

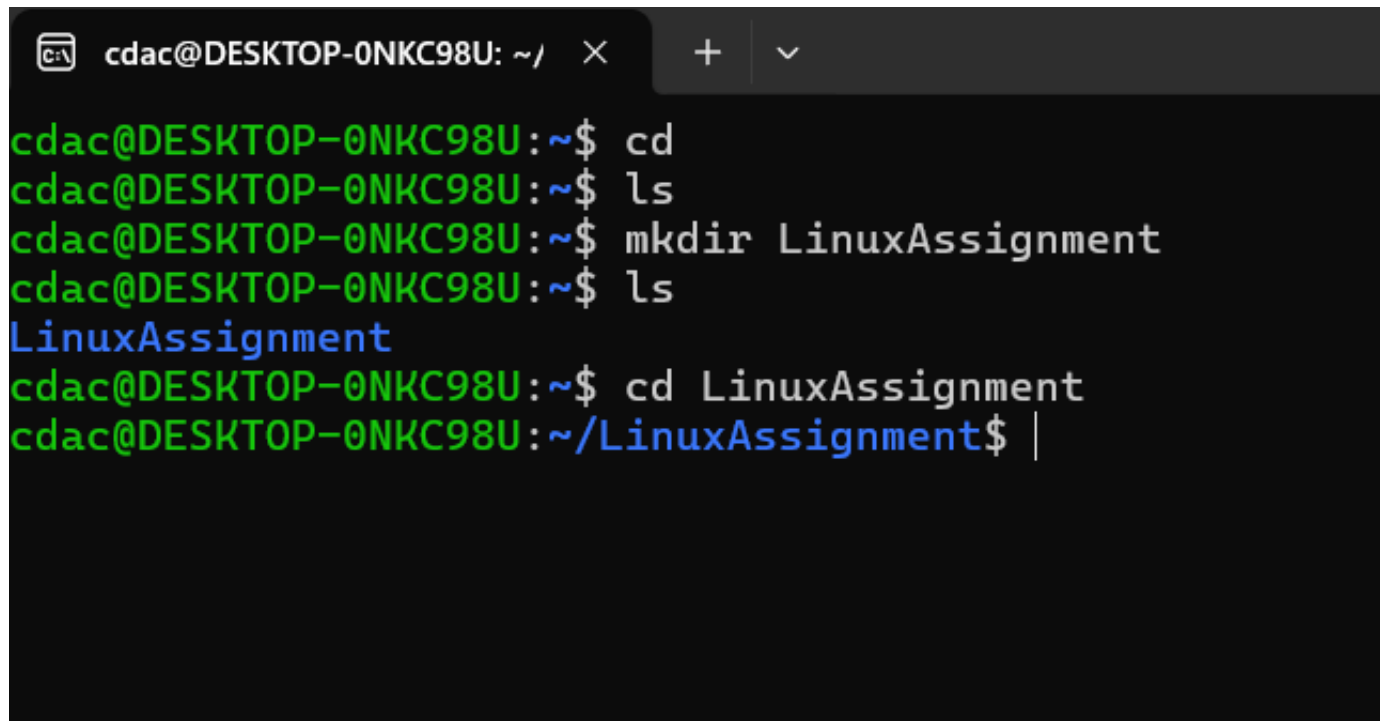
Problem 1: Read the instructions carefully and answer accordingly. If there is any need to insert some data then do that as well.

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.

Answer:-

I have used cd command to navigate it into home directory, Then i have used ls command to see which directories are present. As i don't have LinuxAssignment so i have created it using mkdir LinuxAssignment command.



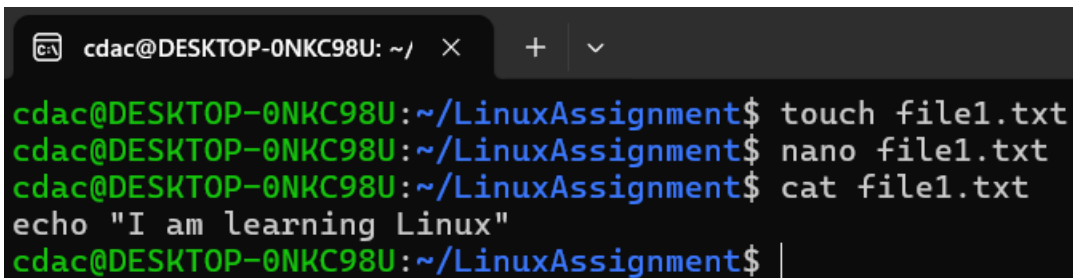
```
cdac@DESKTOP-0NKC98U: ~/ × + v
cdac@DESKTOP-0NKC98U:~$ cd
cdac@DESKTOP-0NKC98U:~$ ls
cdac@DESKTOP-0NKC98U:~$ mkdir LinuxAssignment
cdac@DESKTOP-0NKC98U:~$ ls
LinuxAssignment
cdac@DESKTOP-0NKC98U:~$ cd LinuxAssignment
cdac@DESKTOP-0NKC98U:~/LinuxAssignment$ |
```

b) File Management:

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

Answer:-

to go into LinuxAssignment i have used `cd LinuxAssignment` command, Then i have created new file `file1.txt` using `touch file1.txt` command, to display its content i have to open that file into editor mode so i have write a comman called `nano file1.txt`, then with the help of `echo` i have written "I am learning Linux" and saved it. and to display it on command line i have used command called `cat file1.txt`.

A terminal window with a dark background and light green text. The window title bar shows 'cdac@DESKTOP-0NKC98U: ~/ ' with a close button. The terminal content shows a series of commands and their outputs: 'touch file1.txt' is executed, then 'nano file1.txt' is entered, followed by 'cat file1.txt' which outputs 'echo "I am learning Linux"'. The prompt returns to the shell.

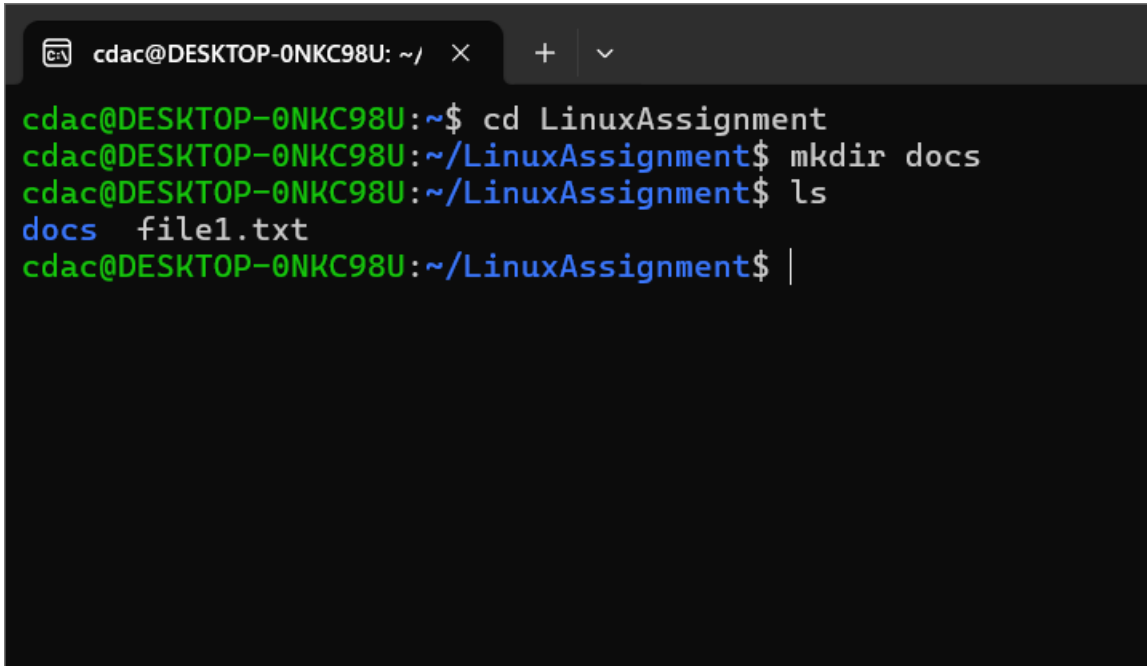
```
cdac@DESKTOP-0NKC98U: ~/LinuxAssignment$ touch file1.txt
cdac@DESKTOP-0NKC98U: ~/LinuxAssignment$ nano file1.txt
cdac@DESKTOP-0NKC98U: ~/LinuxAssignment$ cat file1.txt
echo "I am learning Linux"
cdac@DESKTOP-0NKC98U: ~/LinuxAssignment$ |
```

c) Directory Management:

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

Answer:-

To do this, first i have to go to the LinuxAssignment directory with the help of `cd LinuxAssignment`, Then to create new directory inside LinuxAssignment directory i have used `cd docs` and at last to check it is present in it or not i have used `cd docs`

A terminal window with a dark background and light-colored text. The window title bar shows 'cdac@DESKTOP-0NKC98U: ~/ ' with a close button and a dropdown arrow. The terminal content shows a sequence of commands and their outputs: first, 'cd LinuxAssignment' is entered; then, 'mkdir docs' is entered and executed; next, 'ls' is entered, and the output 'docs file1.txt' is displayed; finally, the prompt returns to '~ /LinuxAssignment\$' with a cursor at the end.

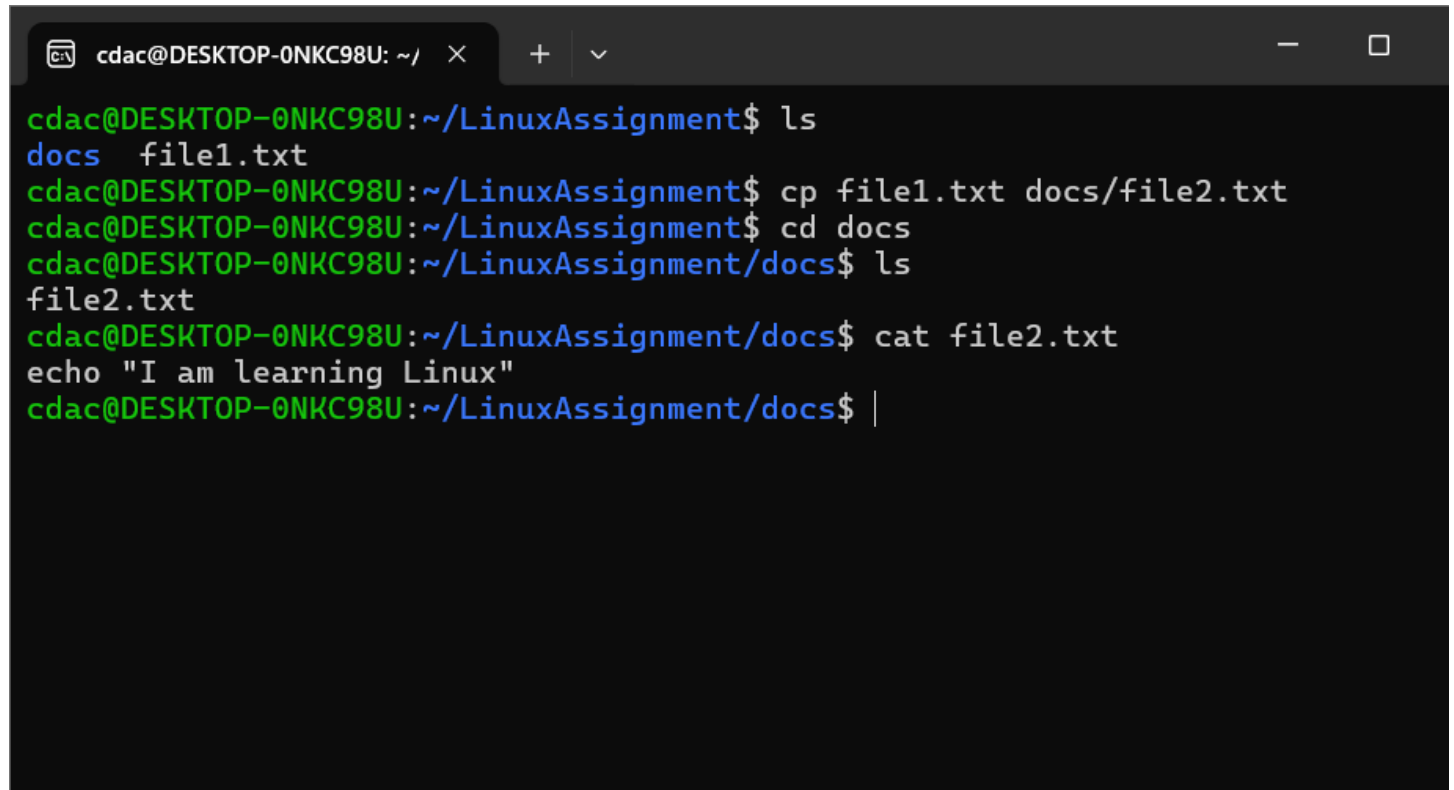
```
cdac@DESKTOP-0NKC98U:~$ cd LinuxAssignment
cdac@DESKTOP-0NKC98U:~/LinuxAssignment$ mkdir docs
cdac@DESKTOP-0NKC98U:~/LinuxAssignment$ ls
docs  file1.txt
cdac@DESKTOP-0NKC98U:~/LinuxAssignment$ |
```

d) Copy and Move Files:

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

Answer:-

to copy the file cp command is used so i have used the same like cp file1.txt docs/file2.txt, and to check whether it is worked or not i have used ls docs.

A terminal window with a dark background and light-colored text. The window title bar shows 'cdac@DESKTOP-0NKC98U: ~/ ' with standard window controls. The terminal output shows a series of commands and their results: 'ls' in the home directory shows 'docs' and 'file1.txt'; 'cp file1.txt docs/file2.txt' copies the file; 'cd docs' changes the directory; 'ls' in the docs directory shows 'file2.txt'; 'cat file2.txt' displays the file's content, 'echo "I am learning Linux"', which is also printed on the next line.

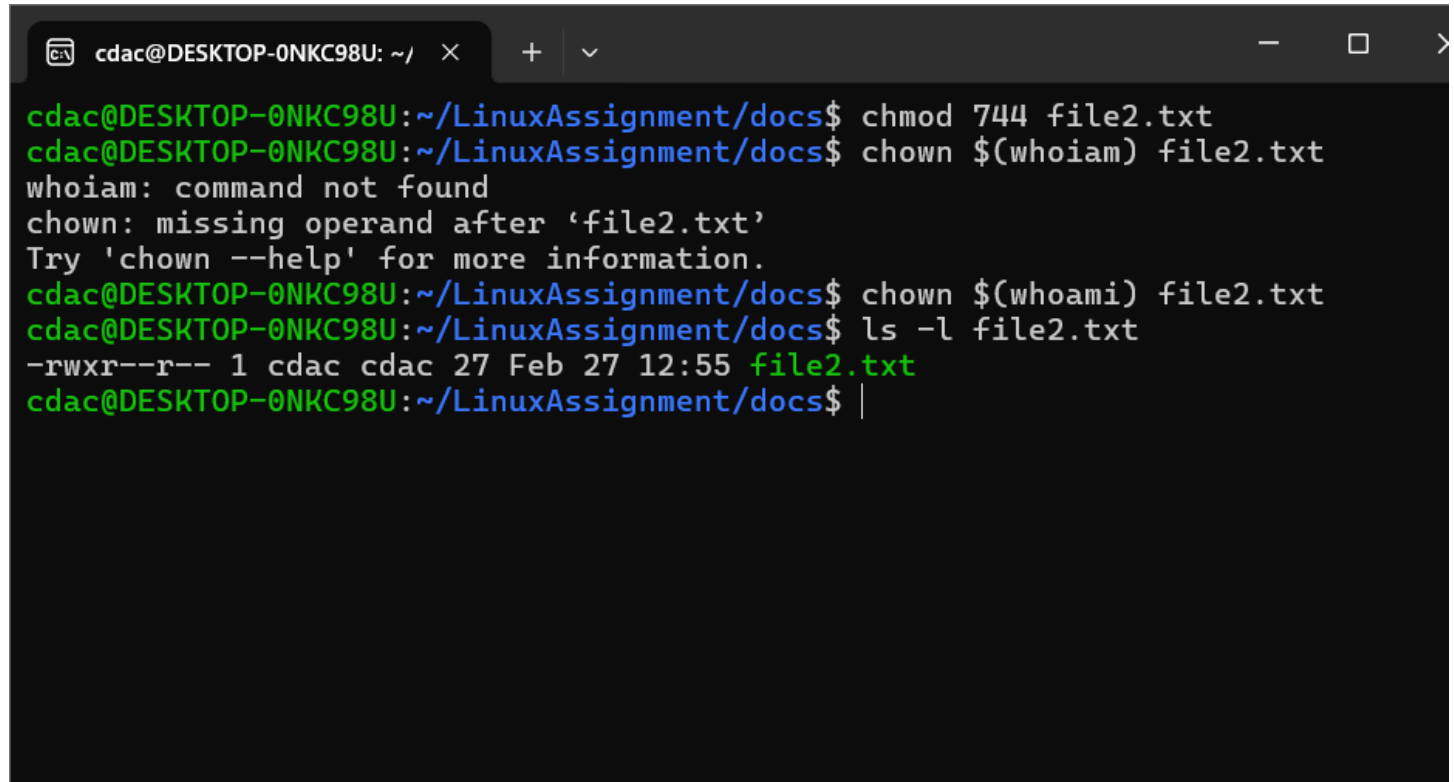
```
cdac@DESKTOP-0NKC98U: ~/LinuxAssignment$ ls
docs  file1.txt
cdac@DESKTOP-0NKC98U:~/LinuxAssignment$ cp file1.txt docs/file2.txt
cdac@DESKTOP-0NKC98U:~/LinuxAssignment$ cd docs
cdac@DESKTOP-0NKC98U:~/LinuxAssignment/docs$ ls
file2.txt
cdac@DESKTOP-0NKC98U:~/LinuxAssignment/docs$ cat file2.txt
echo "I am learning Linux"
cdac@DESKTOP-0NKC98U:~/LinuxAssignment/docs$ |
```

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.

Answer:-

First, I navigated to the docs directory using `cd docs`. Then, I executed the `chmod 744 file2.txt` command to give read, write, and execute permissions to the owner and read-only permissions to others. To change the owner of "file2.txt" to the current user, I used the `chown $(whoami) file2.txt` command. To check if the changes were successfully applied, I ran `ls -l file2.txt`.

A terminal window with a dark background and light green text. The window title is "cdac@DESKTOP-0NKC98U: ~/". The terminal shows the following commands and output:

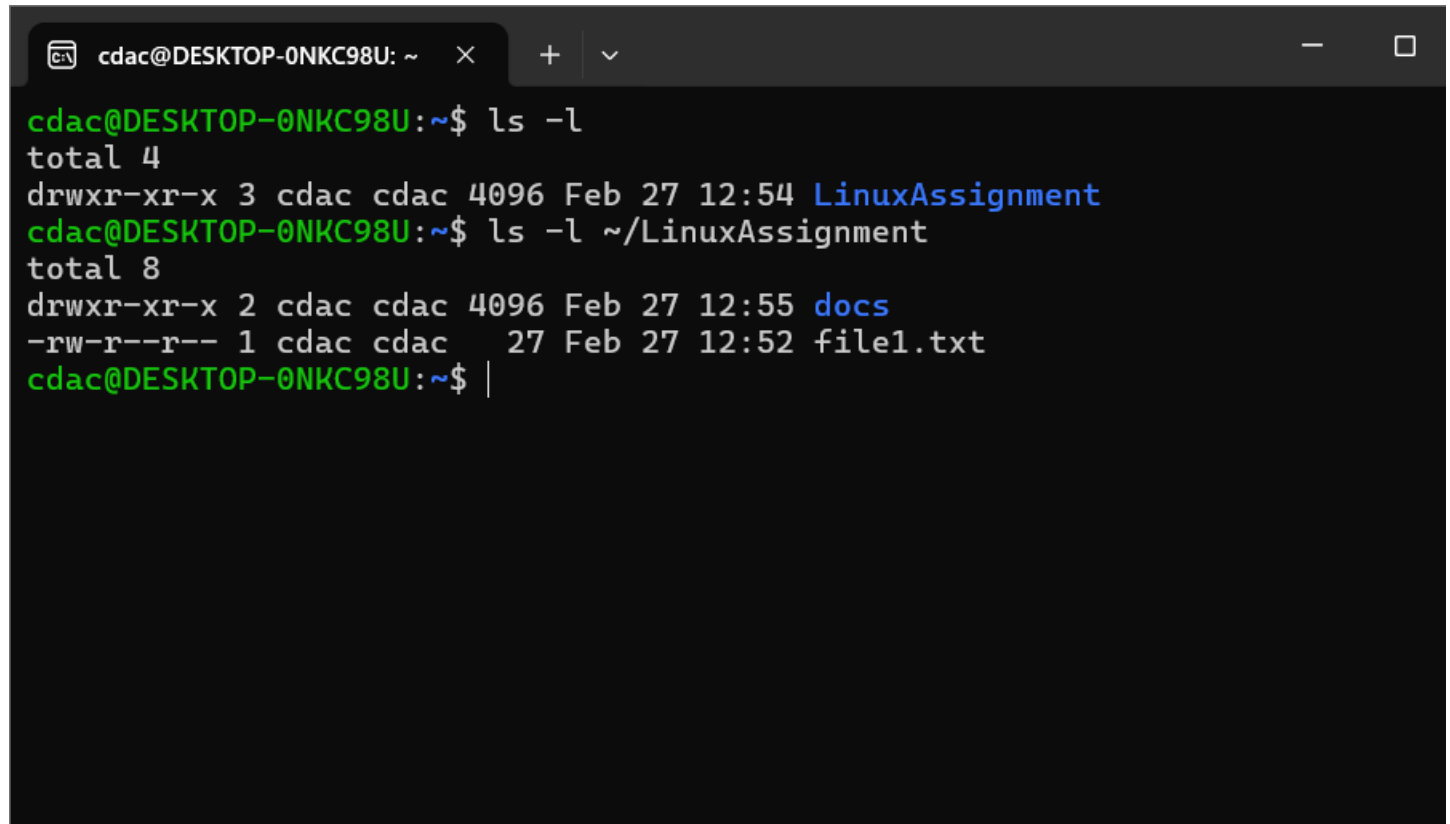
```
cdac@DESKTOP-0NKC98U:~/LinuxAssignment/docs$ chmod 744 file2.txt
cdac@DESKTOP-0NKC98U:~/LinuxAssignment/docs$ chown $(whoiam) file2.txt
whoiam: command not found
chown: missing operand after 'file2.txt'
Try 'chown --help' for more information.
cdac@DESKTOP-0NKC98U:~/LinuxAssignment/docs$ chown $(whoami) file2.txt
cdac@DESKTOP-0NKC98U:~/LinuxAssignment/docs$ ls -l file2.txt
-rwxr--r-- 1 cdac cdac 27 Feb 27 12:55 file2.txt
cdac@DESKTOP-0NKC98U:~/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.

Answer:

This command is used to check `ls -l ~/LinuxAssignment`



```
cdac@DESKTOP-0NKC98U: ~  
cdac@DESKTOP-0NKC98U:~$ ls -l  
total 4  
drwxr-xr-x 3 cdac cdac 4096 Feb 27 12:54 LinuxAssignment  
cdac@DESKTOP-0NKC98U:~$ ls -l ~/LinuxAssignment  
total 8  
drwxr-xr-x 2 cdac cdac 4096 Feb 27 12:55 docs  
-rw-r--r-- 1 cdac cdac 27 Feb 27 12:52 file1.txt  
cdac@DESKTOP-0NKC98U:~$ |
```

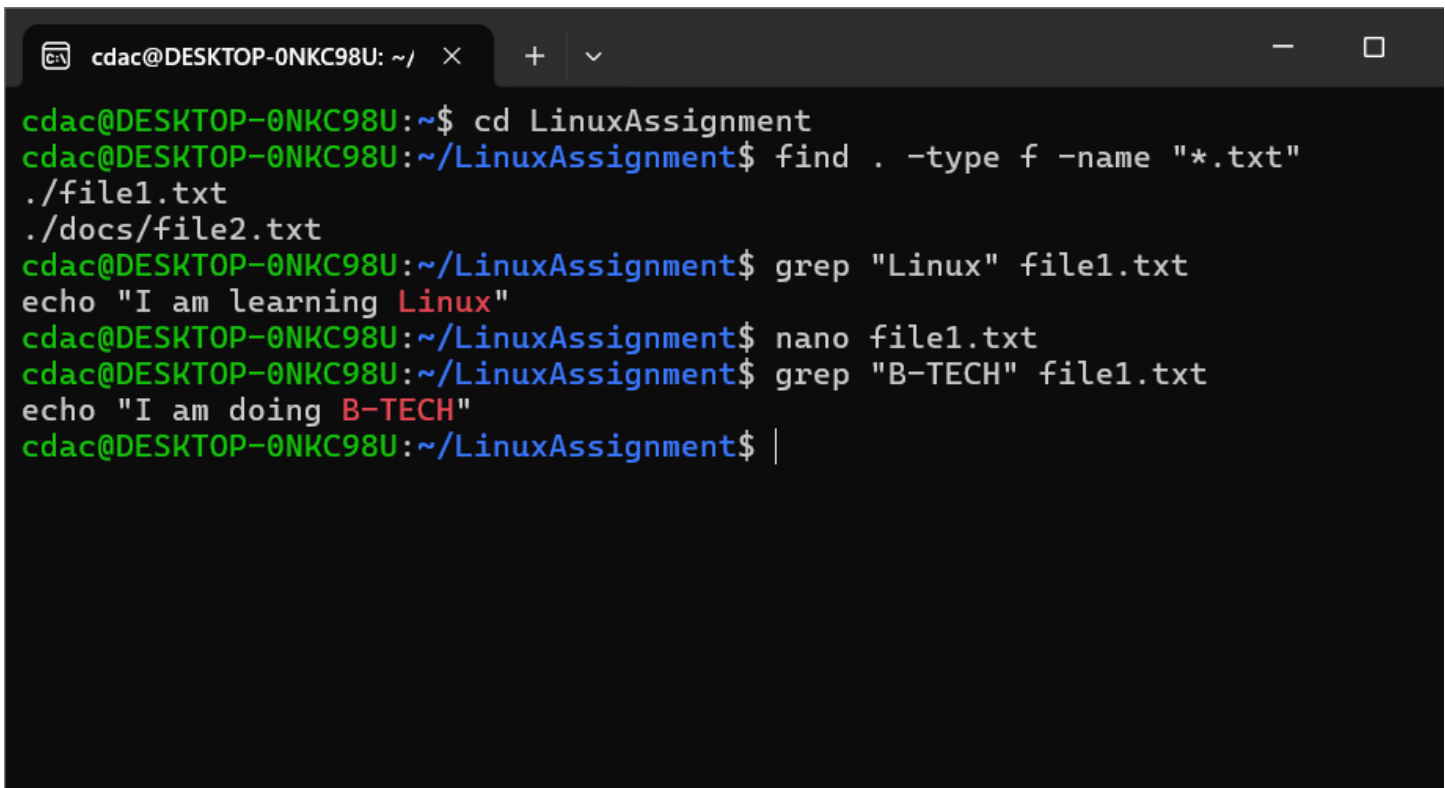
g) File Searching:

- 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).**

Answer:-

To find all .txt files inside the current directory find . -type f -name "*.txt" this command is used

and to find the word B-Tech i have used command called grep "B-Tech" file1.txt

A terminal window with a dark background and light-colored text. The window title bar shows 'cdac@DESKTOP-0NKC98U: ~/'. The terminal content shows a series of commands and their outputs. The user navigates to the 'LinuxAssignment' directory and uses 'find' to locate all '.txt' files, which returns './file1.txt' and './docs/file2.txt'. Then, 'grep' is used to search for the word 'Linux' in 'file1.txt', returning 'echo "I am learning Linux"'. The user then opens 'file1.txt' in 'nano' and uses 'grep' to search for 'B-TECH', returning 'echo "I am doing B-TECH"'. The terminal ends with a cursor on a new line.

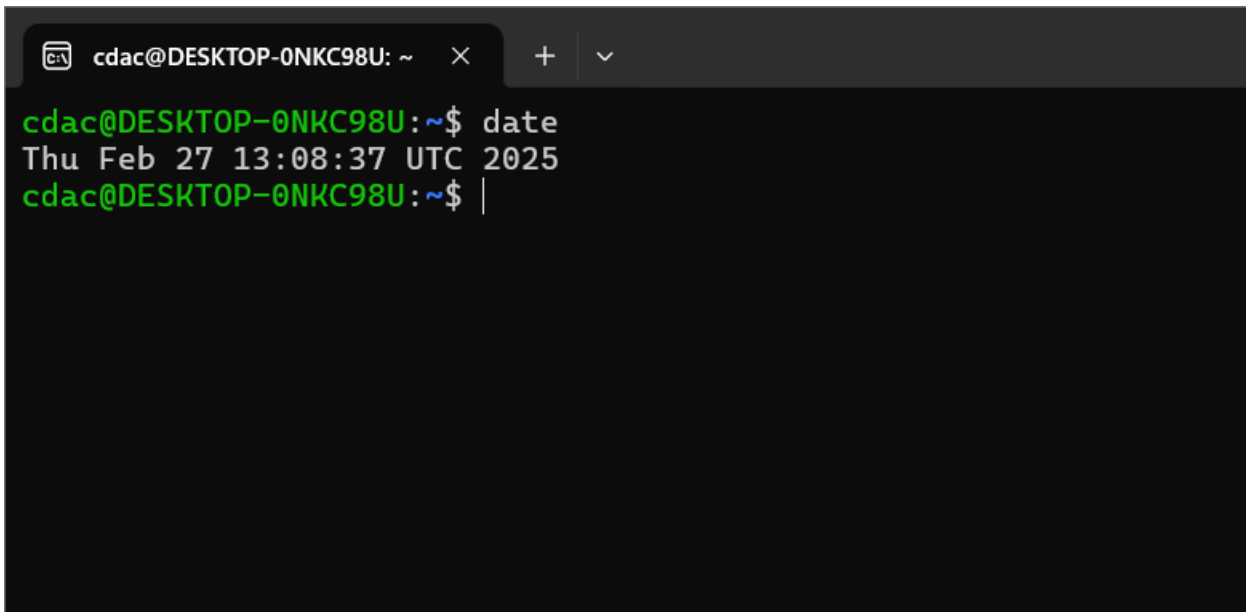
```
cdac@DESKTOP-0NKC98U:~$ cd LinuxAssignment
cdac@DESKTOP-0NKC98U:~/LinuxAssignment$ find . -type f -name "*.txt"
./file1.txt
./docs/file2.txt
cdac@DESKTOP-0NKC98U:~/LinuxAssignment$ grep "Linux" file1.txt
echo "I am learning Linux"
cdac@DESKTOP-0NKC98U:~/LinuxAssignment$ nano file1.txt
cdac@DESKTOP-0NKC98U:~/LinuxAssignment$ grep "B-TECH" file1.txt
echo "I am doing B-TECH"
cdac@DESKTOP-0NKC98U:~/LinuxAssignment$ |
```

h) System Information:

a. Display the current system date and time.

Answer:-

To check it i have used a command called date

A screenshot of a terminal window with a dark background. The window title bar shows 'cdac@DESKTOP-0NKC98U: ~' and standard window controls. The terminal content shows a green prompt 'cdac@DESKTOP-0NKC98U:~\$' followed by the command 'date'. The output is 'Thu Feb 27 13:08:37 UTC 2025'. The prompt is repeated on the next line with a vertical cursor bar.

```
cdac@DESKTOP-0NKC98U:~$ date
Thu Feb 27 13:08:37 UTC 2025
cdac@DESKTOP-0NKC98U:~$ |
```


i) Networking:

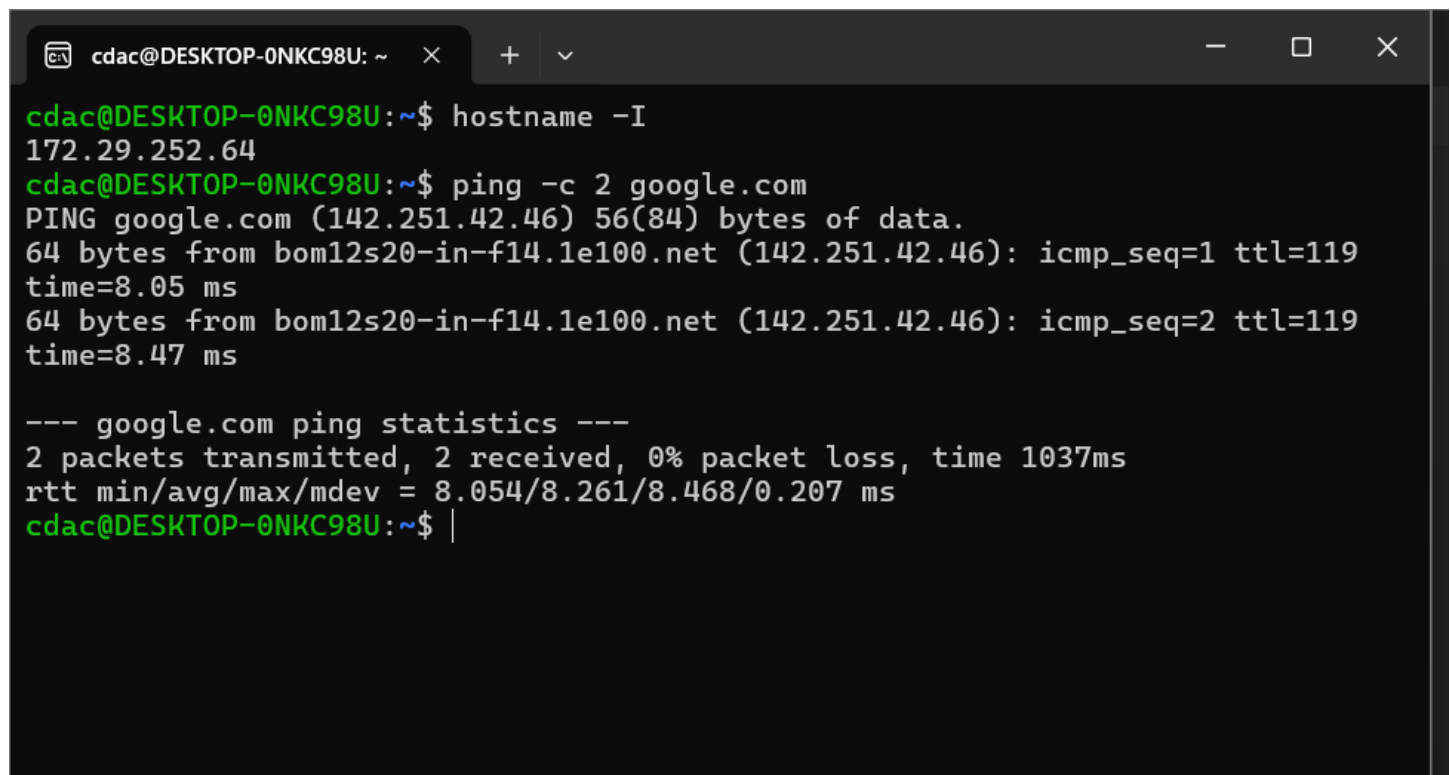
a. Display the IP address of the system.

b. Ping a remote server to check connectivity (provide a remote server address to ping).

Answer:-

a) To check the IP address `hostname -I` this command is used

b) To check it i have used a command called `ping -c 2 google.com`, here ping send network packet to remote server -c 2 send only 2 packets.

A terminal window with a dark background and light green text. The window title bar shows 'cdac@DESKTOP-0NKC98U: ~' and standard window controls. The terminal content shows the execution of 'hostname -I' resulting in '172.29.252.64', followed by 'ping -c 2 google.com' which shows two successful ping responses with times around 8ms. Finally, it displays '--- google.com ping statistics ---' with a summary of 2 packets transmitted and received with 0% loss.

```
cdac@DESKTOP-0NKC98U:~$ hostname -I
172.29.252.64
cdac@DESKTOP-0NKC98U:~$ ping -c 2 google.com
PING google.com (142.251.42.46) 56(84) bytes of data.
64 bytes from bom12s20-in-f14.1e100.net (142.251.42.46): icmp_seq=1 ttl=119
time=8.05 ms
64 bytes from bom12s20-in-f14.1e100.net (142.251.42.46): icmp_seq=2 ttl=119
time=8.47 ms

--- google.com ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1037ms
rtt min/avg/max/mdev = 8.054/8.261/8.468/0.207 ms
cdac@DESKTOP-0NKC98U:~$ |
```

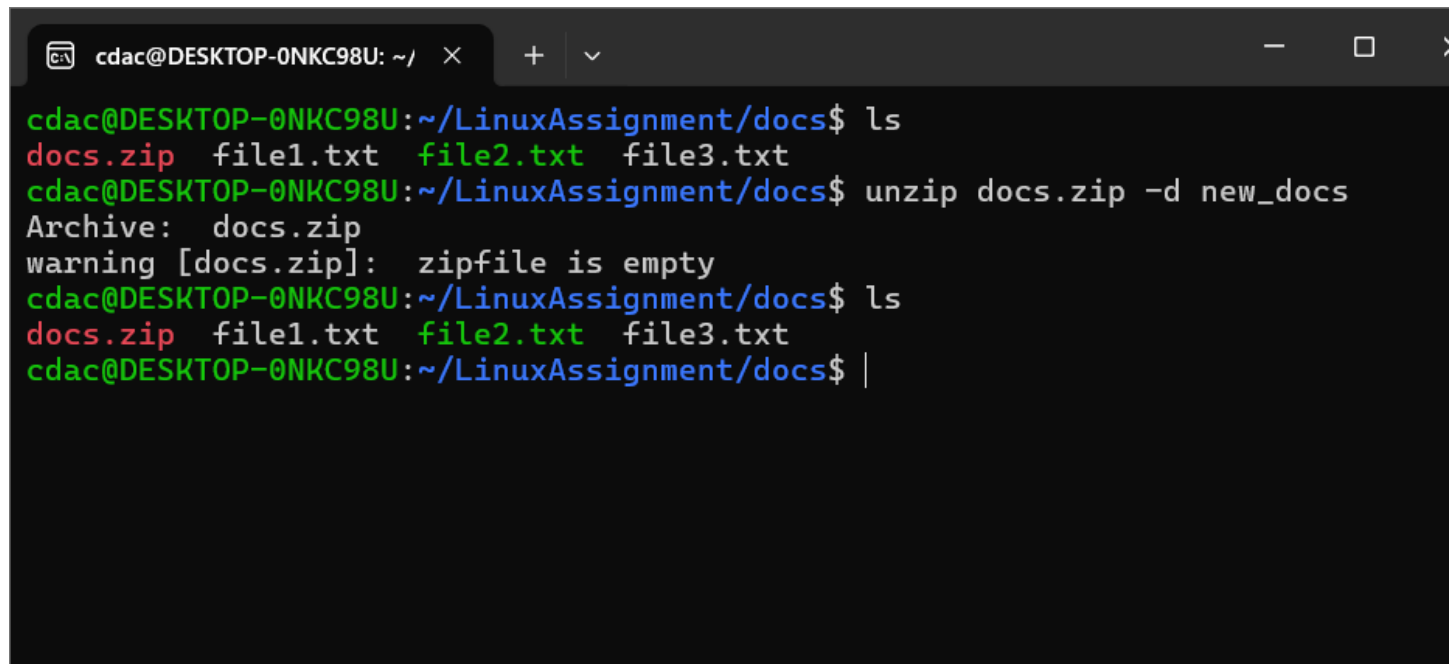
j) File Compression:

- a. Compress the "docs" directory into a zip file.**
- b. Extract the contents of the zip file into a new directory.**

Answer:-

zip -r docs.zip docs :- It will create docs.zip, which contains all files inside docs

unzip docs.zip -d new_docs :- it will extract the docs.zip file into new directory named newdocs.

A terminal window with a dark background and light-colored text. The window title bar shows 'cdac@DESKTOP-0NKC98U: ~/'. The terminal content shows a series of commands and their outputs. First, 'ls' is run in the directory '~/LinuxAssignment/docs', showing 'docs.zip', 'file1.txt', 'file2.txt', and 'file3.txt'. Then, 'unzip docs.zip -d new_docs' is run, resulting in 'Archive: docs.zip' and a 'warning [docs.zip]: zipfile is empty'. Finally, 'ls' is run again in the same directory, showing the same files as before. The prompt 'cdac@DESKTOP-0NKC98U:~/LinuxAssignment/docs\$' is visible at the end of the last line.

```
cdac@DESKTOP-0NKC98U:~/LinuxAssignment/docs$ ls
docs.zip file1.txt file2.txt file3.txt
cdac@DESKTOP-0NKC98U:~/LinuxAssignment/docs$ unzip docs.zip -d new_docs
Archive: docs.zip
warning [docs.zip]:  zipfile is empty
cdac@DESKTOP-0NKC98U:~/LinuxAssignment/docs$ ls
docs.zip file1.txt file2.txt file3.txt
cdac@DESKTOP-0NKC98U:~/LinuxAssignment/docs$ |
```

k) File Editing:

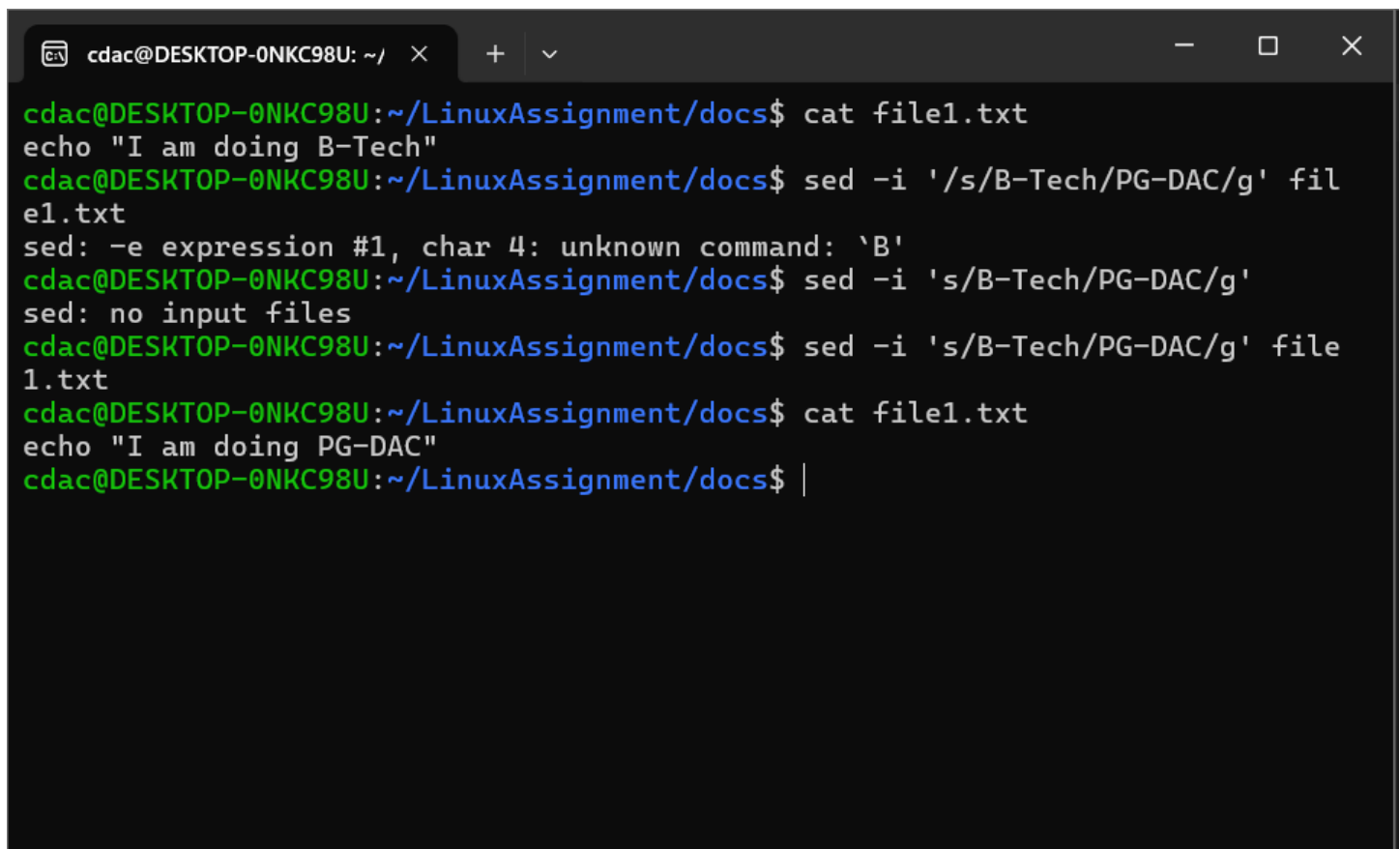
a. Open the "file1.txt" file in a text editor and add some text to it.

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

Answer:-

a) to open file1.txt in text editor we have to use nano file1.txt and to add some text in it we have to write echo "I am doing B-Tech".

b) to replace specific word i have to write something in editor so i have opened editor using nano file1.txt then with help of echo i have written "I am doing B-Tech" and saved it and came back in command line to replace the B-Tech with PG-DAC i have write a command called sed -i '/s/B-Tech/PG-DAC/g' file1.txt

A terminal window with a dark background and light green text. The window title is 'cdac@DESKTOP-0NKC98U: ~/'. The terminal shows a sequence of commands and their outputs. First, 'cat file1.txt' is run, outputting 'echo "I am doing B-Tech"'. Then, 'sed -i '/s/B-Tech/PG-DAC/g' file1.txt' is run, which results in an error: 'sed: -e expression #1, char 4: unknown command: `B''. The user then corrects the command to 'sed -i 's/B-Tech/PG-DAC/g' file1.txt', which runs successfully with the output 'sed: no input files'. Finally, 'cat file1.txt' is run again, outputting 'echo "I am doing PG-DAC"'.

```
cdac@DESKTOP-0NKC98U:~/LinuxAssignment/docs$ cat file1.txt
echo "I am doing B-Tech"
cdac@DESKTOP-0NKC98U:~/LinuxAssignment/docs$ sed -i '/s/B-Tech/PG-DAC/g' file1.txt
sed: -e expression #1, char 4: unknown command: `B'
cdac@DESKTOP-0NKC98U:~/LinuxAssignment/docs$ sed -i 's/B-Tech/PG-DAC/g' file1.txt
sed: no input files
cdac@DESKTOP-0NKC98U:~/LinuxAssignment/docs$ sed -i 's/B-Tech/PG-DAC/g' file1.txt
cdac@DESKTOP-0NKC98U:~/LinuxAssignment/docs$ cat file1.txt
echo "I am doing PG-DAC"
cdac@DESKTOP-0NKC98U:~/LinuxAssignment/docs$ |
```