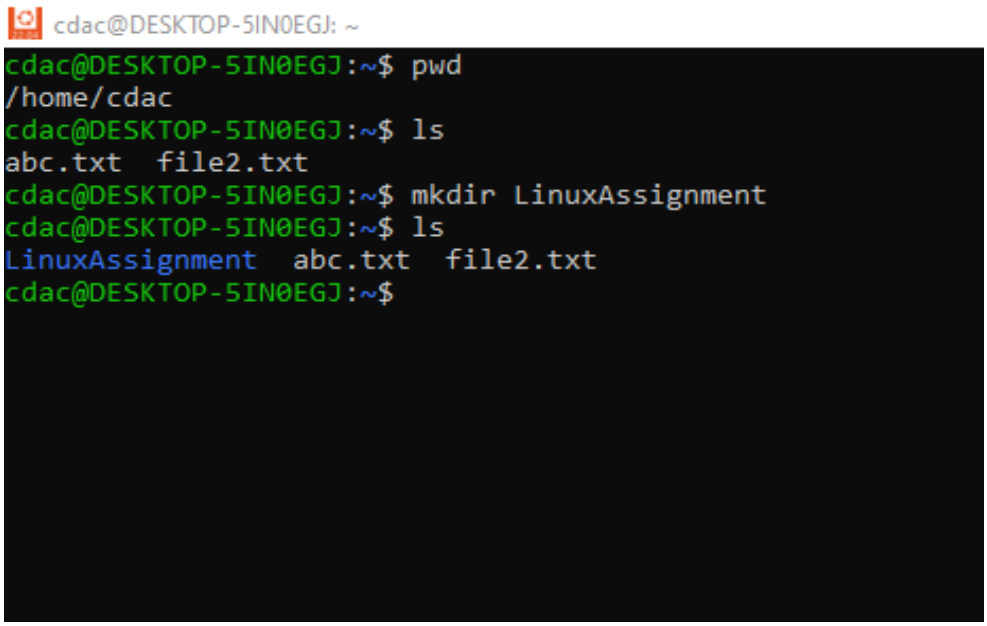
Problem 1:

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.



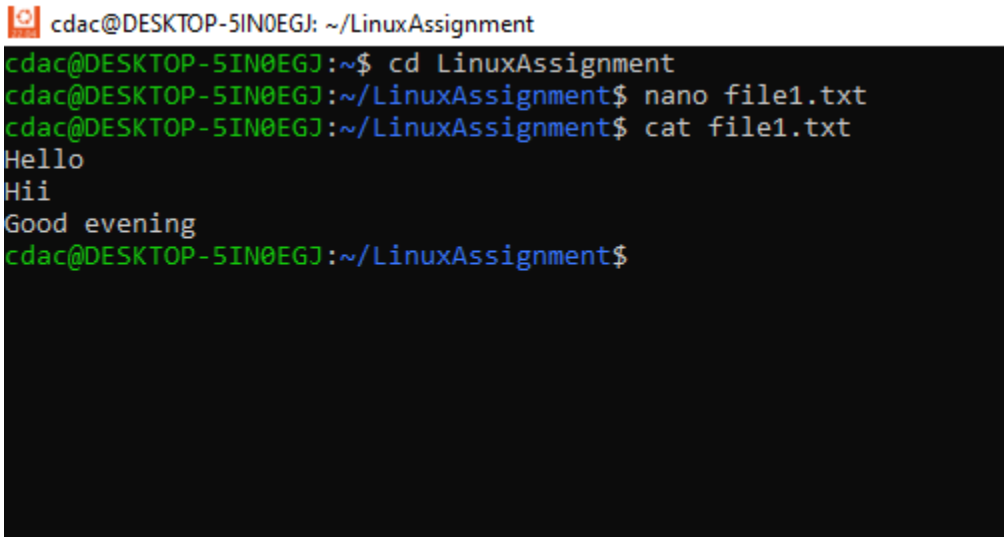
1. **PWD**-It Print the path of current working diretory.

2. ls-By using ls list all diretories and files

3. **mkdir**:It is use to create diretory.

b) File Management:

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



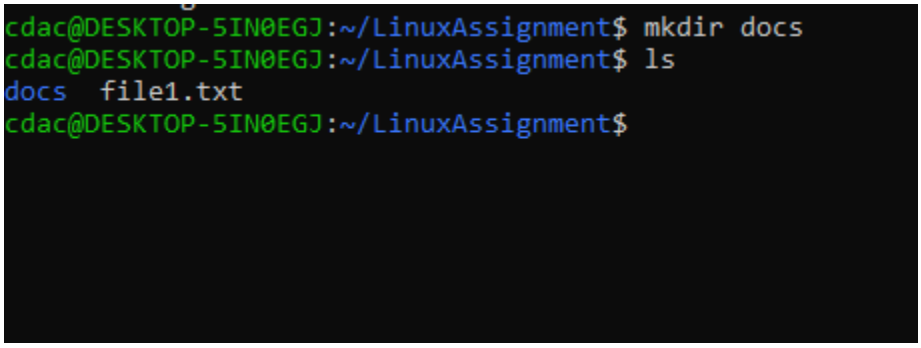
1.cd(change diretory): cd command used to move present directory to another directory.By using cd command we move to LinuxAssignment diretory

2.nano: It is text editor. By using nano create file1.txt file and write content on it.

3.cat: cat command use to display content on console.

c) Directory Management:

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



By using **cd** command move to **LinuxAssignment** directory.Use **mkdir** command to create diretory **docs**.and using **ls** command listout all diretcories and file present in **LinuxAssignment** directory.

d) Copy and Move Files:

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

```
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$ ls
docs  file1.txt
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$ cd docs
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment/docs$ ls
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment/docs$ cd -
/home/cdac/LinuxAssignment
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$ cp file1.txt docs
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$ cd docs
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment/docs$ ls
file1.txt
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment/docs$ mv file1.txt file2.txt
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment/docs$ ls
file2.txt
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment/docs$
```

1.By using **cd** command move to **docs** diretory. and by **ls** command check list of files and diectory there is not any file.

2.In **LinuxAssignment** directory By using **cp** command copy **file1.txt** in **docs** diretory.

3.Using **mv** command rename **file1.txt to 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.

```
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment/docs$ ls -l
total 0
-rw-rw-r-- 1 cdac cdac 23 Aug 28 19:33 file2.txt
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment/docs$ chmod u+x file2.txt
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment/docs$ ls -l
total 0
-rwxrw-r-- 1 cdac cdac 23 Aug 28 19:33 file2.txt
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment/docs$
```

1.**ls -l** command use to display all information about files/directory.

2.**chmod u+rwx** this command use to change permission of owner.

3.**chmod o+r** this command use to change permission of other only read.

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@DESKTOP-5IN0EGJ:~$ ls -l LinuxAssignment
total 0
drwxr-xr-x 1 cdac cdac 4096 Aug 28 19:35 docs
-rw-r--r-- 1 cdac cdac   23 Aug 28 18:52 file1.txt
cdac@DESKTOP-5IN0EGJ:~$
```

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.

```
cdac@DESKTOP-5IN0EGJ:~$ find -name '*.txt'
./abc.txt
./file2.txt
./LinuxAssignment/docs/file2.txt
./LinuxAssignment/file1.txt
cdac@DESKTOP-5IN0EGJ:~$
```

find -name '*.txt' this command used to display all files of .txt extension.

b

```
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment/docs$ ls
file2.txt
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment/docs$ cat file2.txt
Hello
Hii
Good evening
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment/docs$ grep "Hello" file2.txt
Hello
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment/docs$ grep "hueu" file2.txt
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment/docs$ grep "Good" file2.txt
Good evening
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment/docs$
```

grep command use to text searches for defined criteria of words.

h) System Information:

a. Display the current system date and time.

```
cdac@DESKTOP-5IN0EGJ:~$ date
Thu Aug 29 12:42:38 IST 2024
cdac@DESKTOP-5IN0EGJ:~$
```

date command is used to dispalay current system time and date.

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-5IN0EGJ:~$ hostname -I
172.20.32.1 192.168.31.209 2409:40c2:1220:1e7a:75ca:91e5:347e:1776
cdac@DESKTOP-5IN0EGJ:~$
```

hostname -I this command is use to display IP address of the system.

ip addr show this command dhoe ip address and more information including network interface.

b)

```
cdac@DESKTOP-5IN0EGJ:~$ ping www.google.com
PING www.google.com(bom12s18-in-x04.1e100.net (2404:6800:4009:82b::2004)) 56 da
64 bytes from bom12s18-in-x04.1e100.net (2404:6800:4009:82b::2004): icmp_seq=1
64 bytes from bom12s18-in-x04.1e100.net (2404:6800:4009:82b::2004): icmp_seq=2
64 bytes from bom12s18-in-x04.1e100.net (2404:6800:4009:82b::2004): icmp_seq=3
64 bytes from bom12s18-in-x04.1e100.net (2404:6800:4009:82b::2004): icmp_seq=4
64 bytes from bom12s18-in-x04.1e100.net (2404:6800:4009:82b::2004): icmp_seq=5
64 bytes from bom12s18-in-x04.1e100.net (2404:6800:4009:82b::2004): icmp_seq=6
64 bytes from bom12s18-in-x04.1e100.net (2404:6800:4009:82b::2004): icmp_seq=7
64 bytes from bom12s18-in-x04.1e100.net (2404:6800:4009:82b::2004): icmp_seq=8
^C
--- www.google.com ping statistics ---
9 packets transmitted, 8 received, 11.1111% packet loss, time 8010ms
rtt min/avg/max/mdev = 127.092/216.962/466.761/102.355 ms
cdac@DESKTOP-5IN0EGJ:~$
```

j) File Compression:

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

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

a)

```
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$ zip -r docs.zip docs/
  adding: docs/ (stored 0%)
  adding: docs/file2.txt (stored 0%)
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$ ls
docs  docs.zip  file1.txt
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$
```

zip-r docs.zip docs/ is used to zip docs directory

b)

```
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$ unzip docs.zip -d docs1
Archive:  docs.zip
   creating: docs1/docs/
 extracting: docs1/docs/file2.txt
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$ ls
docs  docs.zip  docs1  file1.txt  xyz.txt
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$ cd docs1
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment/docs1$ ls
docs
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment/docs1$
```

unzip docs.zip -d docs1 this command unzip docs.zip in docs1

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-5IN0EGJ:~/LinuxAssignment$ nano file1.txt
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$ cat file1.txt
Hello
Hii
Good evening
Good Morning
Hello world

cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$ sed -i 's/Morning/Night/g' file1.txt
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$ cat file1.txt
Hello
Hii
Good evening
Good Night
Hello world
```

sed is **Stream editor** it tell sed to find all ourence of **old text** and replace with **new text** in named input file.

s substitute command of **sed** for find and replae. **i** tells to update the file. **g** means at the end all ouccurrences of the word in the file are replaced.

Problems 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-5IN0EGJ:~/LinuxAssignment$ nano data.txt
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$ cat data.txt
hi
hello
hey
good morning
good evening
good night
hi friends
2
3
4
welcome

cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$ head -10 data.txt
hi
hello
hey
good morning
good evening
good night
hi friends
2
3
4
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$
```

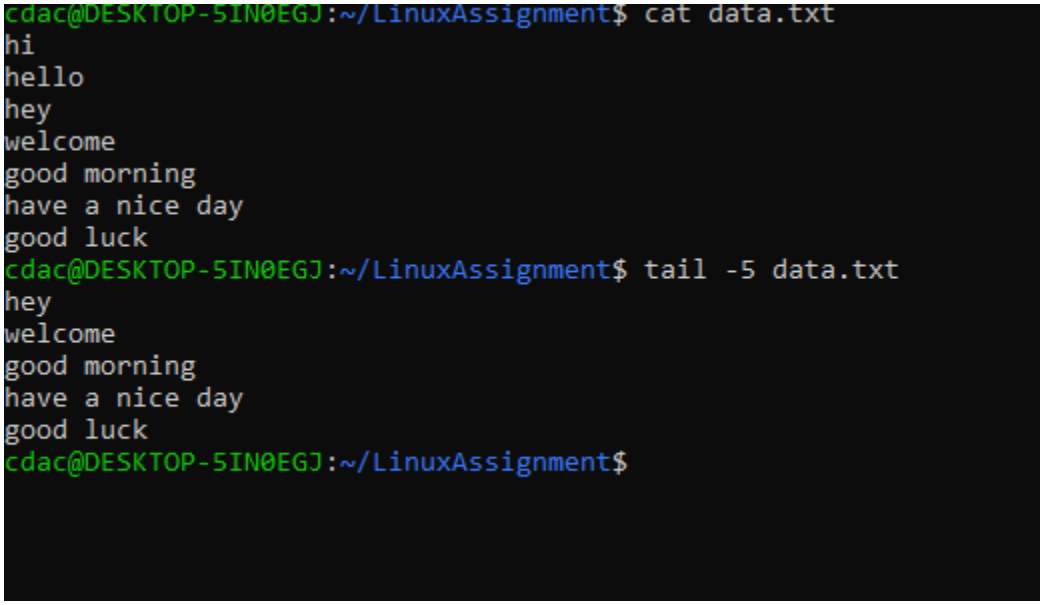
1.Using nano editor create **data.txt** file and write some information.

2. Using **cat** command display content of file on console.

3. **head** commamd is used display top n lines of the file so using **head -10 data.txt** command display first 10 lines of data.txt file.

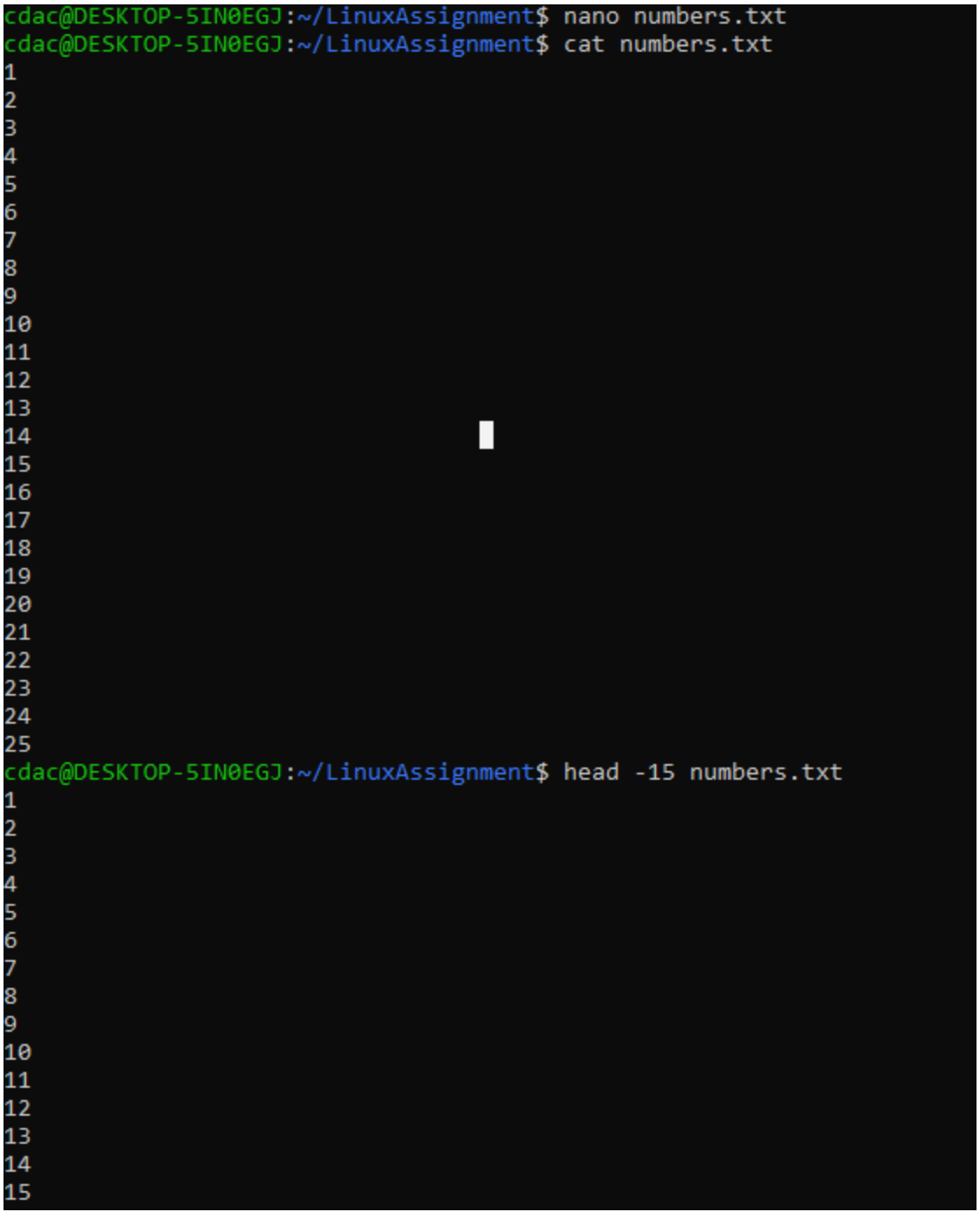
b. Now, to check the end of the file for any recent additions, display the last 5 lines of

"data.txt" using another command.



1. **tail** command is used to display bottom n lines of the file. using **tail -5 data.txt** display bottom 5 lines of data.txt file.

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.



1.First create **numbers.txt** file and write series of number.

2.Using **head -15 numbers.txt** display first 15 number.

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

```
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$ tail -3 numbers.txt
23
24
25
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$
```

Using **tail -3 numbers.txt** command display last 3 lines.

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-5IN0EGJ:~/LinuxAssignment$ tr a-z A-Z < ./input.txt >./output.txt
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$ cat output.txt
HELLO I AM TRUPTI PATIL. I AM FROM KARAD. NOW I AM PG-DAC STUDENT.
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$
```

1.**tr 'lower' 'upper'** command used to translates all lowercase to uppercase.

2**.< input.txt** means read data from input.txt file

3**.> output.txt** rediret output new file output.txt 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."

1.Create **duplicate.txt** file add content or duplicate content on that file.

2.**sort** command used to sort data.

3.**sort duplicate.txt | uniq** Using this command sort duplicate.txt file data and using uniq remove duplicate display only unique lines.

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-5IN0EGJ:~/LinuxAssignment$ nano fruit.txt
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$ cat fruit.txt
apple
banana
orange
grapes
pineapples
apple
mango
banana
strawberry
orange
apple
cherry
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$ sort fruit.txt | uniq -c
      3 apple
      2 banana
      1 cherry
      1 grapes
      1 mango
      2 orange
      1 pineapples
      1 strawberry
cdac@DESKTOP-5IN0EGJ:~/LinuxAssignment$
```

1.Create **fruit.txt** file add fruit names on it add some duplicate name of fruits.

2.**sort fruit.txt | uniq -c** using this command display name of fruits and its count.