Problem 1

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.

```
cdac@DESKTOP-214LJET:~$ pwd
/home/cdac
cdac@DESKTOP-214LJET:~$ mkdir LinuxAssignment
cdac@DESKTOP-214LJET:~$
```

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

```
cdac@DESKTOP-214LJET:~$ touch file1.txt
cdac@DESKTOP-214LJET:~$ ls
COS  LinuxAssignment  coscd  coscd.txt  feb25  file1.txt  touch
cdac@DESKTOP-214LJET:~$ cd LinuxAssignment
cdac@DESKTOP-214LJET:~/LinuxAssignment$ ls
cdac@DESKTOP-214LJET:~/LinuxAssignment$ touch file1.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment$ ls
file1.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment$
```

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

```
cdac@DESKTOP-214LJET:~$ cd LinuxAssignment
cdac@DESKTOP-214LJET:~/LinuxAssignment$ ls
cdac@DESKTOP-214LJET:~/LinuxAssignment$ touch file1.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment$ ls
file1.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment$ ls
file1.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment$ mkdir docs
cdac@DESKTOP-214LJET:~/LinuxAssignment$ ls
docs  file1.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment$
```

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d) Copy and Move Files:

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

Copy file into docs:-

```
cdac@DESKTOP-214LJET:~/LinuxAssignment$ mkdir docs
cdac@DESKTOP-214LJET:~/LinuxAssignment$ ls
docs  file1.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment$ cp file1.txt docs
cdac@DESKTOP-214LJET:~/LinuxAssignment$ cd docs
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ ld
ld: no input files
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ ls
file1.txt
```

Renamed file in Docs using mv command

```
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ ls
file1.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ mv file1.txt file2.
txt
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ ls
file2.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$
```

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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.

```
cdac@DESKTOP-214LJET:~/LinuxAssignment$ sudo adduser akash
info: Adding user `akash' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group `akash' (1001) ...
info: Adding new user `akash' (1001) with group `akash (1001)' ...
info: Creating home directory `/home/akash' ...
info: Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for akash
Enter the new value, or press ENTER for the default
        Full Name []: akash dhumal
        Room Number []:
        Work Phone []:
        Home Phone []:
        Other []:
Is the information correct? [Y/n] y
info: Adding new user `akash' to supplemental / extra groups `users' ...
info: Adding user `akash' to group `users' ...
cdac@DESKTOP-214LJET:~/LinuxAssignment$ su akash
Password:
akash@DESKTOP-214LJET:/home/cdac/LinuxAssignment$ su cdac
Password:
cdac@DESKTOP-214LJET:~/LinuxAssignment$ ls -l
total 8
drwxr-xr-x 2 cdac cdac 4096 Feb 26 17:10 docs
-rw-r--r-- 1 cdac cdac  138 Feb 27 12:46 file1.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment$ chown akash
chown: missing operand after ‘akash’
Try 'chown --help' for more information.
cdac@DESKTOP-214LJET:~/LinuxAssignment$ cd docs
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ ls -l
```

```
-rw-r--r-- 1 cdac cdac 0 Feb 26 17:00 file2.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$  chmod 744 file2.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ ls -l
total 0
-rwxr--r-- 1 cdac cdac 0 Feb 26 17:00 file2.txt
cdac@DESKTOP-214LJET:~/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.

Yes, checked all command operation from display of root directory to renaming file in docs directory.

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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).

a-> Search for all files with the extension ".txt" in the current directory and its subdirectories.

```
cdac@DESKTOP-214LJET:~$ find . -name *.txt
./file1.txt
./LinuxAssignment/file1.txt
cdac@DESKTOP-214LJET:~$
```

b->Display lines containing a specific word in a file (provide a file name and the specific word to search).

```
cdac@DESKTOP-214LJET:~/LinuxAssignment$ grep 'num1' file1.txt
read num1
echo $num1 & $ num2 are the input values...
cdac@DESKTOP-214LJET:~/LinuxAssignment$
```

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

```
cdac@DESKTOP-214LJET:~/LinuxAssignment$ date '+%Y-%m-%d %H
:%M:%S'
2025-02-27 13:09:27
cdac@DESKTOP-214LJET:~/LinuxAssignment$
```

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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).

a->

```
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKN
OWN 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
    inet 10.255.255.254/32 brd 10.255.255.254 scope global 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 1500 qdisc mq sta
te UP group default qlen 1000
    link/ether 00:15:5d:a4:f7:63 brd ff:ff:ff:ff:ff:ff
    inet 172.18.7.15/20 brd 172.18.15.255 scope global eth0
       valid_lft forever preferred_lft forever
    inet6 fe80::215:5dff:fea4:f763/64 scope link
       valid_lft forever preferred_lft forever
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$
```

b->

```
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ ping netflix.com
PING netflix.com (54.246.79.9) 56(84) bytes of data.
^C
--- netflix.com ping statistics ---
27 packets transmitted, 0 received, 100% packet loss, time 27090
ms

cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ ping 54.246.79.9
PING 54.246.79.9 (54.246.79.9) 56(84) bytes of data.

^C
--- 54.246.79.9 ping statistics ---
5 packets transmitted, 0 received, 100% packet loss, time 4187ms

cdac@DESKTOP-214LJET:~/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.

```
cdac@DESKTOP-214LJET:~/LinuxAssignment$ tar -czvf docsarchive.tar
.gz docs
docs/
docs/file2.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment$ cd LinuxAssignment
bash: cd: LinuxAssignment: No such file or directory
cdac@DESKTOP-214LJET:~/LinuxAssignment$ ls
docs  docsarchive.tar.gz  file1.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment$
```

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

```
cdac@DESKTOP-214LJET:~/LinuxAssignment$ ls
docs  docsarchive.tar.gz  file1.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment$ cd docs
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ ls
file2.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ cd docsarchieve.tar.
gz
bash: cd: docsarchieve.tar.gz: No such file or directory
```

```
cdac@DESKTOP-214LJET:~/LinuxAssignment$ tar -czvf docsarchieve.tar.gz
docs
docs/
docs/docsarchieve.tar.gz
docs/file2.txt
docs/docsarc.tar
cdac@DESKTOP-214LJET:~/LinuxAssignment$ tar -xf docsarchieve.tar
tar: docsarchieve.tar: Cannot open: No such file or directory
tar: Error is not recoverable: exiting now
cdac@DESKTOP-214LJET:~/LinuxAssignment$ tar -xf docsarchieve.tar.gz
cdac@DESKTOP-214LJET:~/LinuxAssignment$ ls
docs  docsarchieve.tar.gz  docsarchive.tar.gz  file1.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment$ cd docs
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ ls
docsarc.tar  docsarchieve.tar.gz  file2.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ rm docsarc.tar
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ tar -xf docsarchieve.tar.
gz
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ la
```

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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).

```
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ nano file2.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ cat file2.txt
hi
akash
gouri
sourabh
gourav
abhi
tejas
sanket
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ cat file2.txt | sort
abhi
akash
gourav
gouri
hi
sanket
sourabh
tejas
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ nano file2.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ cat file2.txt | sort

abhi
akash
akash
gourav
gouri
gouri
hi
megha
sanket
sourabh
```

```
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ nano file2.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ cat file2.txt | sort

abhi
akash
akash
gourav
gouri
gouri
hi
megha
sanket
sourabh
tejas
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ cat file2.txt | sort | un
iq

abhi
akash
gourav
gouri
hi
megha
sanket
sourabh
tejas
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$
```

b. 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-214LJET:~/LinuxAssignment/docs$ sed -i 's/akash/pr/' file
2.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ cat file2.txt
hi
pr
gouri
sourabh
gourav
abhi
tejas
sanket
pr
megha
gouri
```

```
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ sed -i 's/gourav/bhapkar/
g' file2.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$ cat file2.txt
hi
pr
gouri
sourabh
bhapkar
abhi
tejas
sanket
pr
megha
gouri

cdac@DESKTOP-214LJET:~/LinuxAssignment/docs$
```

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-214LJET:~/LinuxAssignment/Assignment1_Sec2$ nano data.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment/Assignment1_Sec2$ head -10 data
.txt
akash
megha
gouri
sourabh
nikhil
gourav
abhi
tejas
abhi
abhi
```

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-214LJET:~/LinuxAssignment/Assignment1_Sec2$ cat data.txt
akash
megha
gouri
sourabh
nikhil
gourav
abhi
tejas
abhi
abhi
sanket
nikita
arpita
pankaja
cdac@DESKTOP-214LJET:~/LinuxAssignment/Assignment1_Sec2$ tail -5 data.
txt
abhi
sanket
nikita
arpita
pankaja
cdac@DESKTOP-214LJET:~/LinuxAssignment/Assignment1_Sec2$
```

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-214LJET:~/LinuxAssignment/Assignment1_Sec2$ head -15 numb
ers.txt
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
cdac@DESKTOP-214LJET:~/LinuxAssignment/Assignment1_Sec2$
```

---

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

```
cdac@DESKTOP-214LJET:~/LinuxAssignment/Assignment1_Sec2$ tail -3 numbe
rs.txt
18
19
20
cdac@DESKTOP-214LJET:~/LinuxAssignment/Assignment1_Sec2$
```

---

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-214LJET:~/LinuxAssignment/Assignment1_Sec2$ tr a-z A-Z < ./inpu
t.txt
HELLO EVERYONE GOOD EVENING,
THIS ASSIGNMENTS ARE FOR PRACTICE PURPOSE SO SOLVE YOUR OWN, THANKS.
cdac@DESKTOP-214LJET:~/LinuxAssignment/Assignment1_Sec2$ tr a-z A-Z < ./inpu
t.txt > output.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment/Assignment1_Sec2$ cat output.txt
HELLO EVERYONE GOOD EVENING,
THIS ASSIGNMENTS ARE FOR PRACTICE PURPOSE SO SOLVE YOUR OWN, THANKS.
cdac@DESKTOP-214LJET:~/LinuxAssignment/Assignment1_Sec2$ cat input.txt
hello everyone good evening,
this assignments are for practice purpose so solve your own, thanks.
cdac@DESKTOP-214LJET:~/LinuxAssignment/Assignment1_Sec2$
```

---

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-214LJET:~/LinuxAssignment/Assignment1_Sec2$ touch duplicate.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment/Assignment1_Sec2$ nano
cdac@DESKTOP-214LJET:~/LinuxAssignment/Assignment1_Sec2$ nano duplicate.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment/Assignment1_Sec2$ cat
^C
cdac@DESKTOP-214LJET:~/LinuxAssignment/Assignment1_Sec2$ cat duplicate.txt
akash
megha
sourabh
gourav
abhi
abhi
gourav
Akash
abhi

cdac@DESKTOP-214LJET:~/LinuxAssignment/Assignment1_Sec2$ cat duplicate.txt |
 sort | uniq

Akash
abhi
akash
gourav
megha
sourabh
cdac@DESKTOP-214LJET:~/LinuxAssignment/Assignment1_Sec2$ cat
^C
cdac@DESKTOP-214LJET:~/LinuxAssignment/Assignment1_Sec2$
```

---

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."

```
      2 watermelon
cdac@DESKTOP-214LJET:~/LinuxAssignment/Assignment1_Sec2$ nano
 fruit.txt
cdac@DESKTOP-214LJET:~/LinuxAssignment/Assignment1_Sec2$ cat
fruit.txt | sort | uniq -c
      4 apple
      2 banana
      1 blueberry
      1 grapes
      2 pomogranate
      2 raspberry
      2 watermelon
cdac@DESKTOP-214LJET:~/LinuxAssignment/Assignment1_Sec2$ cat
fruit.txt
apple
banana
raspberry
blueberry
raspberry
apple
banana
apple
apple
watermelon
watermelon
pomogranate
pomogranate
grapes
cdac@DESKTOP-214LJET:~/LinuxAssignment/Assignment1_Sec2$
```

Assignment Ends…