Assignment 1

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.

```
root@Rishabh:~# pwd
/root
root@Rishabh:~# ls
ShellProgramming  snap
root@Rishabh:~# mkdir LinuxAssignment
root@Rishabh:~# ls
LinuxAssignment  ShellProgramming  snap
root@Rishabh:~#
```

b) File Management:

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

```
root@Rishabh:~/LinuxAssignment# pwd
/root/LinuxAssignment
root@Rishabh:~/LinuxAssignment# ls
root@Rishabh:~/LinuxAssignment# nano file1.txt
root@Rishabh:~/LinuxAssignment# cat file1.txt
"Hello, Rishabh"
It is second question.
root@Rishabh:~/LinuxAssignment#
```

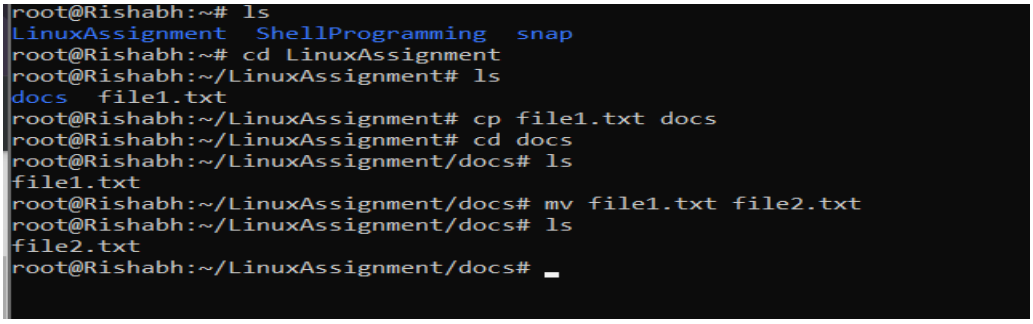
c) Directory Management:

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

```
root@Rishabh:~# ls
LinuxAssignment  ShellProgramming  snap
root@Rishabh:~# cd LinuxAssignment
root@Rishabh:~/LinuxAssignment# ls
file1.txt
root@Rishabh:~/LinuxAssignment# mkdir docs
root@Rishabh:~/LinuxAssignment# ls
docs  file1.txt
root@Rishabh:~/LinuxAssignment#
```

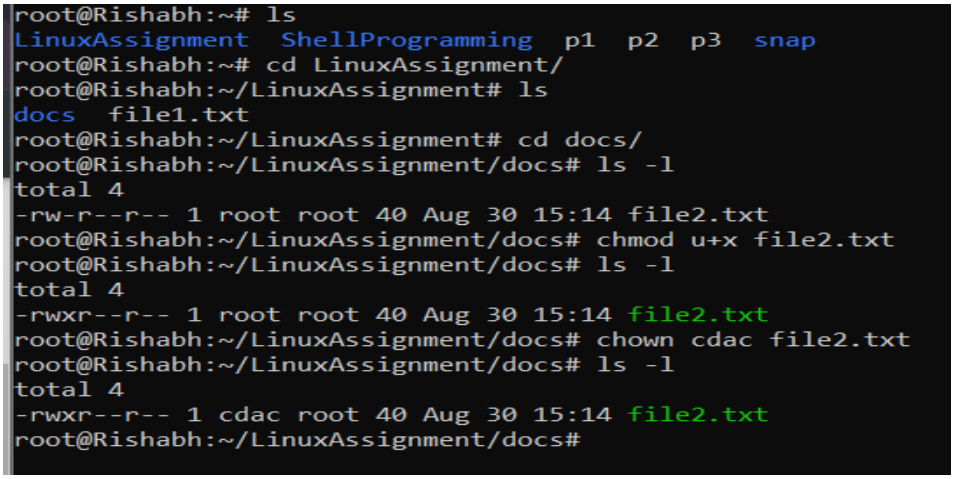
d) Copy and Move Files:

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



f) Final Checklist:

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

g) File Searching:

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

```
root@Rishabh:~# pwd
/root
root@Rishabh:~# ls
LinuxAssignment  ShellProgramming  p1  p2  p3  snap
root@Rishabh:~# find . -type f -name "*.txt"
./LinuxAssignment/docs/file2.txt
./LinuxAssignment/file1.txt
```

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

```
root@Rishabh:~# ls
LinuxAssignment  ShellProgramming  p1  p2  p3  snap
root@Rishabh:~# cd LinuxAssignment/
root@Rishabh:~/LinuxAssignment# ls
docs  file1.txt
root@Rishabh:~/LinuxAssignment# grep -l Hello file1.txt
file1.txt
root@Rishabh:~/LinuxAssignment#
```

h) System Information: a. Display the current system date and time.

```
root@Rishabh:~# pwd
/root
root@Rishabh:~# date
Sat Aug 31 15:51:15 IST 2024
root@Rishabh:~#
```

i) Networking:

a. Display the IP address of the system.

```
root@Rishabh:~# hostname -I
172.31.115.224
root@Rishabh:~#
```

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

```
root@Rishabh:~# hostname -I
172.31.115.224
root@Rishabh:~# ping www.google.com
PING www.google.com (142.250.193.196) 56(84) bytes of data.
64 bytes from del11s17-in-f4.1e100.net (142.250.193.196): icmp_seq=1 ttl=110 time=45.0 ms
64 bytes from del11s17-in-f4.1e100.net (142.250.193.196): icmp_seq=2 ttl=110 time=38.2 ms
64 bytes from del11s17-in-f4.1e100.net (142.250.193.196): icmp_seq=3 ttl=110 time=53.9 ms
64 bytes from del11s17-in-f4.1e100.net (142.250.193.196): icmp_seq=4 ttl=110 time=28.7 ms
^C
--- www.google.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3004ms
rtt min/avg/max/mdev = 28.655/41.450/53.888/9.239 ms
root@Rishabh:~#
```

j) File Compression:

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

```
root@Rishabh:~# pwd
/root
root@Rishabh:~# ls
LinuxAssignment  ShellProgramming  p1  p2  p3  snap
root@Rishabh:~# cd LinuxAssignment/
root@Rishabh:~/LinuxAssignment# ls
docs  file1.txt
root@Rishabh:~/LinuxAssignment# tar -czf docs.tar.gz docs/
root@Rishabh:~/LinuxAssignment# ls
docs  docs.tar.gz  file1.txt
```

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

```
root@Rishabh:~/LinuxAssignment# tar -xvzf docs.tar.gz
docs/
docs/file2.txt
docs/file1.txt
root@Rishabh:~/LinuxAssignment#
```

k) File Editing:

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

```
  GNU nano 6.2                                        file1.txt
Hello, World
I am editing this file.
```

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.

```
root@Rishabh:~# ls
LinuxAssignment  ShellProgramming  p1  p2  p3  snap
root@Rishabh:~# cd LinuxAssignment/
root@Rishabh:~/LinuxAssignment# nano data.txt
root@Rishabh:~/LinuxAssignment# head -10 data.txt
first line
second line
third line
fourth line
fifth line
sixth line
seventh line
eighth line
nine line
tenth line
root@Rishabh:~/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.

```
root@Rishabh:~/LinuxAssignment# tail -5 data.txt
seventh line
eighth line
nine line
tenth line
eleventh line
```

c. In a file named "numbers.txt," there are a series of numbers. Display the first 15 lines of this file to analyse the initial data set.

```
root@Rishabh:~/LinuxAssignment# nano numbers.txt
root@Rishabh:~/LinuxAssignment# head -15 numbers.text
head: cannot open 'numbers.text' for reading: No such file or directory
root@Rishabh:~/LinuxAssignment# ls
data.txt  docs  docs.tar.gz  file1.txt  numbers.txt
root@Rishabh:~/LinuxAssignment# head -15 numbers.txt
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
```

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

```
root@Rishabh:~/LinuxAssignment# tail -3 numbers.txt
18
19
20
root@Rishabh:~/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."

```
root@Rishabh:~/LinuxAssignment# nano input.txt
root@Rishabh:~/LinuxAssignment# cat input.txt | tr 'a-z' 'A-Z'output.text
THIS IS A FILE TO CHECK TO UPPERCASE ALL LETTERS FROM LOWERCASE LETTERS.
root@Rishabh:~/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."

```
root@Rishabh:~/LinuxAssignment# nano duplicate.txt
root@Rishabh:~/LinuxAssignment# sort duplicate.txt | uniq
Hello
It is
Rishabh
a test of
duplicate
file.
root@Rishabh:~/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."

```
root@Rishabh:~/LinuxAssignment# cat fruit.txt
Banana
Apple
Mango
Orange
Pineapple
Banana
Mango
Pineapple
Apple
Apple
root@Rishabh:~/LinuxAssignment# cut -d '' -f 1 fruit.txt | sort | uniq -c
      2 Apple
      1 Apple
      1 Banana
      1 Banana
      1 Mango
      1 Mango
      1 Orange
      2 Pineapple
root@Rishabh:~/LinuxAssignment#
```