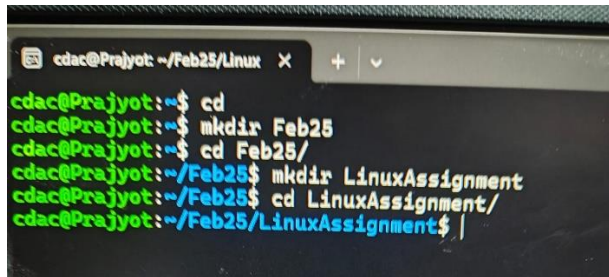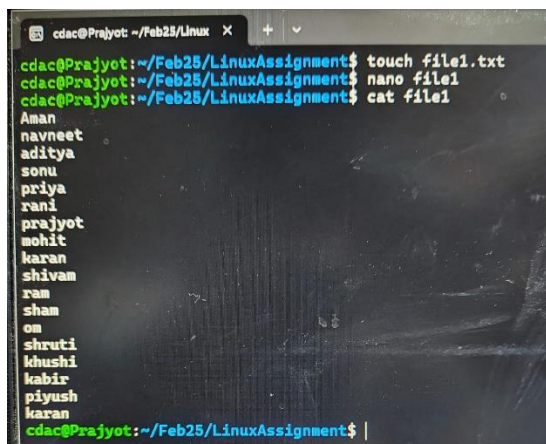*Prajyot Nimsarkar*

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: <u>a.</u> Start by navigating to your home directory and list its contents. Then, move into a directory named "LinuxAssignment" if it exists; otherwise, create it<u>.</u>

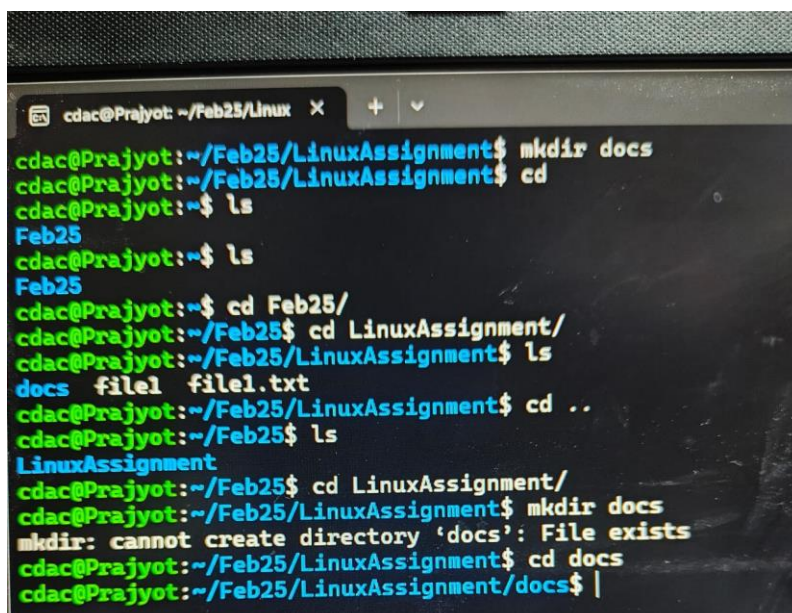

 b) File Management: **a.** Inside the "LinuxAssignment" directory, create a new file named "file1.txt". Display its contents.

 c) Directory Management: <u>a.</u> Create a new directory named "docs" inside the "LinuxAssignment" directory.

d) Copy and Move Files: <u>**a.**</u> Copy the "file1.txt" file into the "docs" directory and rename it to "file2.txt".


```
cdac@Prajyot:~/Feb25/LinuxAssignment/docs$ cd ..
cdac@Prajyot:~/Feb25/LinuxAssignment$ cp
cp: missing file operand
Try 'cp --help' for more information.
cdac@Prajyot:~/Feb25/LinuxAssignment$ man cp
cdac@Prajyot:~/Feb25/LinuxAssignment$ cp file1.txt
cp: missing destination file operand after 'file1.txt'
Try 'cp --help' for more information.
cdac@Prajyot:~/Feb25/LinuxAssignment$ cp file1.txt docs/file2.txt
cdac@Prajyot:~/Feb25/LinuxAssignment$ cd docs/
cdac@Prajyot:~/Feb25/LinuxAssignment/docs$ ls
file2.txt
cdac@Prajyot:~/Feb25/LinuxAssignment/docs$ |
```

e) Permissions and Ownership: <u>**a**</u>. 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.


```
      --help          display this help and exit
      --version       output version information and exit

Each MODE is of the form '[ugoa]*([-+=]([rwxXst]*|[ugo]))+|[-+=][0-7]+'.

GNU coreutils online help: <https://www.gnu.org/software/coreutils/>
Report any translation bugs to <https://translationproject.org/team/>
Full documentation <https://www.gnu.org/software/coreutils/chmod>
or available locally via: info '(coreutils) chmod invocation'
cdac@Prajyot:~/Feb25/LinuxAssignment/docs$ chmod file2.tx
t
chmod: missing operand after 'file2.txt'
Try 'chmod --help' for more information.
cdac@Prajyot:~/Feb25/LinuxAssignment/docs$ chmod 744 file
2.txt
cdac@Prajyot:~/Feb25/LinuxAssignment/docs$ chown $(who am i) file2.txt
chown: missing operand after 'file2.txt'
Try 'chown --help' for more information.
cdac@Prajyot:~/Feb25/LinuxAssignment/docs$
) file2.txt
cdac@Prajyot:~/Feb25/LinuxAssignment/docs$ |
t
-rwxr--r-- 1 cdac cdac 0 Feb 26 18:42 file2.txt
cdac@Prajyot:~/Feb25/LinuxAssignment/docs$
```

f) Final Checklist: <u>**a**</u>. Finally, list the contents of the "LinuxAssignment" directory and the root directory to ensure that all operations were performed correctly.


```
cdac@Prajyot:~/Feb25/LinuxAssignment$ cd ..
cdac@Prajyot:~/Feb25$ ls
LinuxAssignment
cdac@Prajyot:~/Feb25$ cd LinuxAssignment/
cdac@Prajyot:~/Feb25/LinuxAssignment$ ls
docs  file1.txt
cdac@Prajyot:~/Feb25/LinuxAssignment$ cat file1.txt
Aman
navneet
aditya
sonu
priya
rani
prajyot
mohit
karan
shivam
ram
sham
om
shruti
khushi
kabir
piyush
karan
cdac@Prajyot:~/Feb25/LinuxAssignment$ cd docs/
cdac@Prajyot:~/Feb25/LinuxAssignment/docs$ ls
file2.txt
cdac@Prajyot:~/Feb25/LinuxAssignment/docs$ cat file2.txt
Aman
navneet
aditya
sonu
priya
rani
prajyot
mohit
karan
shivam
ram
sham
```

g) File Searching: **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@Prajyot: ~/Feb25/Linux    ×    +    ∨
cdac@Prajyot:~/Feb25/LinuxAssignment/docs$ cd ..
cdac@Prajyot:~/Feb25/LinuxAssignment$ find . -name".txt"
find: unknown predicate `-name.txt'
cdac@Prajyot:~/Feb25/LinuxAssignment$ cd docs/
cdac@Prajyot:~/Feb25/LinuxAssignment/docs$ find . -name".txt"
find: unknown predicate `-name.txt'
cdac@Prajyot:~/Feb25/LinuxAssignment/docs$ cd ..
cdac@Prajyot:~/Feb25/LinuxAssignment$ find . -name"*.txt"
find: unknown predicate `-name*.txt'
cdac@Prajyot:~/Feb25/LinuxAssignment$ find . -name "*.txt"
./file1.txt
./docs/file2.txt
cdac@Prajyot:~/Feb25/LinuxAssignment$ grep "aman" "file1.txt"
cdac@Prajyot:~/Feb25/LinuxAssignment$ grep "prajyot" file1.txt
prajyot
cdac@Prajyot:~/Feb25/LinuxAssignment$ |
```

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

```
cdac@Prajyot: ~/Feb25/Linux    ×    +    ∨
cdac@Prajyot:~/Feb25/LinuxAssignment$ date
Wed Feb 26 19:17:05 UTC 2025
cdac@Prajyot:~/Feb25/LinuxAssignment$ |
```

i) Networking: **a**. Display the IP address of the system.

```
Windows IP Configuration

Ethernet adapter vEthernet (WSL (Hyper-V firewall)):

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::1e14:5d13:b10f:67fc%37
   IPv4 Address. . . . . . . . . . . : 172.24.112.1
   Subnet Mask . . . . . . . . . . . : 255.255.240.0
   Default Gateway . . . . . . . . . :

Wireless LAN adapter Local Area Connection* 12:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 13:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Wi-Fi:

   Connection-specific DNS Suffix  . :
   IPv6 Address. . . . . . . . . . . : 2401:4900:79fb:e37e:dd63:fb78:4fae:4f1d
   Temporary IPv6 Address. . . . . . : 2401:4900:79fb:e37e:189f:85e2:eaa9:cd7c
   Link-local IPv6 Address . . . . . : fe80::f766:cbd8:b4c1:dbf2%21
   IPv4 Address. . . . . . . . . . . : 192.168.75.101
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : fe80::ecbf:7bff:fedd:7d8c%21
                                       192.168.75.91

Ethernet adapter Bluetooth Network Connection:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
cdac@Prajyot:~/Feb25$
```

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

```
      I watermelon
cdac@Prajyot:~/Feb25/LinuxAssignment$ ping -c 4 google.com
PING google.com (142.250.199.174) 56(84) bytes of data.
64 bytes from bom07s37-in-f14.1e100.net (142.250.199.174): icmp_seq=1 ttl=57 time=63.6 ms
64 bytes from bom07s37-in-f14.1e100.net (142.250.199.174): icmp_seq=2 ttl=57 time=33.0 ms
64 bytes from bom07s37-in-f14.1e100.net (142.250.199.174): icmp_seq=3 ttl=57 time=30.8 ms
64 bytes from bom07s37-in-f14.1e100.net (142.250.199.174): icmp_seq=4 ttl=57 time=30.8 ms

--- google.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3002ms
rtt min/avg/max/mdev = 30.764/39.537/63.617/13.931 ms
cdac@Prajyot:~/Feb25/LinuxAssignment$ |
```

j) File Compression: **a.** Compress the "docs" directory into a zip file.

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

```
cdac@Prajyot:~/Feb25/LinuxAssignment$ zip -r docs.zip docs
  adding: docs/ (stored 0%)
  adding: docs/file2.txt (deflated 27%)
cdac@Prajyot:~/Feb25/LinuxAssignment$ ls
docs  docs.zip  file1.txt
cdac@Prajyot:~/Feb25/LinuxAssignment$ unzip -d newdata docs.zip
Archive:  docs.zip
   creating: newdata/docs/
  inflating: newdata/docs/file2.txt
cdac@Prajyot:~/Feb25/LinuxAssignment$ ls
docs  docs.zip  file1.txt  newdata
cdac@Prajyot:~/Feb25/LinuxAssignment$ cd newdata/
cdac@Prajyot:~/Feb25/LinuxAssignment/newdata$ ls
docs
cdac@Prajyot:~/Feb25/LinuxAssignment/newdata$ cd docs/
cdac@Prajyot:~/Feb25/LinuxAssignment/newdata/docs$ ls
file2.txt
cdac@Prajyot:~/Feb25/LinuxAssignment/newdata/docs$ |
```

k) File Editing: **a**. Open the "file1.txt" file in a text editor and add some text to it.

```
cdac@Prajyot: ~/Feb25/Linux  ×  +  ∨
docs  docs.zip  file1.txt  newdata
cdac@Prajyot:~/Feb25/LinuxAssignment$ cat file1.txt
Aman
navneet
aditya
sonu
priya
rani
prajyot
mohit
karan
shivam
ram
sham
om
shruti
khushi
kabir
piyush
karan
cdac@Prajyot:~/Feb25/LinuxAssignment$ nano file1.txt
cdac@Prajyot:~/Feb25/LinuxAssignment$ cat
docs/     docs.zip   file1.txt  newdata/
cdac@Prajyot:~/Feb25/LinuxAssignment$ cat
docs/     docs.zip   file1.txt  newdata/
cdac@Prajyot:~/Feb25/LinuxAssignment$ cat file1.txt
Aman
navneet
aditya
sonu
priya
rani
prajyot
mohit
karan
shivam
ram
sham
om
shruti
khushi
```

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@Prajyot: ~/Feb25/Linux    X    +    v                           —    □    ×

cdac@Prajyot:~/Feb25/LinuxAssignment$ cat file2.txt
Hello my name is prajyot. i am from nagpur maharastra
cdac@Prajyot:~/Feb25/LinuxAssignment$ sed -i 's/prajyot/aman/g' file2.txt
cdac@Prajyot:~/Feb25/LinuxAssignment$ cat file2.txt
Hello my name is aman. i am from nagpur maharastra
cdac@Prajyot:~/Feb25/LinuxAssignment$
```

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.

```
cdac@Prajyot:~/Feb25/LinuxAssignment$ head -10 data.txt
aman
om
navneet
ravi
ishika
prajyot
ram
sham
ranu
geeta
cdac@Prajyot:~/Feb25/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@Prajyot:~/Feb25/LinuxAssignment$ tail -5 data.txt
pari
abhi
danish
yug
shita
cdac@Prajyot:~/Feb25/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@Prajyot:~/Feb25/LinuxAssignment$ head -15 numbers.txt
12
45
78
53
52
8
85
46
82
87
95
93
94
27
15
cdac@Prajyot:~/Feb25/LinuxAssignment$
```

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

```
cdac@Prajyot:~/Feb25/LinuxAssignment$ tail -3 numbers.txt
60
80
20
cdac@Prajyot:~/Feb25/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@Prajyot:~/Feb25/LinuxAssignment$ ls
data.txt            docs         file1.txt  newdata
datalowercase.txt   docs.zip  file2.txt  numbers.txt
cdac@Prajyot:~/Feb25/LinuxAssignment$ cat datalowercase.txt
AMAN
OM
NAVNEET
RAVI
ISHIKA
PRAJYOT
RAM
SHAM
RANU
GEETA
SHRUTI
JIVITA
PARI
ABHI
DANISH
YUG
SHITA
cdac@Prajyot:~/Feb25/LinuxAssignment$
cdac@Prajyot:~/Feb25/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@Prajyot:~/Feb25/LinuxAssignment$ ls
data.txt  datalowercase.txt  docs  docs.zip  duplicate.txt  file1.txt  file2.txt  newdata  numbers.txt
cdac@Prajyot:~/Feb25/LinuxAssignment$ cat duplicate.txt
aman
navneet
om
sonu
aman
om

cdac@Prajyot:~/Feb25/LinuxAssignment$ sort duplicate.txt | uniq

aman
navneet
om
sonu
cdac@Prajyot:~/Feb25/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@Prajyot:~/Feb25/LinuxAssignment$ ls
data.txt  datalowercase.txt  docs  docs.zip  duplicate.txt  file1.txt  file2.txt  fruit.txt  newdata  numbers.txt
cdac@Prajyot:~/Feb25/LinuxAssignment$ cat fruit.txt
mango
banana
orange
watermelon
papaya
graphs
mango
orange
cdac@Prajyot:~/Feb25/LinuxAssignment$ sort fruit.txt | uniq -n
uniq: invalid option -- 'n'
Try 'uniq --help' for more information.
cdac@Prajyot:~/Feb25/LinuxAssignment$ sort fruit.txt | uniq -c
      1 banana
      1 graphs
      2 mango
      2 orange
      1 papaya
      1 watermelon
cdac@Prajyot:~/Feb25/LinuxAssignment$
```