Problem 1 : Read the instructions carefully and answer accordingly. If there is any need to insert some data then do that as well.

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.

```
    at startup (node.js:117:18)
    at node.js:951:3
nvm is not compatible with the npm config "prefix" option: currently set to ""
Run `npm config delete prefix` or `nvm use --delete-prefix v4.0.0 --silent` to u
nset it.
sunbeam@sunbeam-HP-Notebook:~$ clear

sunbeam@sunbeam-HP-Notebook:~$ ls
 444.txt
```

```
sunbeam@sunbeam-HP-Notebook:~$ cd ME
MEAN CLASSWORK/ MEHUL/
sunbeam@sunbeam-HP-Notebook:~$ cd MEHUL/LinuxAssignment/
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment$
```

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

```
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment$ touch file1.txt
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment$ nano file1.txt
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment$ cat file1.txt
Hi
I am
Mehul
Patil
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment$
```

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

```
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment$ mkdir docs
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment$
```

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

```
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment$ cp file1.txt docs/file2.txt
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment$ cd docs/
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ ls
file2.txt
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ cat file2.txt
Hi
I am
Mehul
Nikam
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$
```

5-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.

```
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ ls -l
total 56
-rw-r--r-- 1 sunbeam sunbeam  91 Feb 28 23:25 file10.txt
-rw-r--r-- 1 sunbeam sunbeam 122 Feb 28 23:29 file11.txt
-rw-r--r-- 1 sunbeam sunbeam 106 Feb 28 23:41 file12.txt
-rw-r--r-- 1 sunbeam sunbeam 166 Feb 28 23:48 file13.txt
-rwxr--r-- 1 sunbeam sunbeam  20 Feb 28 19:18 file2.txt
-rw-r--r-- 1 sunbeam sunbeam 168 Feb 28 21:26 file3.txt
-rw-r--r-- 1 sunbeam sunbeam  61 Feb 28 21:42 file4.txt
-rw-r--r-- 1 sunbeam sunbeam 132 Feb 28 22:00 file5.txt
-rw-r--r-- 1 sunbeam sunbeam  61 Feb 28 21:43 file5.xt
-rw-r--r-- 1 sunbeam sunbeam  62 Feb 28 22:12 file6.txt
-rw-r--r-- 1 sunbeam sunbeam  43 Feb 28 22:16 file7.txt
-rw-r--r-- 1 sunbeam sunbeam  39 Feb 28 23:15 file8.txt
-rw-r--r-- 1 sunbeam sunbeam  56 Feb 28 23:20 file9.txt
-rw-r--r-- 1 sunbeam sunbeam   0 Feb 28 23:23 file.txt
-rw-r--r-- 1 sunbeam sunbeam  20 Feb 28 19:59 numbers.txt
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$
```

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

```
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ cd ../
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment$ ls
docs  file1.txt
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment$ cd ../
sunbeam@sunbeam-HP-Notebook:~/MEHUL$ ls
LinuxAssignment  xyx.txt  xyz.txt
sunbeam@sunbeam-HP-Notebook:~/MEHUL$
```

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

```
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ find . -type f -name "*.txt"
./file2.txt
./file3.txt
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$
```

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

```
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ nano file2.txt
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ grep "I" file2.txt
I am Mehul Patil
I am here to get a job
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ cat file2.txt
Hi
I am Mehul Patil
I am here to get a job
in the best company
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$
```

8-a) Display the current system date and time.

```
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ date
Thu Feb 27 23:57:38 IST 2025
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$
```

9-a) Display the IP address of the system.

```
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ hostname -I
172.17.0.1
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$
```

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

```
sunbeam@sunbeam-HP-Notebook:~$ ping google.com
PING google.com (142.250.67.142) 56(84) bytes of data.
64 bytes from bom12s06-in-f14.1e100.net (142.250.67.142): icmp_seq=1 ttl=60 time=19.2 ms
64 bytes from bom12s06-in-f14.1e100.net (142.250.67.142): icmp_seq=2 ttl=60 time=15.6 ms
64 bytes from bom12s06-in-f14.1e100.net (142.250.67.142): icmp_seq=3 ttl=60 time=16.8 ms
64 bytes from bom12s06-in-f14.1e100.net (142.250.67.142): icmp_seq=4 ttl=60 time=101 ms
64 bytes from bom12s06-in-f14.1e100.net (142.250.67.142): icmp_seq=5 ttl=60 time=15.6 ms
```

10-a) Compress the "docs" directory into a zip file.

```
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment$ zip -r docs.zip docs
  adding: docs/ (stored 0%)
  adding: docs/file2.txt (stored 0%)
```

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

```
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment$ unzip docs.zip -d ex_docs1
Archive:  docs.zip
   creating: ex_docs1/docs/
  inflating: ex_docs1/docs/file2.txt
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment$
```

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

```
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ touch file1.txt
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ nano file1.txt
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ cat file1.txt
Hi
I am
Mehul
Patil
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$
```

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

```
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ cat file1.txt
Hi
I am
Mehul
Patil
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ sed -i 's/Patil/Nikam/g' file1.txt
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ cat file1.txt
Hi
I am
Mehul
Nikam
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$
```

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.

```
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ head -10 data.txt
Hi
I
am
Mehul
Patil
I am
here
to get
a job
from cdac
```

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

```
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ tail -5 data.txt
people
whos having
better understanding
In the
IT industry
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$
```

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.

```
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ head -n 15 numbers.txt

12
34
56
78
910
1112
1314
1516
1718
1920
2122
2324
2526
2728
2930
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$
```

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

```
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ tail -n 3 numbers.txt
2526
2728
2930
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$
```

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."

```
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ touch input.txt
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ tr '[:lower:]' '[:upper:]' < input.txt > output.txt
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ cat output.txt
HI
I
AM
MEHUL
PATIL
I AM
HERE
TO GET
A JOB
FROM CDAC
AND
TRYING
TO CONNECT
WITH THE
PEOPLE
WHOS HAVING
BETTER UNDERSTANDING
IN THE
IT INDUSTRY
AAA
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$
```

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."

```
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ nano duplicate.txt
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ cat duplicate.txt | sort | uniq

AAA
Again
A JOB
AM
AND
BETTER UNDERSTANDING
FROM CDAC
HERE
HI
I
I AM
IN THE
IT INDUSTRY
MEHUL
PATIL
PEOPLE
TO CONNECT
TO GET
TRYING
WHOS HAVING
WITH THE
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$
```

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."

```
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ touch fruit.txt
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ nano fruit.txt
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$ sort fruit.txt | uniq -c
      2 Apple
      1 Grapes
      1 Kiwi
      2 Mango
      2 Orange
      1 Watermelon
sunbeam@sunbeam-HP-Notebook:~/MEHUL/LinuxAssignment/docs$
```