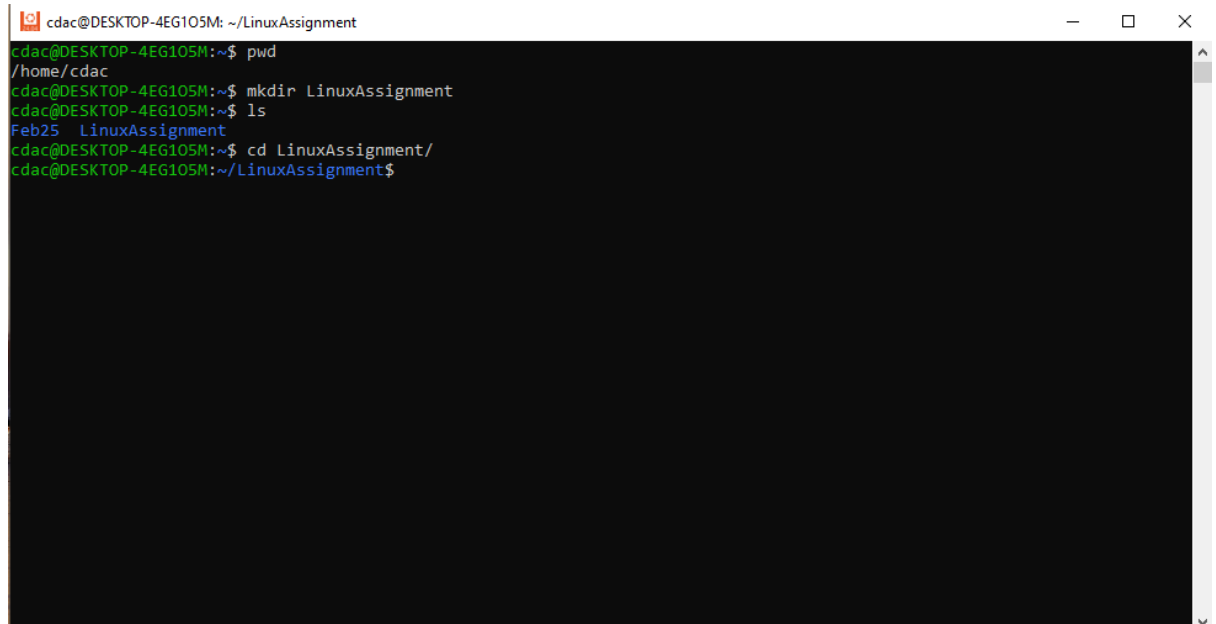


**Name: PIYUSH PATIL**

## ***Assignment 1 –COS***

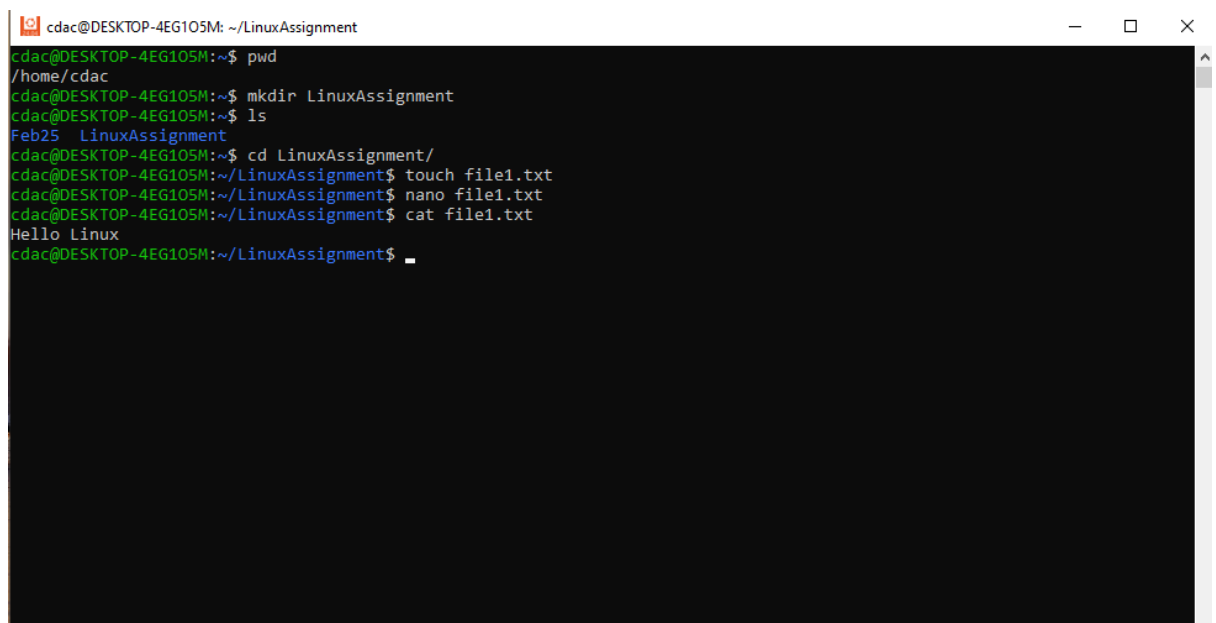
### **PROBLEM 1:**

- 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.



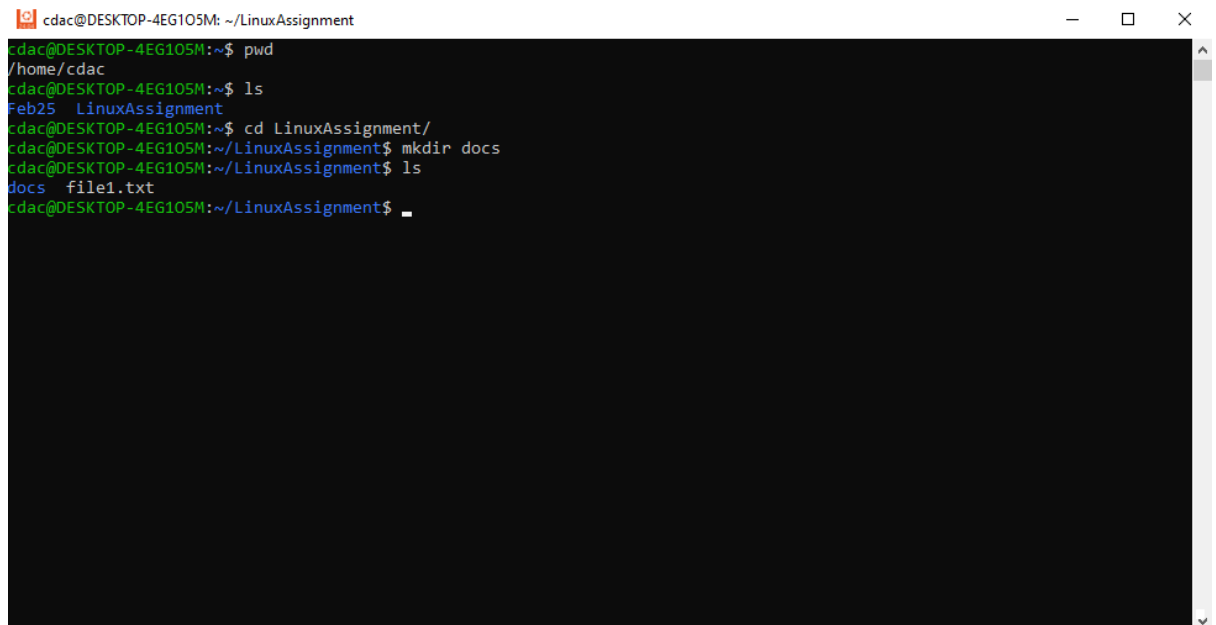
```
cdac@DESKTOP-4EG1O5M: ~/LinuxAssignment
cdac@DESKTOP-4EG1O5M:~$ pwd
/home/cdac
cdac@DESKTOP-4EG1O5M:~$ mkdir LinuxAssignment
cdac@DESKTOP-4EG1O5M:~$ ls
Feb25  LinuxAssignment
cdac@DESKTOP-4EG1O5M:~$ cd LinuxAssignment/
cdac@DESKTOP-4EG1O5M:~/LinuxAssignment$
```

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



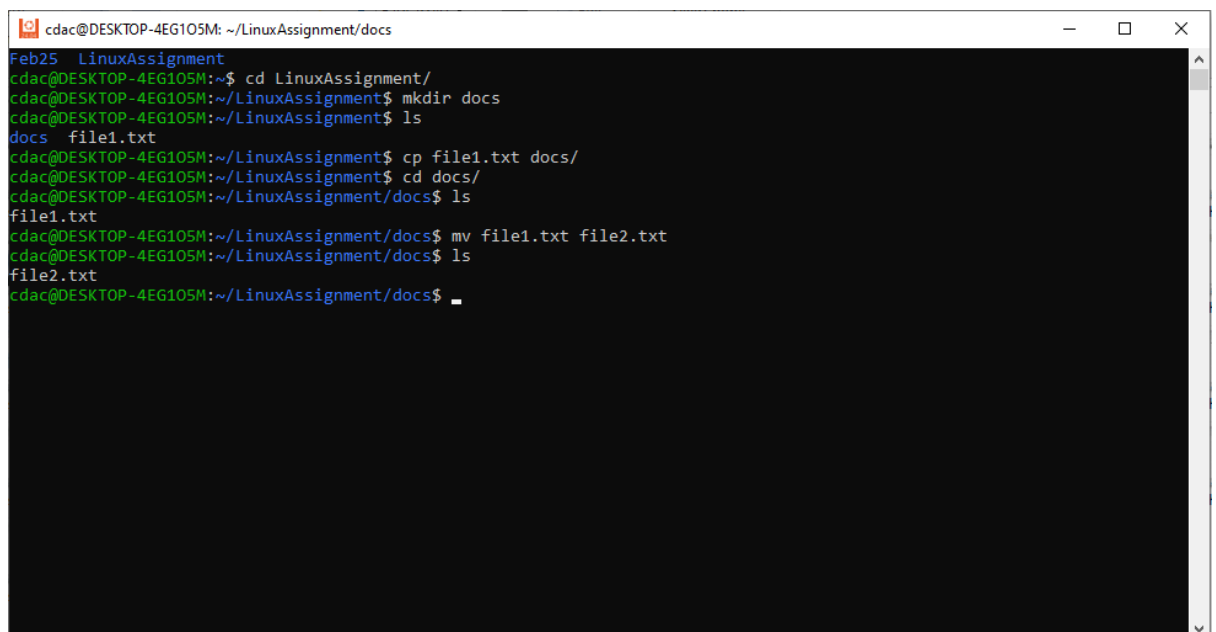
```
cdac@DESKTOP-4EG1O5M: ~/LinuxAssignment
cdac@DESKTOP-4EG1O5M:~$ pwd
/home/cdac
cdac@DESKTOP-4EG1O5M:~$ mkdir LinuxAssignment
cdac@DESKTOP-4EG1O5M:~$ ls
Feb25  LinuxAssignment
cdac@DESKTOP-4EG1O5M:~$ cd LinuxAssignment/
cdac@DESKTOP-4EG1O5M:~/LinuxAssignment$ touch file1.txt
cdac@DESKTOP-4EG1O5M:~/LinuxAssignment$ nano file1.txt
cdac@DESKTOP-4EG1O5M:~/LinuxAssignment$ cat file1.txt
Hello Linux
cdac@DESKTOP-4EG1O5M:~/LinuxAssignment$
```

- c) Create a new directory named "docs" inside the "LinuxAssignment" directory.



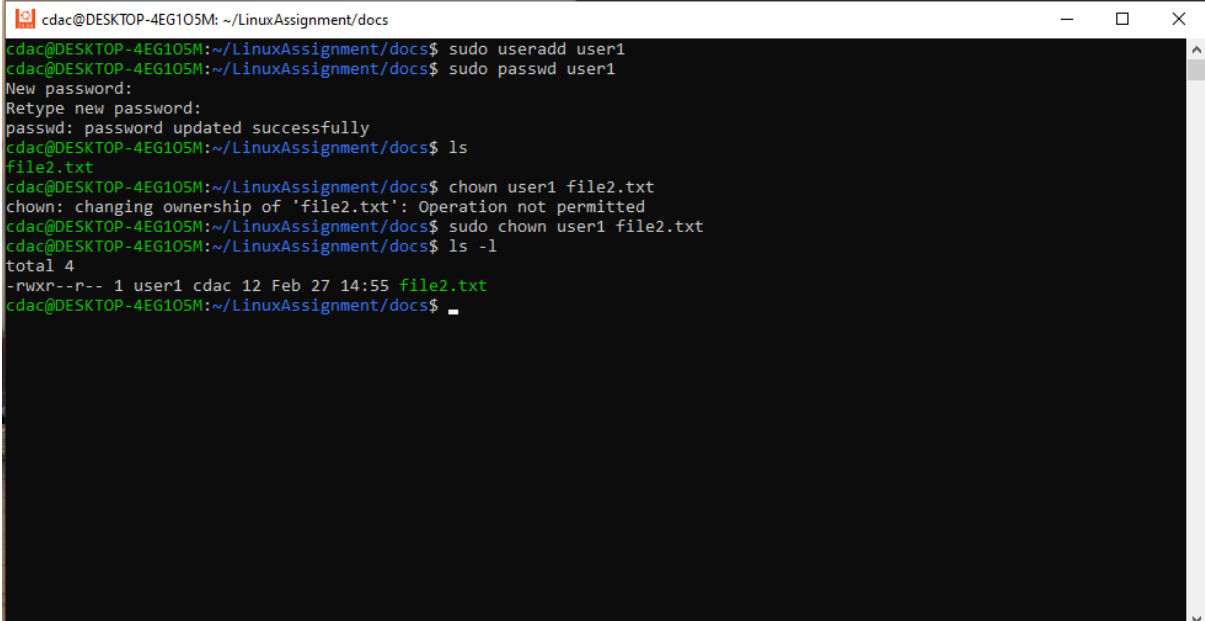
```
cdac@DESKTOP-4EG105M: ~/LinuxAssignment
cdac@DESKTOP-4EG105M:~$ pwd
/home/cdac
cdac@DESKTOP-4EG105M:~$ ls
Feb25  LinuxAssignment
cdac@DESKTOP-4EG105M:~$ cd LinuxAssignment/
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ mkdir docs
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ ls
docs  file1.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment$
```

- d) Copy the "file1.txt" file into the "docs" directory and rename it to "file2.txt".



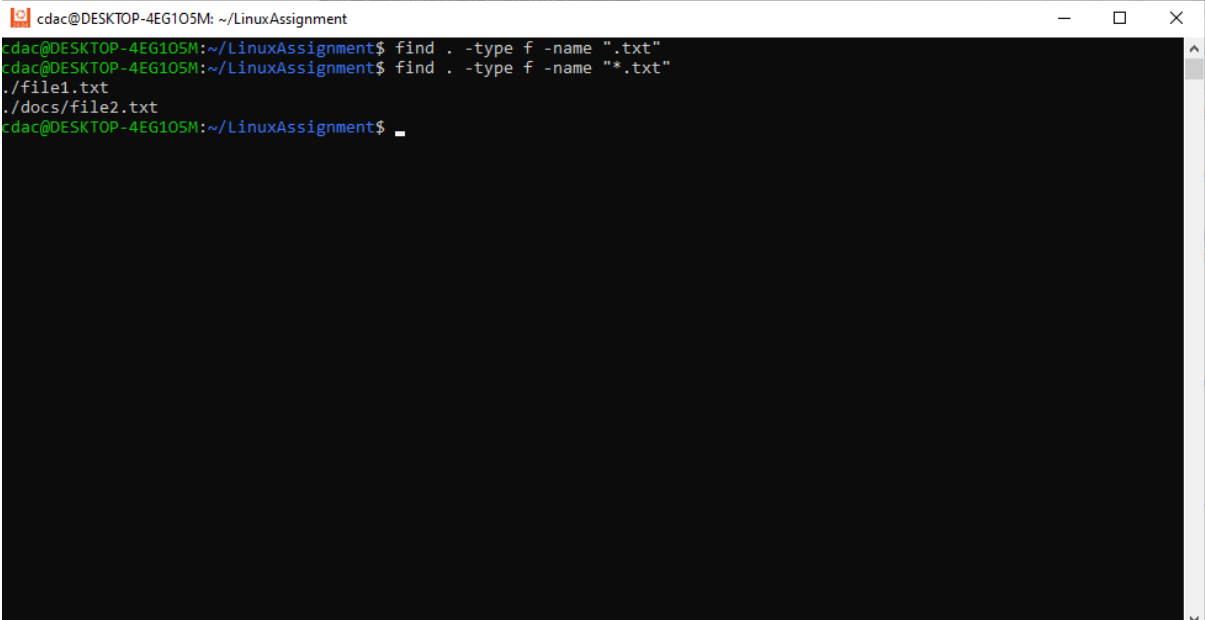
```
cdac@DESKTOP-4EG105M: ~/LinuxAssignment/docs
Feb25  LinuxAssignment
cdac@DESKTOP-4EG105M:~$ cd LinuxAssignment/
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ mkdir docs
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ ls
docs  file1.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ cp file1.txt docs/
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ cd docs/
cdac@DESKTOP-4EG105M:~/LinuxAssignment/docs$ ls
file1.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment/docs$ mv file1.txt file2.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment/docs$ ls
file2.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment/docs$
```

- e) 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.



```
cdac@DESKTOP-4EG105M: ~/LinuxAssignment/docs
cdac@DESKTOP-4EG105M:~/LinuxAssignment/docs$ sudo useradd user1
cdac@DESKTOP-4EG105M:~/LinuxAssignment/docs$ sudo passwd user1
New password:
Retype new password:
passwd: password updated successfully
cdac@DESKTOP-4EG105M:~/LinuxAssignment/docs$ ls
file2.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment/docs$ chown user1 file2.txt
chown: changing ownership of 'file2.txt': Operation not permitted
cdac@DESKTOP-4EG105M:~/LinuxAssignment/docs$ sudo chown user1 file2.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment/docs$ ls -l
total 4
-rwxr--r-- 1 user1 cdac 12 Feb 27 14:55 file2.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment/docs$
```

- f) Finally, list the contents of the "LinuxAssignment" directory and the root directory to ensure that all operations were performed correctly.  
Sir, Ubuntu is not giving permission to shift between user.
- g) Search for all files with the extension ".txt" in the current directory and its subdirectories. Display lines containing a specific word in a file (provide a file name and the specific word to search).

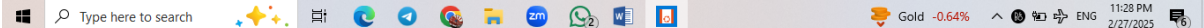


```
cdac@DESKTOP-4EG105M: ~/LinuxAssignment
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ find . -type f -name ".txt"
./file1.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ find . -type f -name "*.txt"
./docs/file2.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment$
```

```
cdac@DESKTOP-4EG105M: ~/LinuxAssignment
cdac@DESKTOP-4EG105M:~$ ls
Feb25  LinuxAssignment
cdac@DESKTOP-4EG105M:~$ cd LinuxAssignment/
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ ls
docs  file1.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ grep -i "welcome" file1.txt
Hello, welcome to Linux
welcome to cdac
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ grep -n "welcome" file1.txt
1:Hello, welcome to Linux
2:welcome to cdac
cdac@DESKTOP-4EG105M:~/LinuxAssignment$
```

h) Display the current system date and time.

```
cdac@DESKTOP-4EG105M: ~/LinuxAssignment
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ date
Thu Feb 27 17:58:02 UTC 2025
cdac@DESKTOP-4EG105M:~/LinuxAssignment$
```

The image shows a Windows taskbar at the bottom of the screen. It includes the Start button, a search bar with the text "Type here to search", and several pinned application icons: File Explorer, Microsoft Edge, Telegram, Google Chrome, File Zilla, Zoom, WhatsApp, Microsoft Word, and Microsoft Excel. On the right side of the taskbar, there is a system tray showing the Gold price at -0.64%, network and volume icons, and the system clock displaying "11:28 PM 2/27/2025".

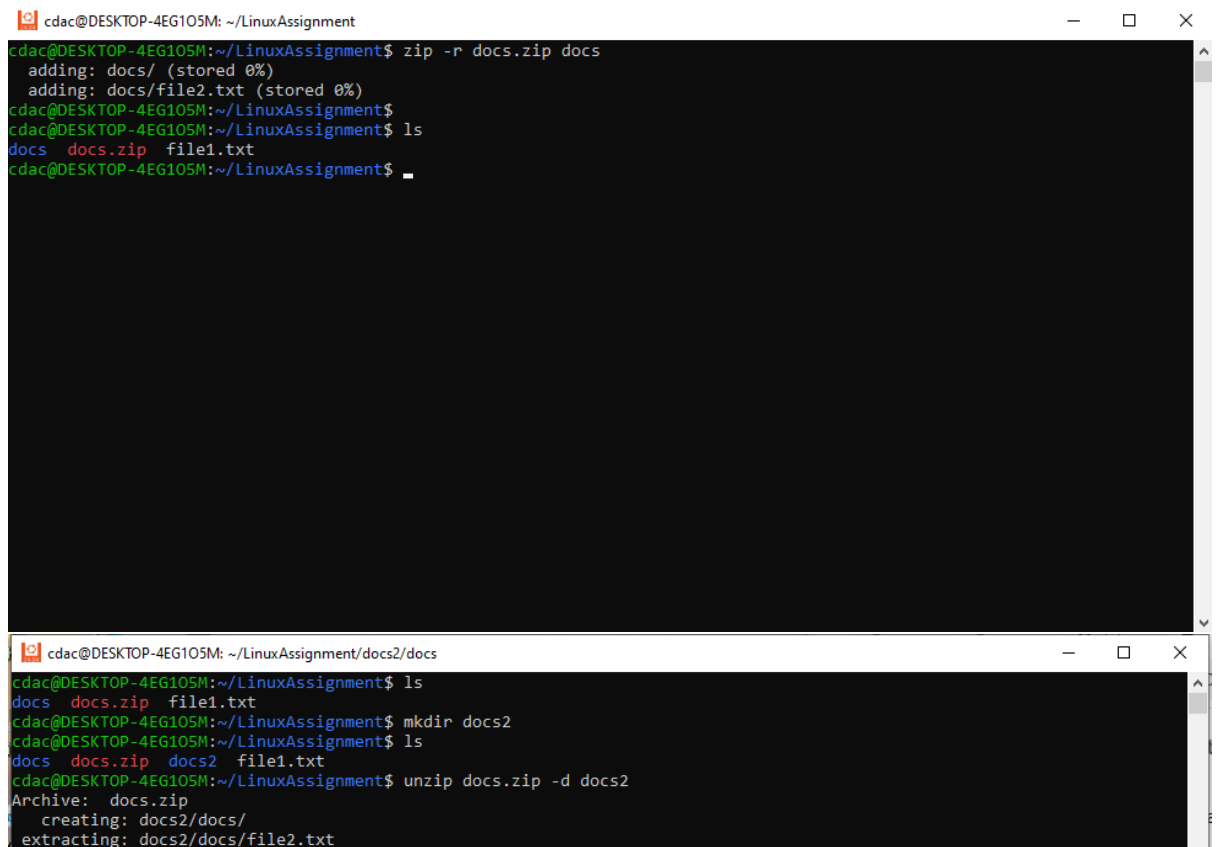
- i) Display the IP address of the system.  
Ping a remote server to check connectivity (provide a remote server address to ping).

```
cdac@DESKTOP-4EG1O5M: ~/LinuxAssignment
cdac@DESKTOP-4EG1O5M:~/LinuxAssignment$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1400 qdisc mq state UP group default qlen 1000
    link/ether 00:15:5d:5f:84:3d brd ff:ff:ff:ff:ff:ff
    inet 172.22.4.33/20 brd 172.22.15.255 scope global eth0
        valid_lft forever preferred_lft forever
    inet6 fe80::215:5dff:fe5f:843d/64 scope link
        valid_lft forever preferred_lft forever
cdac@DESKTOP-4EG1O5M:~/LinuxAssignment$ curl ifconfig.me
cdac@DESKTOP-4EG1O5M:~/LinuxAssignment$

cdac@DESKTOP-4EG1O5M:~/LinuxAssignment
cdac@DESKTOP-4EG1O5M:~/LinuxAssignment$ ping -c 4 google.com
PING google.com (142.250.206.174) 56(84) bytes of data:
64 bytes from del11s22-in-f14.1e100.net (142.250.206.174): icmp_seq=1 ttl=53 time=81.5 ms
64 bytes from del11s22-in-f14.1e100.net (142.250.206.174): icmp_seq=2 ttl=53 time=85.5 ms
64 bytes from del11s22-in-f14.1e100.net (142.250.206.174): icmp_seq=3 ttl=53 time=88.8 ms
64 bytes from del11s22-in-f14.1e100.net (142.250.206.174): icmp_seq=4 ttl=53 time=84.8 ms

--- google.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 2998ms
rtt min/avg/max/mdev = 81.522/85.155/88.800/2.584 ms
cdac@DESKTOP-4EG1O5M:~/LinuxAssignment$ _
```

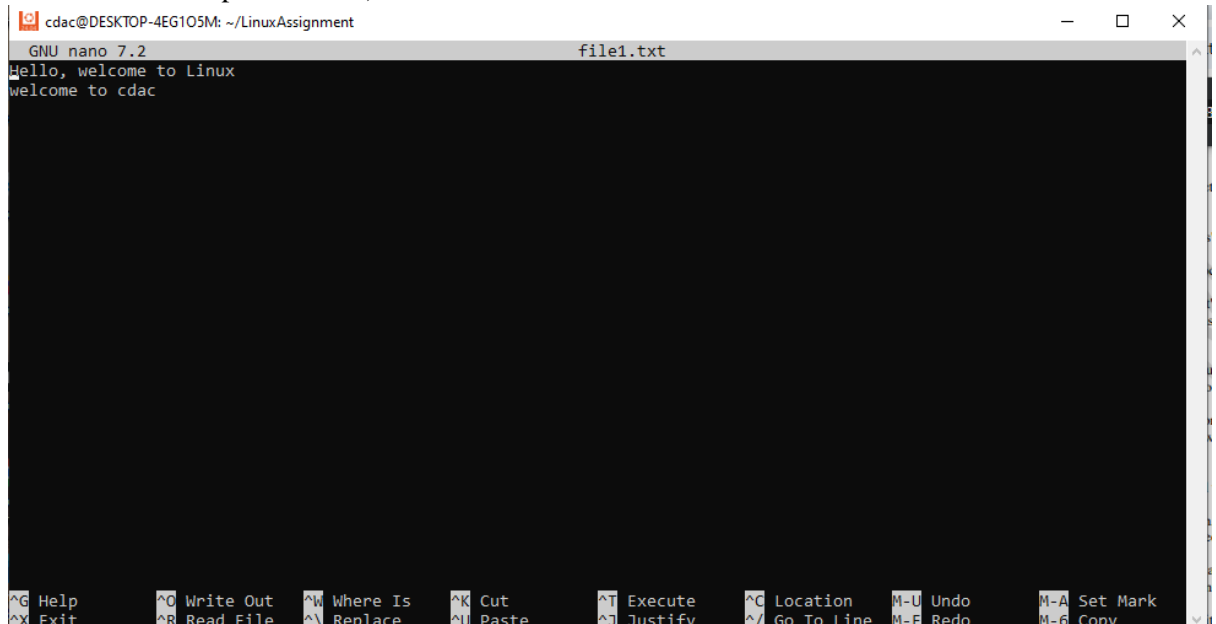
- j) Compress the "docs" directory into a zip file.  
Extract the contents of the zip file into a new directory.



```
cdac@DESKTOP-4EG105M: ~/LinuxAssignment
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ zip -r docs.zip docs
  adding: docs/ (stored 0%)
  adding: docs/file2.txt (stored 0%)
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ ls
docs  docs.zip  file1.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment$

cdac@DESKTOP-4EG105M: ~/LinuxAssignment/docs2/docs
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ ls
docs  docs.zip  file1.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ mkdir docs2
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ ls
docs  docs.zip  docs2  file1.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ unzip docs.zip -d docs2
Archive: docs.zip
  creating: docs2/docs/
  extracting: docs2/docs/file2.txt
```

- k) Open the "file1.txt" file in a text editor and add some text to it.  
Replace a specific word in the "file1.txt" file with another word (provide the original word and the word to replace it with).



```
cdac@DESKTOP-4EG105M: ~/LinuxAssignment
GNU nano 7.2 file1.txt
Hello, welcome to Linux
welcome to cdac
```

Help Write Out Where Is Cut Execute Location M-U Undo M-A Set Mark  
Exit Read File Replace Paste Justify Go To Line M-E Redo M-6 Copy

```
cdac@DESKTOP-4EG105M: ~/LinuxAssignment
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ cat file1.txt
Hello, welcome to Linux
welcome to cdac

cdac@DESKTOP-4EG105M:~/LinuxAssignment$ sed -i 's/welcome/most_welcome/g' file1.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ cat file1.txt
Hello, most_welcome to Linux
most_welcome to cdac

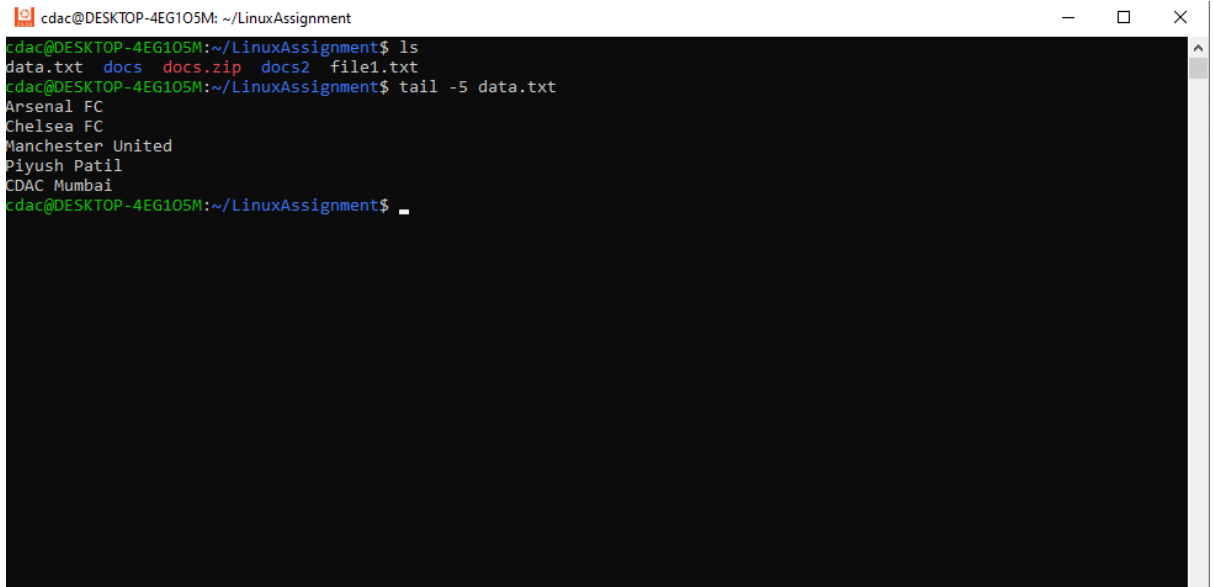
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ _
```

**PROBLEM 2:**

- 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.

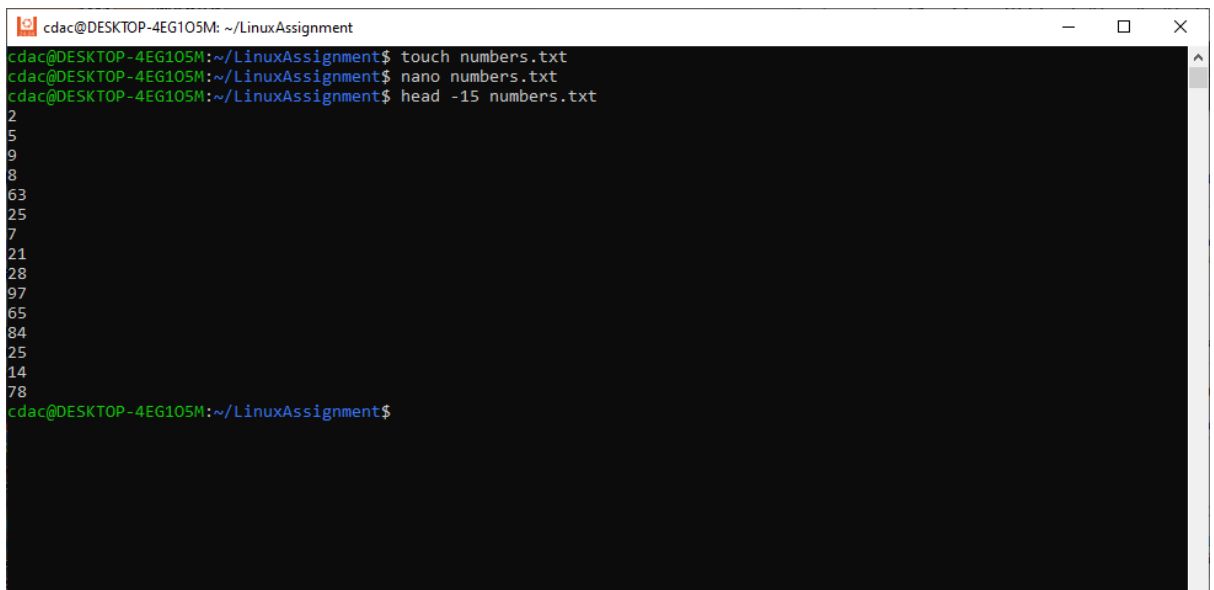
```
cdac@DESKTOP-4EG105M: ~/LinuxAssignment
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ ls
data.txt docs docs.zip docs2 file1.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ nano data.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ head -10 data.txt
Most followed Sports Teams
Mumbai Indians
Chennai Super Kings
Liverpool FC
Manchester city
Royal Challengers Begaluru
Real Madrid FC
Barcelona FC
Arsenal FC
Chelsea FC
cdac@DESKTOP-4EG105M:~/LinuxAssignment$
```

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



```
cdac@DESKTOP-4EG105M: ~/LinuxAssignment
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ ls
data.txt docs docs.zip docs2 file1.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ tail -5 data.txt
Arsenal FC
Chelsea FC
Manchester United
Piyush Patil
CDAC Mumbai
cdac@DESKTOP-4EG105M:~/LinuxAssignment$
```

- 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.



```
cdac@DESKTOP-4EG105M: ~/LinuxAssignment
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ touch numbers.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ nano numbers.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ head -15 numbers.txt
2
5
5
9
8
63
25
7
21
28
97
65
84
25
14
78
cdac@DESKTOP-4EG105M:~/LinuxAssignment$
```



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

```
cdac@DESKTOP-4EG105M: ~/LinuxAssignment
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ tail -3 numbers.txt
36
58
18
cdac@DESKTOP-4EG105M:~/LinuxAssignment$
```

- 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."

```
cdac@DESKTOP-4EG105M: ~/LinuxAssignment
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ touch input.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ ls
data.txt docs docs.zip docs2 file1.txt input.txt numbers.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ nano input.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ cat input.txt
i am piyush
i am pursuing pg-dac in cdac mumbai
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ tr 'a-z' 'A-Z' < input.txt > output.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ cat output.txt
I AM PIYUSH
I AM PURSUING PG-DAC IN CDAC MUMBAI
cdac@DESKTOP-4EG105M:~/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."

```
cdac@DESKTOP-4EG105M: ~/LinuxAssignment
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ nano duplicate.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ cat duplicate.txt
mumbai
delhi
nashik
pune
bangaluru
hydrabad
nashik
pune
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ cat duplicate.txt | sort | uniq
bangaluru
delhi
hydrabad
mumbai
nashik
pune
cdac@DESKTOP-4EG105M:~/LinuxAssignment$
```

- 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."

```
cdac@DESKTOP-4EG105M: ~/LinuxAssignment
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ touch fruit.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ nano fruit.txt
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ cat fruit.txt
mango
apple
litchi
jackfruit
apple
mango
watermelon
watermelon
apple
litchi
dragonfruit
apple
cdac@DESKTOP-4EG105M:~/LinuxAssignment$ sort fruit.txt | uniq -c
 4 apple
 1 dragonfruit
 1 jackfruit
 1 litchi
 1 litchi
 2 mango
 2 watermelon
cdac@DESKTOP-4EG105M:~/LinuxAssignment$
```