

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-903P6BA: ~  
  
cdac@DESKTOP-903P6BA:~$ pwd  
/home/cdac  
cdac@DESKTOP-903P6BA:~$ ls  
Day_1 abc.txt file1.txt file2.txt  
cdac@DESKTOP-903P6BA:~$ mkdir LinuxAssignment  
cdac@DESKTOP-903P6BA:~$ ls  
Day_1 LinuxAssignment abc.txt file1.txt file2.txt  
cdac@DESKTOP-903P6BA:~$
```

b) File Management:

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

```
cdac@DESKTOP-903P6BA: ~/LinuxAssignment  
  
cdac@DESKTOP-903P6BA:~$ cd LinuxAssignment/  
cdac@DESKTOP-903P6BA:~/LinuxAssignment$ touch file1.txt  
cdac@DESKTOP-903P6BA:~/LinuxAssignment$ ls  
file1.txt  
cdac@DESKTOP-903P6BA:~/LinuxAssignment$
```

c) Directory Management:

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

```
cdac@DESKTOP-903P6BA: ~/LinuxAssignment  
  
cdac@DESKTOP-903P6BA:~/LinuxAssignment$ mkdir docs  
cdac@DESKTOP-903P6BA:~/LinuxAssignment$ ls  
docs file1.txt  
cdac@DESKTOP-903P6BA:~/LinuxAssignment$
```

d) Copy and Move Files:

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

```
cdac@DESKTOP-903P6BA: ~/LinuxAssignment/docs
cdac@DESKTOP-903P6BA:~/LinuxAssignment$ pwd
/home/cdac/LinuxAssignment
cdac@DESKTOP-903P6BA:~/LinuxAssignment$ ls
docs  file1.txt
cdac@DESKTOP-903P6BA:~/LinuxAssignment$ cp file1.txt docs
cdac@DESKTOP-903P6BA:~/LinuxAssignment$ cd docs
cdac@DESKTOP-903P6BA:~/LinuxAssignment/docs$ ls
file1.txt
cdac@DESKTOP-903P6BA:~/LinuxAssignment/docs$ mv file1.txt file2.txt
cdac@DESKTOP-903P6BA:~/LinuxAssignment/docs$ ls
file2.txt
cdac@DESKTOP-903P6BA:~/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.

```
cdac@DESKTOP-903P6BA: ~/LinuxAssignment/docs
cdac@DESKTOP-903P6BA:~/LinuxAssignment/docs$ sudo chmod u+rwx file2.txt
[sudo] password for cdac:
cdac@DESKTOP-903P6BA:~/LinuxAssignment/docs$ ls -l
total 0
-rwxr--r-- 1 mamta cdac 0 Aug 28 18:57 file2.txt
cdac@DESKTOP-903P6BA:~/LinuxAssignment/docs$ sudo chmod o+r file2.txt
cdac@DESKTOP-903P6BA:~/LinuxAssignment/docs$ ls -l
total 0
-rwxr--r-- 1 mamta cdac 0 Aug 28 18:57 file2.txt
cdac@DESKTOP-903P6BA:~/LinuxAssignment/docs$ sudo chown cdac file2.txt
cdac@DESKTOP-903P6BA:~/LinuxAssignment/docs$ ls -l
total 0
-rwxr--r-- 1 cdac cdac 0 Aug 28 18:57 file2.txt
cdac@DESKTOP-903P6BA:~/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.

 cdac@DESKTOP-903P6BA: ~

```
cdac@DESKTOP-903P6BA:~/LinuxAssignment$ ls -l
total 4
drwxr-xr-x 2 cdac cdac 4096 Aug 28 18:58 docs
-rw-r--r-- 1 cdac cdac  0 Aug 28 18:51 file1.txt
cdac@DESKTOP-903P6BA:~/LinuxAssignment$ cd ..
cdac@DESKTOP-903P6BA:~$ ls -l
total 8
drwxr-xr-x 2 cdac cdac 4096 Aug 27 22:03 Day_1
drwxr-xr-x 3 cdac cdac 4096 Aug 28 18:52 LinuxAssignment
-rw-r--r-- 1 cdac cdac  0 Aug 27 18:29 abc.txt
-rw-r--r-- 1 cdac cdac  0 Aug 27 22:01 file1.txt
-rwxr-x--- 1 cdac cdac  0 Aug 27 22:02 file2.txt
cdac@DESKTOP-903P6BA:~$
```

g) File Searching:

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

 cdac@DESKTOP-903P6BA: ~

```
cdac@DESKTOP-903P6BA:~$ pwd
/home/cdac
cdac@DESKTOP-903P6BA:~$ find . -name "*.txt"
./abc.txt
./LinuxAssignment/docs/file2.txt
./LinuxAssignment/file1.txt
./file1.txt
./file2.txt
cdac@DESKTOP-903P6BA:~$
```

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

```
cdac@DESKTOP-903P6BA: ~  
cdac@DESKTOP-903P6BA:~$ pwd  
/home/cdac  
cdac@DESKTOP-903P6BA:~$ grep -r "welcome" /home/cdac  
/home/cdac/elcome:welcome  
/home/cdac/abc.txt:welcome  
cdac@DESKTOP-903P6BA:~$
```

h) System Information:

- a. Display the current system date and time.

```
cdac@DESKTOP-903P6BA: ~  
cdac@DESKTOP-903P6BA:~$ date  
Wed Aug 28 22:32:08 IST 2024  
cdac@DESKTOP-903P6BA:~$ date -u  
Wed Aug 28 17:02:16 UTC 2024  
cdac@DESKTOP-903P6BA:~$
```

i) Networking:

- a. Display the IP address of the system.

```
Select cdac@DESKTOP-903P6BA: ~  
cdac@DESKTOP-903P6BA:~$ 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  
    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:96:e2:c7 brd ff:ff:ff:ff:ff:ff  
    inet 172.23.116.33/20 brd 172.23.127.255 scope global eth0  
        valid_lft forever preferred_lft forever  
    inet6 fe80::215:5dff:fe96:e2c7/64 scope link  
        valid_lft forever preferred_lft forever  
cdac@DESKTOP-903P6BA:~$  
cdac@DESKTOP-903P6BA:~$ hostname -I  
172.23.116.33  
cdac@DESKTOP-903P6BA:~$
```

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

```
cdac@DESKTOP-903P6BA: ~  
cdac@DESKTOP-903P6BA:~$ hostname -I  
172.23.116.33  
cdac@DESKTOP-903P6BA:~$ ping 172.23.116.33  
PING 172.23.116.33 (172.23.116.33) 56(84) bytes of data.  
64 bytes from 172.23.116.33: icmp_seq=1 ttl=64 time=0.032 ms  
64 bytes from 172.23.116.33: icmp_seq=2 ttl=64 time=0.047 ms  
64 bytes from 172.23.116.33: icmp_seq=3 ttl=64 time=0.048 ms  
64 bytes from 172.23.116.33: icmp_seq=4 ttl=64 time=0.051 ms  
64 bytes from 172.23.116.33: icmp_seq=5 ttl=64 time=0.065 ms  
64 bytes from 172.23.116.33: icmp_seq=6 ttl=64 time=0.059 ms  
64 bytes from 172.23.116.33: icmp_seq=7 ttl=64 time=0.044 ms  
64 bytes from 172.23.116.33: icmp_seq=8 ttl=64 time=0.044 ms  
64 bytes from 172.23.116.33: icmp_seq=9 ttl=64 time=0.044 ms  
64 bytes from 172.23.116.33: icmp_seq=10 ttl=64 time=0.046 ms  
^C  
--- 172.23.116.33 ping statistics ---  
10 packets transmitted, 10 received, 0% packet loss, time 9367ms  
rtt min/avg/max/mdev = 0.032/0.048/0.065/0.008 ms
```

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-903P6BA: ~/Day_1  
cdac@DESKTOP-903P6BA:~/LinuxAssignment$ ls  
docs  file1.txt  
cdac@DESKTOP-903P6BA:~/LinuxAssignment$ zip docs.zip docs  
adding: docs/ (stored 0%)  
cdac@DESKTOP-903P6BA:~/LinuxAssignment$ ls  
docs  docs.zip  file1.txt  
cdac@DESKTOP-903P6BA:~/LinuxAssignment$ unzip docs.zip -d /home/cdac/Day_1  
Archive:  docs.zip  
creating: /home/cdac/Day_1/docs/  
cdac@DESKTOP-903P6BA:~/LinuxAssignment$ cd ..  
cdac@DESKTOP-903P6BA:~$ cd Day_1/  
cdac@DESKTOP-903P6BA:~/Day_1$ ls  
docs  
cdac@DESKTOP-903P6BA:~/Day_1$
```

k) File Editing:

- 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-903P6BA: ~  
cdac@DESKTOP-903P6BA:~$ pwd  
/home/cdac  
cdac@DESKTOP-903P6BA:~$ ls  
Day_1 LinuxAssignment abc.txt file1.txt file2.txt  
cdac@DESKTOP-903P6BA:~$ nano file1.txt  
cdac@DESKTOP-903P6BA:~$ cat file1.txt  
Hello  
It's a nice day  
cdac@DESKTOP-903P6BA:~$ sed 's/nice/good/g' file1.txt  
Hello  
It's a good day  
cdac@DESKTOP-903P6BA:~$
```

Problem 2: Read the instructions carefully and answer accordingly. If there is any need to insert some data then do that as well.

- 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-903P6BA: ~  
cdac@DESKTOP-903P6BA:~$ nano data.txt  
cdac@DESKTOP-903P6BA:~$ ls  
Day_1 LinuxAssignment abc.txt data.txt file1.txt file2.txt  
cdac@DESKTOP-903P6BA:~$ head -10 data.txt  
hi  
hello  
good morning  
good afternoon  
good evening  
it's a good day  
you are beautiful  
how do you do?  
it's nice to meet you  
welcome  
cdac@DESKTOP-903P6BA:~$
```

- 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-903P6BA: ~  
cdac@DESKTOP-903P6BA:~$ tail -5 data.txt  
it's nice to meet you  
welcome  
what's up?  
who's there?  
knock knock...  
cdac@DESKTOP-903P6BA:~$
```

- 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-903P6BA: ~  
cdac@DESKTOP-903P6BA:~$ ls  
Day_1 LinuxAssignment abc.txt data.txt file1.txt file2.txt numbers.txt  
cdac@DESKTOP-903P6BA:~$ head -15 numbers.txt  
2  
4  
6  
8  
10  
12  
14  
16  
18  
20  
22  
24  
26  
28  
30  
cdac@DESKTOP-903P6BA:~$
```

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

```
cdac@DESKTOP-903P6BA: ~  
cdac@DESKTOP-903P6BA:~$ ls  
Day_1 LinuxAssignment abc.txt data.txt file1.txt file2.txt numbers.txt  
cdac@DESKTOP-903P6BA:~$ tail -3 numbers.txt  
46  
48  
50  
cdac@DESKTOP-903P6BA:~$
```


- 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-903P6BA: ~  
cdac@DESKTOP-903P6BA:~$ tr a-z A-z < input.txt  
HI  
HEY  
HELLO  
WHAT'S UP?  
HEYYY  
GOOD MORNING  
cdac@DESKTOP-903P6BA:~$
```

- 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-903P6BA: ~  
cdac@DESKTOP-903P6BA:~$ cat duplicate.txt  
hi  
hi  
hey  
hello  
hello  
what's up?  
heyyy  
good morning  
good afternoon  
good evening  
good evening  
how do you do?  
cdac@DESKTOP-903P6BA:~$  
cdac@DESKTOP-903P6BA:~$ uniq duplicate.txt  
hi  
hey  
hello  
what's up?  
heyyy  
good morning  
good afternoon  
good evening  
how do you do?  
cdac@DESKTOP-903P6BA:~$
```


- 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-903P6BA: ~

```
Orange
Grapes
Pineapple
Watermelon
Papaya
Guava
Pomegranate
Mango
Orange
GrapeApple
Banana
Mango
Orange
Grapes
Pineapple
Watermelon
Papaya
```

cdac@DESKTOP-903P6BA:~\$ sort fruit.txt | uniq -c

```
  1 Apple
  2 Banana
  1 GrapeApple
  2 Grapes
  1 Guava
  3 Mango
  3 Orange
  1 Papaya
  1 Papaya
  2 Pineapple
  1 Pomegranate
  2 Watermelon
```

cdac@DESKTOP-903P6BA:~\$