

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.

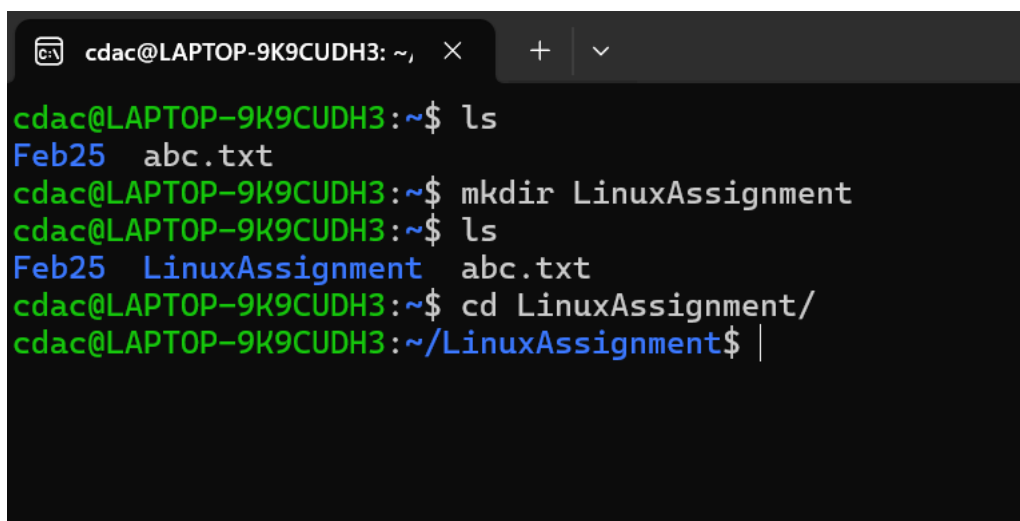
Steps:

-for listing run ls command

-For making directory mkdir command

- for navigation using cd command

Output:

A terminal window screenshot with a dark background. The title bar shows 'cdac@LAPTOP-9K9CUDH3: ~'. The terminal content shows a sequence of commands and their outputs: 'ls' returns 'Feb25 abc.txt'; 'mkdir LinuxAssignment' creates the directory; 'ls' returns 'Feb25 LinuxAssignment abc.txt'; 'cd LinuxAssignment/' changes the directory; and the prompt changes to '~/LinuxAssignment\$'.

```
cdac@LAPTOP-9K9CUDH3:~$ ls
Feb25  abc.txt
cdac@LAPTOP-9K9CUDH3:~$ mkdir LinuxAssignment
cdac@LAPTOP-9K9CUDH3:~$ ls
Feb25  LinuxAssignment  abc.txt
cdac@LAPTOP-9K9CUDH3:~$ cd LinuxAssignment/
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ |
```

b) File Management:

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

Steps:

- in LinuxAssignment making file using touch file1.txt

- now entering data using nano command which will open editor

-For printing data in file using cat command

Output:

```
cdac@LAPTOP-9K9CUDH3: ~, × + ▾  
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ pwd  
/home/cdac/LinuxAssignment  
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ touch file1.txt  
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ ls  
file1.txt  
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ nano file1.txt  
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ cat file1.txt  
echo "This is file 1"  
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ |
```

c) Directory Management:

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

Steps:

-making new directory name docs

-for cheking ls

Output:

```
cdac@LAPTOP-9K9CUDH3: ~, × + ▾  
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ mkdir docs  
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ ls  
docs  file1.txt  
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ |
```

d) Copy and Move Files:

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

Steps:

-for coping using cd command

-after using cat command to print data in file2.txt

Output:

```
cdac@LAPTOP-9K9CUDH3: ~, X + v
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ cp file1.txt docs/file2.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ ls
docs  file1.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ cd docs
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment/docs$ ls
file2.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment/docs$ cat file2.txt
echo "This is file 1"
cdac@LAPTOP-9K9CUDH3:~/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.

Steps:

-using chmod 744 to give permission 7 means read, write, execute , 4 means only read .

-and ls -l to checking it

-chown command is used to change the owner to current user

Output:

```
cdac@LAPTOP-9K9CUDH3: ~, X + v
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment/docs$ chmod 744 file2.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment/docs$ ls -l file2.txt
-rwxr--r-- 1 cdac cdac 22 Feb 26 16:07 file2.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment/docs$ |
```

```
cdac@LAPTOP-9K9CUDH3: ~, X + v
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment/docs$ chown cdac:cdac file2.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment/docs$ ls -l file2.txt
-rwxr--r-- 1 cdac cdac 22 Feb 26 16:07 file2.txt
cdac@LAPTOP-9K9CUDH3:~/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.

Steps:

-using ls to list LinuxAssignment directory

-using ls/ to list root

Output:

```
cdac@LAPTOP-9K9CUDH3: ~, X + v
cdac@LAPTOP-9K9CUDH3:~$ cd LinuxAssignment/
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ ls
docs docs.zip extra file1.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ ls /
bin boot etc init lib.usr-is-merged lost+found mnt proc run sbin.usr-is-merged srv tmp var
bin.usr-is-merged dev home lib lib64 media opt root sbin snap sys usr
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$
```

g) File Searching:

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

Steps:

-Using find command to find the documents

Output:

```
cdac@LAPTOP-9K9CUDH3: ~ X + v
cdac@LAPTOP-9K9CUDH3:~$ find . -type f -name "*.txt"
./abc.txt
./LinuxAssignment/file1.txt
./LinuxAssignment/docs/file2.txt
cdac@LAPTOP-9K9CUDH3:~$
```

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

Steps:

-using grep command to search happy word in abc.txt file

Output:

```
cdac@LAPTOP-9K9CUDH3: ~  
cdac@LAPTOP-9K9CUDH3:~$ grep "Happy" abc.txt  
I am Happy to see you  
cdac@LAPTOP-9K9CUDH3:~$ |
```

h) System Information:

a. Display the current system date and time.

Steps:

- using date command to print current time and date

Output:

```
cdac@LAPTOP-9K9CUDH3: ~  
cdac@LAPTOP-9K9CUDH3:~$ date  
Wed Feb 26 16:33:38 UTC 2025  
cdac@LAPTOP-9K9CUDH3:~$ |
```

i) Networking:

a. Display the IP address of the system.

Steps:

-using ip addr command to display the ip address of the system

Output:

```
cdac@LAPTOP-9K9CUDH3: ~  
cdac@LAPTOP-9K9CUDH3:~$ date  
Wed Feb 26 16:33:38 UTC 2025  
cdac@LAPTOP-9K9CUDH3:~$ ip addr  
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  
    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 state UP group default qlen 1000  
    link/ether 00:15:5d:0a:d5:a4 brd ff:ff:ff:ff:ff:ff  
    inet 172.25.181.185/20 brd 172.25.191.255 scope global eth0  
        valid_lft forever preferred_lft forever  
    inet6 fe80::215:5dff:fe0a:d5a4/64 scope link  
        valid_lft forever preferred_lft forever  
cdac@LAPTOP-9K9CUDH3:~$
```

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

Steps:

Using ping command and -c to send 4 paccets to chek connectivity

Output:

```
cdac@LAPTOP-9K9CUDH3: ~  
cdac@LAPTOP-9K9CUDH3:~$ ping -c 127.0.0.1  
ping: invalid argument: '127.0.0.1'  
cdac@LAPTOP-9K9CUDH3:~$ ping -c 4 127.0.0.1  
PING 127.0.0.1 (127.0.0.1) 56(84) bytes of data.  
64 bytes from 127.0.0.1: icmp_seq=1 ttl=64 time=1.66 ms  
64 bytes from 127.0.0.1: icmp_seq=2 ttl=64 time=0.027 ms  
64 bytes from 127.0.0.1: icmp_seq=3 ttl=64 time=0.046 ms  
64 bytes from 127.0.0.1: icmp_seq=4 ttl=64 time=0.045 ms  
  
--- 127.0.0.1 ping statistics ---  
4 packets transmitted, 4 received, 0% packet loss, time 3170ms  
rtt min/avg/max/mdev = 0.027/0.443/1.656/0.700 ms  
cdac@LAPTOP-9K9CUDH3:~$
```

j) File Compression:

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

Steps:

-using zip -r to zip the doc directory

Output:

```
cdac@LAPTOP-9K9CUDH3: ~, × + ▾
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ zip docs LinuxAssignment
zip warning: name not matched: LinuxAssignment

zip error: Nothing to do! (docs.zip)
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ zip docs LinuxAssignment
zip warning: name not matched: LinuxAssignment

zip error: Nothing to do! (docs.zip)
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ zip -r docs.zip docs
adding: docs/ (stored 0%)
adding: docs/file2.txt (stored 0%)
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ ls
docs docs.zip file1.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ mkdir extra
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ |
```

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

Steps:

-creating extra directory using mkdir command

- using unzip command and giving directory using -d

Output:

```
cdac@LAPTOP-9K9CUDH3: ~, × + ▾
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ unzip docs.zip -d extra
Archive: docs.zip
creating: extra/docs/
extracting: extra/docs/file2.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ |
```

k) File Editing:

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

Steps:

Using nano command to open file in the text editor

And after saving using cat command to display the data

Output:

```
cdac@LAPTOP-9K9CUDH3: ~, × + v
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ ls
docs docs.zip extra file1.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ nano file1.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ cat file1.txt
Hello , How are you?
Hello World
Nice to see you
hii

cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ |
```

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

Steps:

-Using sed command to replace "hii" with "Hii".

-using cat command to display the file for checking if changes are done or not

Output:

```
cdac@LAPTOP-9K9CUDH3: ~, × + v
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ ls
docs docs.zip extra file1.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ nano file1.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ cat file1.txt
Hello , How are you?
Hello World
Nice to see you
hii

cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ sed -i 's/hii/Hii/g' file1.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ cat file1.txt
Hello , How are you?
Hello World
Nice to see you
Hii

cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$
```

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.



Steps:

=for displaying first 10 line using head command

Output:

```
cdac@LAPTOP-9K9CUDH3: ~, × + v
cdac@LAPTOP-9K9CUDH3:~/Assign2$ head -10 data.txt
Summary
This is Assign2 folder.
Here the Assignment 1 Q2 is done here .
it is also stored here.
so it is scpecificaly for this only .
for lecture we have diffrent directory,
and for assignemnt we have for now 2 directory
1st is linuxAssignment
2nd is Assign 2;
while other are for practice and theory lecture ,
cdac@LAPTOP-9K9CUDH3:~/Assign2$ |
```

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

Steps:

-using tail command to display last 5 lines of data.txt file

Output:

```
cdac@LAPTOP-9K9CUDH3: ~, × + v
cdac@LAPTOP-9K9CUDH3:~/Assign2$ tail -5 data.txt
2nd is Assign 2;
while other are for practice and theory lecture ,
which will help in seprating;
and also avoiding confusion
cdac@LAPTOP-9K9CUDH3:~/Assign2$ |
```

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.

Steps:

-using head command to display first 15 line

Output:

```
cdac@LAPTOP-9K9CUDH3: ~, × + ▾
cdac@LAPTOP-9K9CUDH3:~/Assign2$ head -15 numbers.txt
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
cdac@LAPTOP-9K9CUDH3:~/Assign2$ |
```

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

Steps:

Using tail command to display the last 3 line of the number.txt file

Output:

```
cdac@LAPTOP-9K9CUDH3: ~, × + ▾
cdac@LAPTOP-9K9CUDH3:~/Assign2$ tail -3 numbers.txt
18
19
20
cdac@LAPTOP-9K9CUDH3:~/Assign2$ |
```

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."

Steps:

-using tr command to transform the lowercase into upper case

-using cat command to display output.txt file and changing if changes are done.

Output:

```
cdac@LAPTOP-9K9CUDH3:~/Assign2$ tr [:lower:] [:upper:] < input.txt > output.txt
cdac@LAPTOP-9K9CUDH3:~/Assign2$ cat output.txt
HELLO , HOW ARE YOU?
cdac@LAPTOP-9K9CUDH3:~/Assign2$ cat input.txt
Hello , How are you?
cdac@LAPTOP-9K9CUDH3:~/Assign2$ |
```

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."

Steps:

-using uniq command to print uniq lines of the duplicate .txt file

Output:

```
cdac@LAPTOP-9K9CUDH3: ~/ × + v
cdac@LAPTOP-9K9CUDH3:~/Assign2$ uniq duplicate.txt
papers ,
assignment papers,
Question papers,
Blank papers,
graph papers.
Papers,
Papers.
cdac@LAPTOP-9K9CUDH3:~/Assign2$
```

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."

Steps:

Using uniq command with -c attribute to display unique lines with count of how many times that unique line is there

Output:

```
cdac@LAPTOP-9K9CUDH3: ~, × + ▾
cdac@LAPTOP-9K9CUDH3:~/Assign2$ uniq -c fruit.txt
  3 banana,
  1 apple,
  1 mango,
  1 apple,
  1 mango,
  1 pineapple,
  1 Banana,
  1 alphonso mango.
  1
cdac@LAPTOP-9K9CUDH3:~/Assign2$ |
```