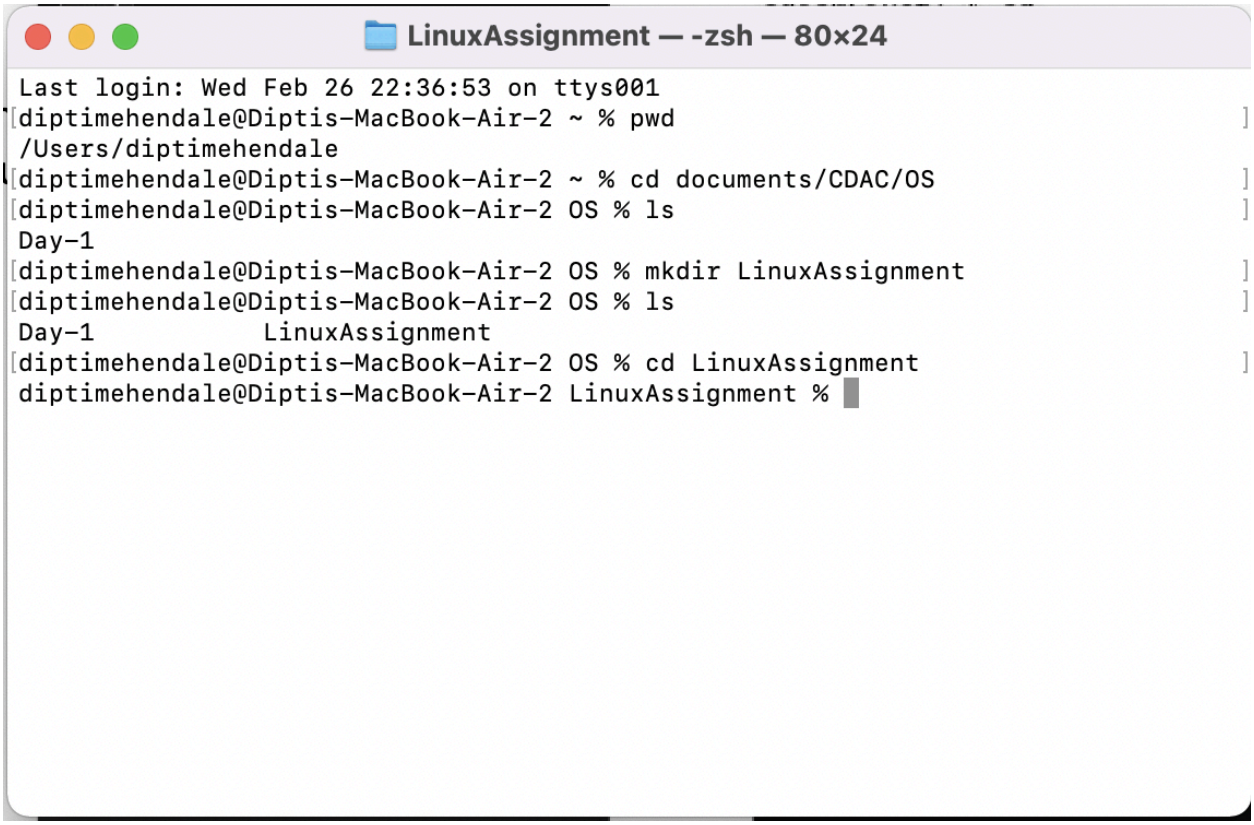
Assignment 1

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.

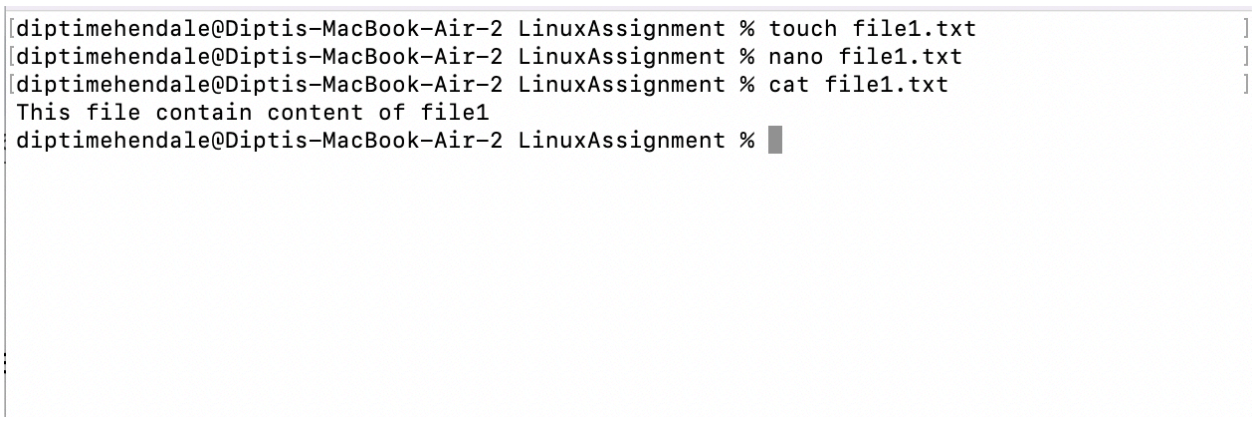
Ans:-



b) File Management:

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

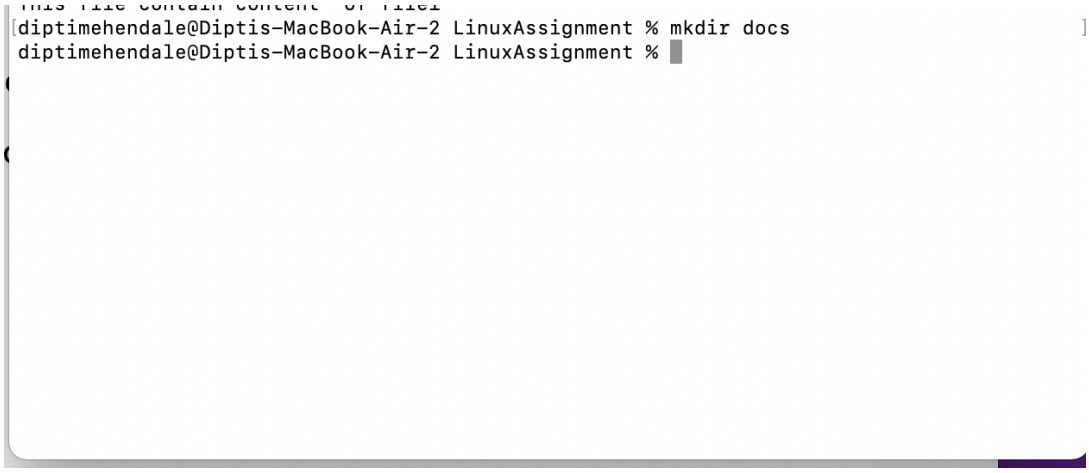
Ans:-



c) Directory Management:

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

Ans:-



d) Copy and Move Files:

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

Ans:-

```
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % cp file1.txt docs/file2.txt
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % cd docs
diptimehendale@Diptis-MacBook-Air-2 docs % nano file2.txt
diptimehendale@Diptis-MacBook-Air-2 docs % cat file2.txt
This file contain content of file1
diptimehendale@Diptis-MacBook-Air-2 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.

Ans:-

- To allow read, write, and execute for the owner and only read for others:

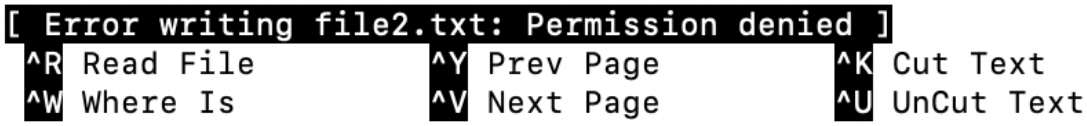
```
diptimehendale@Diptis-MacBook-Air-2 docs % cd ..
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % chmod 744 docs/file2.txt
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % ls -l docs/file2.txt
-rwxr--r--@ 1 diptimehendale  staff  35 Feb 26 23:08 docs/file2.txt
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment %
```

- Change Ownership

Changed ownership of file2.txt to testuser

```
diptimehendale@Diptis-MacBook-Air-2 docs % sudo chown testuser file2.txt
diptimehendale@Diptis-MacBook-Air-2 docs % ls -l file2.txt
-rwxr--r--@ 1 testuser  staff  35 Feb 26 23:08 file2.txt
diptimehendale@Diptis-MacBook-Air-2 docs % nano file2.txt
diptimehendale@Diptis-MacBook-Air-2 docs %
```

When trying to update file2.txt for testuser , it getting error:



f) Final Checklist:

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

Ans:-

- List the contents of "LinuxAssignment" directory

```
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % ls
docs            file1.txt
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment %
```

- List the contents of the Root (/) directory

```
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % ls -l
total 8
drwxr-xr-x  3 diptimehendale  staff  96 Feb 26 23:08 docs
-rw-r--r--@ 1 diptimehendale  staff  35 Feb 26 23:06 file1.txt
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment %
```

g) File Searching:

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

Ans:-

```
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % find . -type f -name "*.txt"

./file1.txt
./docs/file2.txt
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment %
```

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

Ans:-

```
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % grep "contain" file1.txt

This file contain content of file1
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment %
```

h) System Information:

a. Display the current system date and time.

Ans:-

- Date:

```
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % date
Thu Feb 27 00:31:48 IST 2025
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment %
```

- Date and time separately

```
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % date +"%Y-%m-%d"

2025-02-27
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % date +"%H:%M:%S"

00:34:09
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment %
```

i) Networking:

a. Display the IP address of the system.

Ans:-

```
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % ipconfig getifaddr en0

192.168.1.18
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment %
```

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

```
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % ping -c 4 google.com

PING google.com (142.250.199.142): 56 data bytes
64 bytes from 142.250.199.142: icmp_seq=0 ttl=120 time=8.613 ms
64 bytes from 142.250.199.142: icmp_seq=1 ttl=120 time=10.567 ms
64 bytes from 142.250.199.142: icmp_seq=2 ttl=120 time=10.473 ms
64 bytes from 142.250.199.142: icmp_seq=3 ttl=120 time=10.337 ms

--- google.com ping statistics ---
4 packets transmitted, 4 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 8.613/9.997/10.567/0.804 ms
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment %
```

```
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % ping -c 4 8.8.8.8

PING 8.8.8.8 (8.8.8.8): 56 data bytes
64 bytes from 8.8.8.8: icmp_seq=0 ttl=120 time=7.055 ms
64 bytes from 8.8.8.8: icmp_seq=1 ttl=120 time=10.131 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=120 time=9.274 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=120 time=7.099 ms

--- 8.8.8.8 ping statistics ---
4 packets transmitted, 4 packets received, 0.0% packet loss
round-trip min/avg/max/stddev = 7.055/8.390/10.131/1.347 ms
```

j) File Compression:

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

```
diptimehendale@Diptis-MacBook-Air-2 Linuxassignment % zip -r docs.zip docs
  adding: docs/ (stored 0%)
  adding: docs/file2.txt (deflated 14%)
  adding: docs/file3.txt (stored 0%)
  adding: docs/file1.txt (stored 0%)
  adding: docs/file4.txt (stored 0%)
  adding: docs/docs.zip (stored 0%)
diptimehendale@Diptis-MacBook-Air-2 Linuxassignment % ls
data.txt        docs.zip        file1.txt       input.txt       output.txt
docs            duplicate.txt   fruit.txt       numbers.txt
diptimehendale@Diptis-MacBook-Air-2 Linuxassignment %
```

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

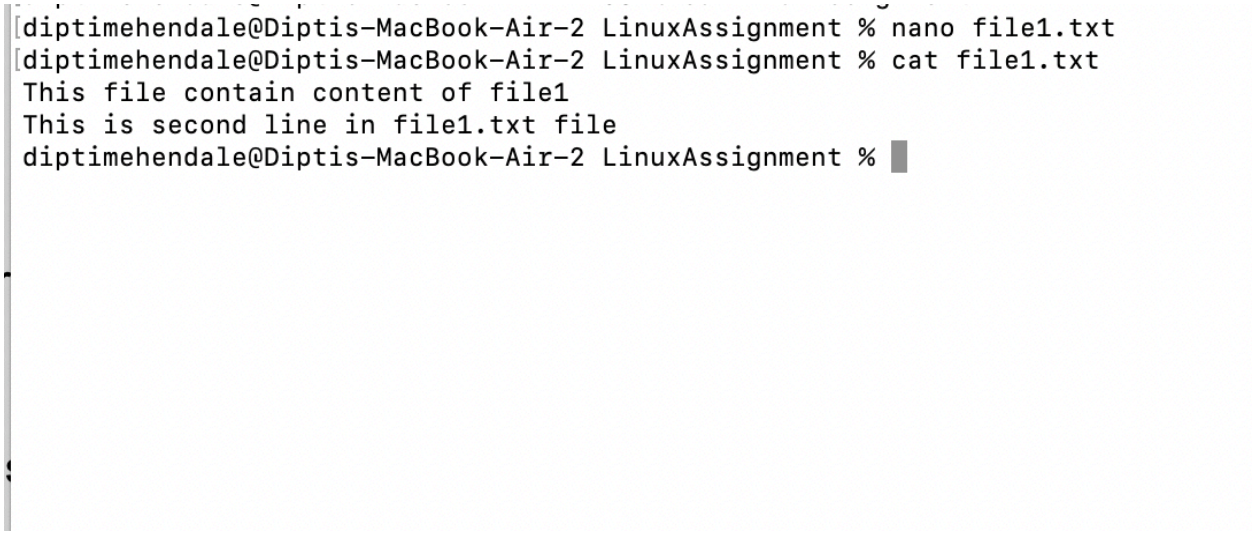
```
diptimehendale@Diptis-MacBook-Air-2 Linuxassignment % unzip docs.zip -d extracted_docs
Archive:  docs.zip
   creating: extracted_docs/docs/
  inflating: extracted_docs/docs/file2.txt
 extracting: extracted_docs/docs/file3.txt
 extracting: extracted_docs/docs/file1.txt
 extracting: extracted_docs/docs/file4.txt
 extracting: extracted_docs/docs/docs.zip

diptimehendale@Diptis-MacBook-Air-2 Linuxassignment % cd extracted_docs
diptimehendale@Diptis-MacBook-Air-2 extracted_docs % ls
docs
diptimehendale@Diptis-MacBook-Air-2 extracted_docs % ls docs
file1.txt       file2.txt       file3.txt       file4.txt
diptimehendale@Diptis-MacBook-Air-2 extracted_docs %
```

k) File Editing:

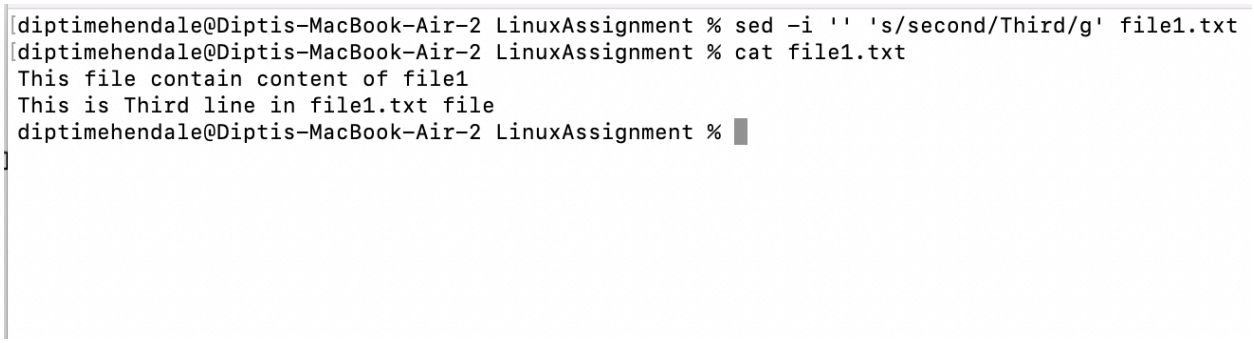
a. Open the "file1.txt" file in a text editor and add some text to it.

Ans:-



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

Ans:-



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.

Ans:-

```
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % touch data.txt
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % ls
data.txt        docs            file1.txt
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % nano data.txt
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % head -10 data.txt
LINE 1
LINE 2
LINE 3
LINE 4
LINE 5
LINE 6
LINE 7
LINE 8
LINE 9
LINE 10
```

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

Ans:

```
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % tail -5 data.txt
LINE 9
LINE 10
LINE 11
LINE 12
LINE 13
```

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.

Ans:-

```
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % touch numbers.txt
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % nano numbers.txt
diptimehendale@Diptis-MacBook-Air-2 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".

Ans:-

```
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % tail -3 numbers.txt

18
19
20
diptimehendale@Diptis-MacBook-Air-2 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."

Ans:-

```
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % touch input.txt
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % nano input.txt
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % cat input.txt
hello world!
this is a sample file.
```

```
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % tr '[:lower:]' '[:upper:]' < input.txt > output.txt

diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % cat output.txt
HELLO WORLD!
THIS IS A SAMPLE FILE.
```

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."

Ans:-

```
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % cat duplicate.txt
apple
banana
banana
grape
orange
apple
orange
```

```
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % cat duplicate.txt | sort | uniq
apple
banana
grape
orange
```

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."

Ans:-

```
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % cat fruit.txt
apple
banana
apple
orange
banana
grape
orange
apple
banana
```

```
banana
diptimehendale@Diptis-MacBook-Air-2 LinuxAssignment % cat fruit.txt | sort | uniq -c
      3 apple
      3 banana
      1 grape
      2 orange
```