a) Navigate and List:
 a. Start by navigating to your home directory and list its contents. Then, move into

directory named "LinuxAssignment" if it exists; otherwise, create it.

Screenshot :

```
[rohanketkar@Rohans-MacBook-Air Desktop % pwd
/Users/rohanketkar/Desktop
[rohanketkar@Rohans-MacBook-Air Desktop % ls
$RECYCLE.BIN    desktop.ini     linux
[rohanketkar@Rohans-MacBook-Air Desktop % mkdir LinuxAssignment
 rohanketkar@Rohans-MacBook-Air Desktop %
```

b) File Management:
 a. Inside the "LinuxAssignment" directory, create a new file named "file1.txt". Display it

Contents.

Screenshot :

```
[rohanketkar@Rohans-MacBook-Air Desktop % ls
$RECYCLE.BIN
LinuxAssignment
Screenshot 2024-09-03 at 12.13.26 PM.png
desktop.ini
linux
[rohanketkar@Rohans-MacBook-Air Desktop % cd LinuxAssignment
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % ls
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % touch file1.txt
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % ls
file1.txt
 rohanketkar@Rohans-MacBook-Air LinuxAssignment %
```

c) Directory Management:

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

```
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % mkdir docs
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % ls
 docs           file1.txt
 rohanketkar@Rohans-MacBook-Air LinuxAssignment %
```

d) Copy and Move Files:

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

```
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % ls
docs            file1.txt
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % cp file1.txt docs/file2.txt
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % ls
docs            file1.txt
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % cd docs
[rohanketkar@Rohans-MacBook-Air docs % ls
file2.txt
rohanketkar@Rohans-MacBook-Air 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.

```
[rohanketkar@Rohans-MacBook-Air docs % ls
file2.txt
[rohanketkar@Rohans-MacBook-Air docs % ls -l
total 0
-rw-r--r--  1 rohanketkar  staff  0 Sep  3 12:43 file2.txt
[rohanketkar@Rohans-MacBook-Air docs % chmod u+rwx file2.txt
[rohanketkar@Rohans-MacBook-Air docs % ls -l
total 0
-rwxr--r--  1 rohanketkar  staff  0 Sep  3 12:43 file2.txt
rohanketkar@Rohans-MacBook-Air 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.

```
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % ls
docs            file1.txt
rohanketkar@Rohans-MacBook-Air LinuxAssignment %
```

g) File Searching:
Search for all files with the extension ".txt" in the current directory and its subdirectories.

Display lines containing a specific word in a file (provide a file name and the specific

word to search).

```
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % find . -type f -name "*txt"
./file1.txt
./docs/file2.txt
rohanketkar@Rohans-MacBook-Air LinuxAssignment % █
```

```
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % ls
docs            file1.txt
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % nano file1.txt
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % cat file1.txt
 good
 great

[rohanketkar@Rohans-MacBook-Air LinuxAssignment % grep "good" file1.txt
 good
rohanketkar@Rohans-MacBook-Air LinuxAssignment %
```

h) System Information:

a. Display the current system date and time.

```
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % date
Tue Sep  3 13:08:31 IST 2024
rohanketkar@Rohans-MacBook-Air LinuxAssignment % █
```

i) Networking:

Display the IP address of the system.

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

```
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % ifconfig | grep "netmask"
        inet 127.0.0.1 netmask 0xff000000
        inet 192.168.0.101 netmask 0xffffff00 broadcast 192.168.0.255
rohanketkar@Rohans-MacBook-Air LinuxAssignment % █
```

```
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % ping 127.0.0.1
PING 127.0.0.1 (127.0.0.1): 56 data bytes
64 bytes from 127.0.0.1: icmp_seq=0 ttl=64 time=0.070 ms
64 bytes from 127.0.0.1: icmp_seq=1 ttl=64 time=0.135 ms
64 bytes from 127.0.0.1: icmp_seq=2 ttl=64 time=0.134 ms
64 bytes from 127.0.0.1: icmp_seq=3 ttl=64 time=0.114 ms
64 bytes from 127.0.0.1: icmp_seq=4 ttl=64 time=0.099 ms
64 bytes from 127.0.0.1: icmp_seq=5 ttl=64 time=0.107 ms
64 bytes from 127.0.0.1: icmp_seq=6 ttl=64 time=0.092 ms
64 bytes from 127.0.0.1: icmp_seq=7 ttl=64 time=0.161 ms
64 bytes from 127.0.0.1: icmp_seq=8 ttl=64 time=0.103 ms
64 bytes from 127.0.0.1: icmp_seq=9 ttl=64 time=0.093 ms
█
```

j) File Compression:

Compress the "docs" directory into a zip file.

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

```
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % ls
docs            file1.txt
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % zip -r docs.zip docs
  adding: docs/ (stored 0%)
  adding: docs/file2.txt (stored 0%)
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % mkdir unzip
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % ls
docs            docs.zip        file1.txt       unzip
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % unzip docs.zip -d unzip
Archive:  docs.zip
   creating: unzip/docs/
  extracting: unzip/docs/file2.txt
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % ls
docs            docs.zip        file1.txt       unzip
[rohanketkar@Rohans-MacBook-Air LinuxAssignment % cd unzip
[rohanketkar@Rohans-MacBook-Air unzip % ls
docs
[rohanketkar@Rohans-MacBook-Air unzip % cd docs
[rohanketkar@Rohans-MacBook-Air docs % ls
file2.txt
rohanketkar@Rohans-MacBook-Air docs % █
```

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).

```
[rohanketkar@Rohans-MacBook-Air docs % ls
1.txt           abcde.txt        file2.txt
[rohanketkar@Rohans-MacBook-Air docs % cat abcde.txt
good
great
fine
excellent
best

[rohanketkar@Rohans-MacBook-Air docs % sed -i "" 's/good/great/g' abcde.txt
[rohanketkar@Rohans-MacBook-Air docs % cat abcde.txt
great
great
fine
excellent
best

rohanketkar@Rohans-MacBook-Air docs %
```

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.

Command :   head -10 data.txt

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

Command :   tail -5

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.

Command :   head -15 numbers.txt

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

Command :   tail -3 numbers.txt

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."

Command   :   tr "a-z" "A-Z" < input.txt > output.txt

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."

Command :   sort duplicate.txt | uniq

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."

Command :   sort fruit.txt | uniq -c