

Problem 1

- 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@LAPTOP-5JVLRI9L: ~/Li × + v
cdac@LAPTOP-5JVLRI9L:/$ cd ~
cdac@LAPTOP-5JVLRI9L:~$ pwd
/home/cdac
cdac@LAPTOP-5JVLRI9L:~$ ls -l
total 4
drwx----- 3 cdac cdac 4096 Aug 18 11:27 snap
cdac@LAPTOP-5JVLRI9L:~$ ls | grep LinuxAssignment
cdac@LAPTOP-5JVLRI9L:~$ mkdir -p LinuxAssignment
cdac@LAPTOP-5JVLRI9L:~$ cd LinuxAssignment
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ pwd
/home/cdac/LinuxAssignment
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ |
```

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

```
cdac@LAPTOP-5JVLRI9L: ~/Li × + v
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ touch file1.txt
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ cat
file1.txt
file1.txt
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ cat file1.txt
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ echo "This is my first OS
Assignment" > file1.txt
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ cat file1.txt
This is my first OS Assignment
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$
```

- c) Create a new directory named "docs" inside the "LinuxAssignment" directory.

```
cdac@LAPTOP-5JVLRI9L: ~/Li × + v
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ mkdir docs
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ ls -l
total 8
drwxr-xr-x 2 cdac cdac 4096 Aug 18 13:47 docs
-rw-r--r-- 1 cdac cdac 31 Aug 18 13:44 file1.txt
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ ls
docs file1.txt
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$
```

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

```
cdac@LAPTOP-5JVLRI9L: ~/Li × + v
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ cp file1.txt docs/file2.tx
t
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ ls docs
file2.txt
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ cat docs/file2.txt
This is my first OS Assignment
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$
```

- e) 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@LAPTOP-5JVLRI9L: ~/Li × + v
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment/docs$ whoami
cdac
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment/docs$ sudo chown $(whoami):
$(whoami) file2.txt
[sudo] password for cdac:
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment/docs$ ls -l file2.txt
-rwxr--r-- 1 cdac cdac 31 Aug 18 13:51 file2.txt
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment/docs$
```

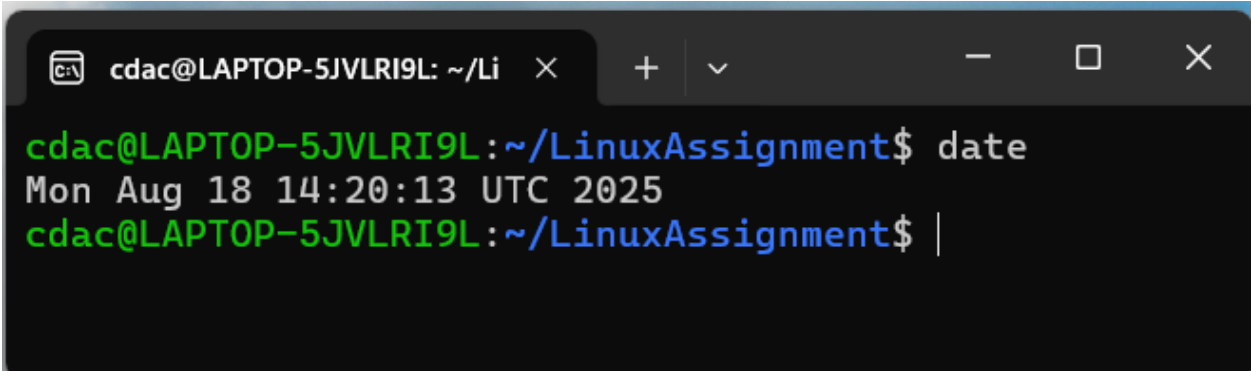
- f) Finally, list the contents of the "LinuxAssignment" directory and the root directory to ensure that all operations were performed correctly.

```
cdac@LAPTOP-5JVLRI9L: ~/LinuxAssignment/docs$ cd ..
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ ls -l
total 8
drwxr-xr-x 2 cdac cdac 4096 Aug 18 13:51 docs
-rw-r--r-- 1 cdac cdac 31 Aug 18 13:44 file1.txt
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ ls -l /
total 2740
lrwxrwxrwx 1 root root 7 Apr 22 2024 bin -> usr/bin
drwxr-xr-x 2 root root 4096 Feb 26 2024 bin.usr-is-merged
drwxr-xr-x 2 root root 4096 Apr 22 2024 boot
drwxr-xr-x 15 root root 3860 Aug 18 10:49 dev
drwxr-xr-x 88 root root 4096 Aug 18 10:49 etc
drwxr-xr-x 3 root root 4096 Aug 18 03:45 home
-rwxrwxrwx 1 root root 2724480 Jul 31 14:56 init
lrwxrwxrwx 1 root root 7 Apr 22 2024 lib -> usr/lib
drwxr-xr-x 2 root root 4096 Apr 8 2024 lib.usr-is-merged
lrwxrwxrwx 1 root root 9 Apr 22 2024 lib64 -> usr/lib64
drwx----- 2 root root 16384 Aug 18 03:43 lost+found
drwxr-xr-x 2 root root 4096 Aug 5 16:55 media
drwxr-xr-x 7 root root 4096 Aug 18 03:44 mnt
drwxr-xr-x 2 root root 4096 Aug 5 16:55 opt
dr-xr-xr-x 220 root root 0 Aug 18 10:49 proc
drwx----- 3 root root 4096 Aug 5 16:57 root
```

- g) 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).

```
cdac@LAPTOP-5JVLRI9L: ~/LinuxAssignment$ find . -type f -name "*.txt"
./file1.txt
./docs/file2.txt
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ grep "OS Assignment" file1.txt
This is my first OS Assignment
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ |
```

h) Display the current system date and time.

A terminal window with a dark background. The title bar shows 'cdac@LAPTOP-5JVLRI9L: ~/Li' and standard window controls. The prompt is 'cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment\$'. The command 'date' has been entered, and the output is 'Mon Aug 18 14:20:13 UTC 2025'. The prompt is now 'cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment\$ |' with a cursor.

```
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ date
Mon Aug 18 14:20:13 UTC 2025
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ |
```

- i) a. Display the IP address of the system.
b. Ping a remote server to check connectivity (provide a remote server address to ping).

```
cdac@LAPTOP-5JVLRI9L: ~/LinuxAssignment$ ip addr show
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:1e:25:f5 brd ff:ff:ff:ff:ff:ff
    inet 172.20.157.202/20 brd 172.20.159.255 scope global eth0
        valid_lft forever preferred_lft forever
    inet6 fe80::215:5dff:fe1e:25f5/64 scope link
        valid_lft forever preferred_lft forever
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ ping -c 2 google.com
PING google.com (142.250.70.110) 56(84) bytes of data:
64 bytes from pnbomb-ac-in-f14.1e100.net (142.250.70.110): icmp_seq=1 ttl=118 time=6.79 ms
64 bytes from pnbomb-ac-in-f14.1e100.net (142.250.70.110): icmp_seq=2 ttl=118 time=172 ms

--- google.com ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1000ms
rtt min/avg/max/mdev = 6.790/89.581/172.372/82.791 ms
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ |
```

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

```
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ zip -r docs.zip docs
  adding: docs/ (stored 0%)
  adding: docs/file2.txt (stored 0%)
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ ls
docs  docs.zip  file1.txt
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ mkdir docs_extracted
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ ls
docs  docs.zip  docs_extracted  file1.txt
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ unzip docs.zip -d docs_extracted
Archive:  docs.zip
  creating: docs_extracted/docs/
  extracting: docs_extracted/docs/file2.txt
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ |
```

- k) 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@LAPTOP-5JVLRI9L: ~/Li  ×  +  ▾
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ ls
docs  docs.zip  docs_extracted  file1.txt
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ cat file1.txt
This is my first OS Assignment
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ nano file1.txt
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ cat file1.txt
This is my second OS Assignment
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ vi file1.txt
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ cat file1.txt
This is my Third OS Assignment
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ sed -i 's/Third/Fifth/g' file1.txt
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ cat file1.txt
This is my Fifth OS Assignment
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ |
```

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@LAPTOP-5JVLRI9L: ~/Li x + v
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ touch data.txt
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ vi data.txt
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ head data.txt
hey good morning!!
os stands for operating system
some unix command as follows
cat
touch
mkdir
rm
rmdir
vi
vim
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ |
```

- 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@LAPTOP-5JVLRI9L: ~/Li x + v
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ tail -n 5 data.txt
vi
vim
nano
cp
mv
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ |
```


- 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@LAPTOP-5JVLRI9L: ~/Li × + ▾  
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ head -n 15 numbers.txt  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ |
```

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

```
cdac@LAPTOP-5JVLRI9L: ~/Li × + ▾  
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ tail -n 3 numbers.txt  
18  
19  
20  
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$
```

- 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@LAPTOP-5JVLRI9L: ~/Li × + v
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ cat > input.txt
hii everyone
unix program
shell scripting
good night
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ tr 'a-z' 'A-Z' < input.txt > out
put.txt
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ cat output.txt
HII EVERYONE
UNIX PROGRAM
SHELL SCRIPTING
GOOOD NIGHT
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ |
```

- 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@LAPTOP-5JVLRI9L: ~/Li × + v
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ cat duplicate.txt
mango
banana
apple
mango
strawberry
kiwi
apple
orange
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ sort duplicate.txt | uniq
apple
banana
kiwi
mango
orange
strawberry
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ |
```

- 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@LAPTOP-5JVLRI9L: ~/Li × + v
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ cat fruit.txt
dragon fruit
banana
apple
banana
pine apple
strawberry
papaya
kiwi
cherry
blueberry
apple
cdac@LAPTOP-5JVLRI9L:~/LinuxAssignment$ sort fruit.txt | uniq -c
      2 apple
      1 banana
      1 banana
      1 blueberry
      1 cherry
      1 dragon fruit
      1 kiwi
      1 papaya
```