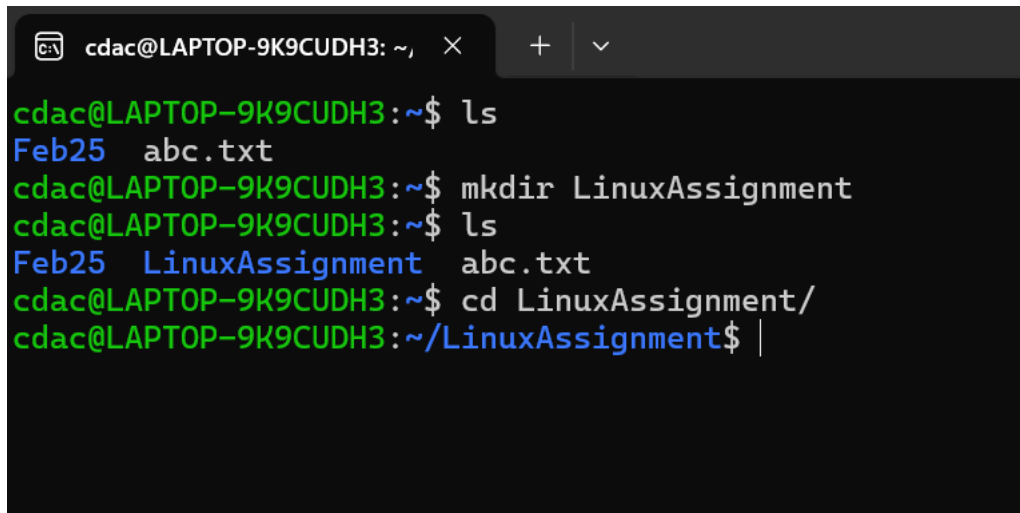


Problem 1: Read the instructions carefully and answer accordingly. If there is any need to insert some data then do that as well.

a) Navigate and List:

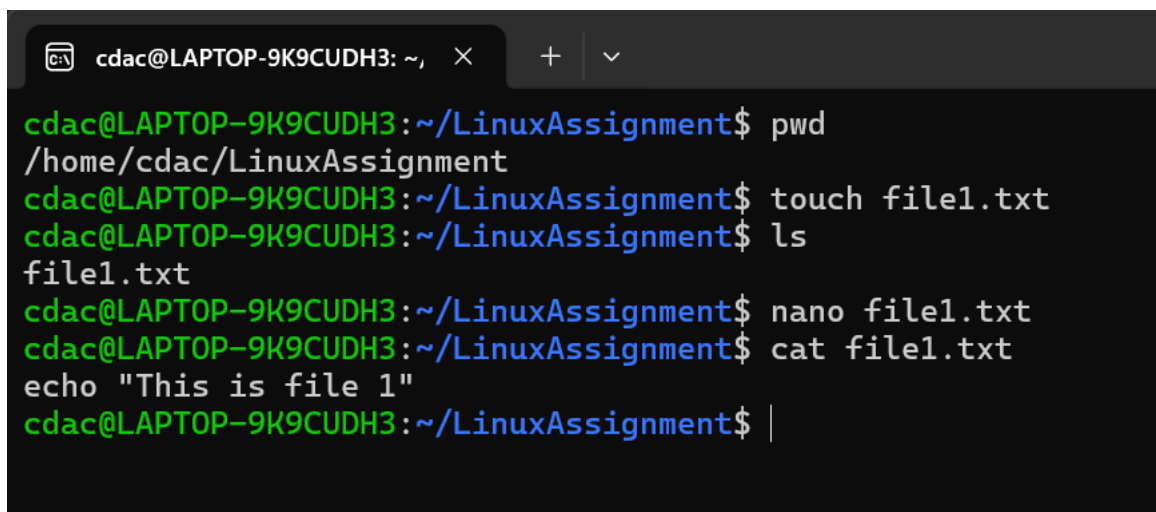
a. Start by navigating to your home directory and list its contents. Then, move into a directory named "LinuxAssignment" if it exists; otherwise, create it.

A terminal window with a dark background and light green text. The prompt is 'cdac@LAPTOP-9K9CUDH3: ~'. The user enters 'ls', and the output is 'Feb25 abc.txt'. Then, the user enters 'mkdir LinuxAssignment'. Next, the user enters 'ls' again, and the output is 'Feb25 LinuxAssignment abc.txt'. Finally, the user enters 'cd LinuxAssignment/' and the prompt changes to 'cdac@LAPTOP-9K9CUDH3: ~/LinuxAssignment\$'.

```
cdac@LAPTOP-9K9CUDH3:~$ ls
Feb25  abc.txt
cdac@LAPTOP-9K9CUDH3:~$ mkdir LinuxAssignment
cdac@LAPTOP-9K9CUDH3:~$ ls
Feb25  LinuxAssignment abc.txt
cdac@LAPTOP-9K9CUDH3:~$ cd LinuxAssignment/
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ |
```

b) File Management:

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

A terminal window with a dark background and light green text. The prompt is 'cdac@LAPTOP-9K9CUDH3: ~/LinuxAssignment'. The user enters 'pwd', and the output is '/home/cdac/LinuxAssignment'. Then, the user enters 'touch file1.txt'. Next, the user enters 'ls', and the output is 'file1.txt'. Then, the user enters 'nano file1.txt'. Finally, the user enters 'cat file1.txt' and 'echo "This is file 1"', and the output is 'This is file 1'.

```
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ pwd
/home/cdac/LinuxAssignment
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ touch file1.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ ls
file1.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ nano file1.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ cat file1.txt
echo "This is file 1"
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ |
```

c) Directory Management:

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

```
cdac@LAPTOP-9K9CUDH3: ~, × + ▾
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ mkdir docs
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ ls
docs  file1.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ |
```

d) Copy and Move Files:

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

```
cdac@LAPTOP-9K9CUDH3: ~, × + ▾
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ cp file1.txt docs/file2.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ ls
docs  file1.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ cd docs
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment/docs$ ls
file2.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment/docs$ cat file2.txt
echo "This is file 1"
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment/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.

```
cdac@LAPTOP-9K9CUDH3: ~, × + ▾
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment/docs$ chmod 744 file2.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment/docs$ ls -l file2.txt
-rwxr--r-- 1 cdac cdac 22 Feb 26 16:07 file2.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment/docs$ |
```

```
cdac@LAPTOP-9K9CUDH3: ~, × + ▾
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment/docs$ chown cdac:cdac file2.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment/docs$ ls -l file2.txt
-rwxr--r-- 1 cdac cdac 22 Feb 26 16:07 file2.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment/docs$ |
```

f) Final Checklist:

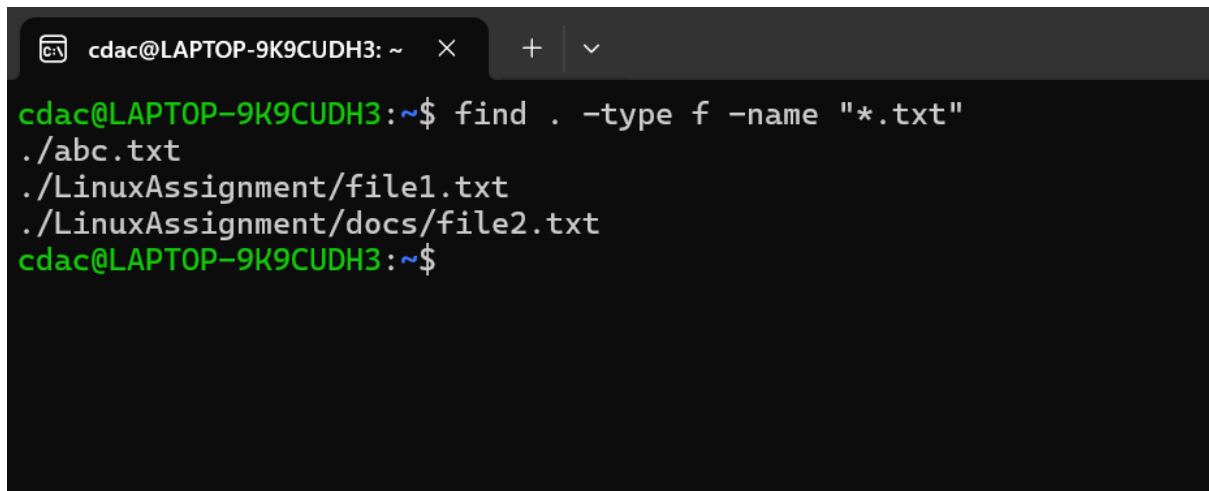
a. Finally, list the contents of the "LinuxAssignment" directory and the root directory to ensure that all operations were performed correctly.

```
cdac@LAPTOP-9K9CUDH3: ~  
cdac@LAPTOP-9K9CUDH3:~$ ls -l LinuxAssignment  
total 8  
drwxr-xr-x 2 cdac cdac 4096 Feb 26 16:16 docs  
-rw-r--r-- 1 cdac cdac 22 Feb 26 15:54 file1.txt  
cdac@LAPTOP-9K9CUDH3:~$ |
```

```
cdac@LAPTOP-9K9CUDH3: ~  
drwxr-xr-x 2 cdac cdac 4096 Feb 26 16:16 docs  
-rw-r--r-- 1 cdac cdac 22 Feb 26 15:54 file1.txt  
cdac@LAPTOP-9K9CUDH3:~$ ls -l /  
total 2448  
lrwxrwxrwx 1 root root 7 Apr 22 2024 bin -> usr/bin  
drwxr-xr-x 2 root root 4096 Feb 26 2024 bin.usr-is-merged  
drwxr-xr-x 2 root root 4096 Apr 22 2024 boot  
drwxr-xr-x 16 root root 3580 Feb 26 15:49 dev  
drwxr-xr-x 87 root root 4096 Feb 26 15:49 etc  
drwxr-xr-x 3 root root 4096 Feb 24 11:56 home  
-rwxrwxrwx 1 root root 2424984 Feb 12 00:59 init  
lrwxrwxrwx 1 root root 7 Apr 22 2024 lib -> usr/lib  
drwxr-xr-x 2 root root 4096 Apr 8 2024 lib.usr-is-merged  
lrwxrwxrwx 1 root root 9 Apr 22 2024 lib64 -> usr/lib64  
drwx----- 2 root root 16384 Feb 24 11:51 lost+found  
drwxr-xr-x 2 root root 4096 Jan 6 20:13 media  
drwxr-xr-x 6 root root 4096 Feb 24 11:51 mnt  
drwxr-xr-x 2 root root 4096 Jan 6 20:13 opt  
dr-xr-xr-x 172 root root 0 Feb 26 15:49 proc  
drwx----- 4 root root 4096 Feb 24 11:52 root  
drwxr-xr-x 18 root root 540 Feb 26 15:49 run  
lrwxrwxrwx 1 root root 8 Apr 22 2024 sbin -> usr/sbin  
drwxr-xr-x 2 root root 4096 Mar 31 2024 sbin.usr-is-merged  
drwxr-xr-x 2 root root 4096 Feb 24 11:52 snap  
drwxr-xr-x 2 root root 4096 Jan 6 20:13 srv  
dr-xr-xr-x 11 root root 0 Feb 26 15:49 sys  
drwxrwxrwt 11 root root 4096 Feb 26 15:50 tmp  
drwxr-xr-x 12 root root 4096 Jan 6 20:13 usr  
drwxr-xr-x 13 root root 4096 Feb 24 11:51 var  
cdac@LAPTOP-9K9CUDH3:~$ |
```

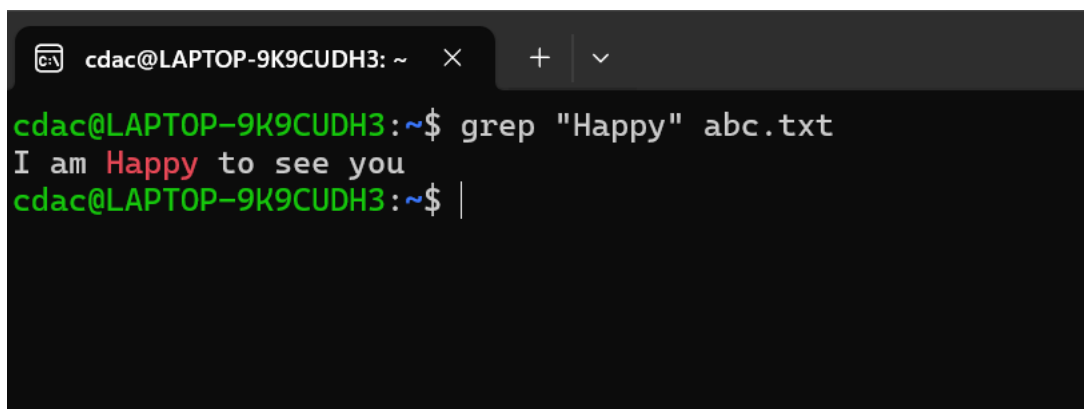
g) File Searching:

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



```
cdac@LAPTOP-9K9CUDH3: ~  
cdac@LAPTOP-9K9CUDH3:~$ find . -type f -name "*.txt"  
./abc.txt  
./LinuxAssignment/file1.txt  
./LinuxAssignment/docs/file2.txt  
cdac@LAPTOP-9K9CUDH3:~$
```

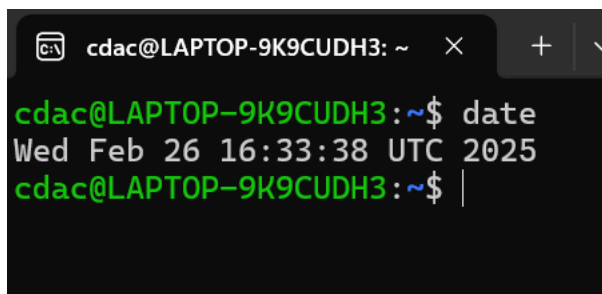
b. Display lines containing a specific word in a file (provide a file name and the specific word to search).



```
cdac@LAPTOP-9K9CUDH3:~$ grep "Happy" abc.txt  
I am Happy to see you  
cdac@LAPTOP-9K9CUDH3:~$ |
```

h) System Information:

a. Display the current system date and time.



```
cdac@LAPTOP-9K9CUDH3:~$ date  
Wed Feb 26 16:33:38 UTC 2025  
cdac@LAPTOP-9K9CUDH3:~$ |
```

i) Networking:

a. Display the IP address of the system.

```
cdac@LAPTOP-9K9CUDH3: ~  
cdac@LAPTOP-9K9CUDH3:~$ date  
Wed Feb 26 16:33:38 UTC 2025  
cdac@LAPTOP-9K9CUDH3:~$ ip addr  
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000  
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00  
    inet 127.0.0.1/8 scope host lo  
        valid_lft forever preferred_lft forever  
    inet 10.255.255.254/32 brd 10.255.255.254 scope global lo  
        valid_lft forever preferred_lft forever  
    inet6 ::1/128 scope host  
        valid_lft forever preferred_lft forever  
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000  
    link/ether 00:15:5d:0a:d5:a4 brd ff:ff:ff:ff:ff:ff  
    inet 172.25.181.185/20 brd 172.25.191.255 scope global eth0  
        valid_lft forever preferred_lft forever  
    inet6 fe80::215:5dff:fe0a:d5a4/64 scope link  
        valid_lft forever preferred_lft forever  
cdac@LAPTOP-9K9CUDH3:~$
```

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

```
cdac@LAPTOP-9K9CUDH3: ~  
cdac@LAPTOP-9K9CUDH3:~$ ping -c 127.0.0.1  
ping: invalid argument: '127.0.0.1'  
cdac@LAPTOP-9K9CUDH3:~$ ping -c 4 127.0.0.1  
PING 127.0.0.1 (127.0.0.1) 56(84) bytes of data.  
64 bytes from 127.0.0.1: icmp_seq=1 ttl=64 time=1.66 ms  
64 bytes from 127.0.0.1: icmp_seq=2 ttl=64 time=0.027 ms  
64 bytes from 127.0.0.1: icmp_seq=3 ttl=64 time=0.046 ms  
64 bytes from 127.0.0.1: icmp_seq=4 ttl=64 time=0.045 ms  
  
--- 127.0.0.1 ping statistics ---  
4 packets transmitted, 4 received, 0% packet loss, time 3170ms  
rtt min/avg/max/mdev = 0.027/0.443/1.656/0.700 ms  
cdac@LAPTOP-9K9CUDH3:~$
```

j) File Compression:

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

```
cdac@LAPTOP-9K9CUDH3: ~, X + v
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ zip docs LinuxAssignment
zip warning: name not matched: LinuxAssignment

zip error: Nothing to do! (docs.zip)
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ zip docs LinuxAssignment
zip warning: name not matched: LinuxAssignment

zip error: Nothing to do! (docs.zip)
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ zip -r docs.zip docs
adding: docs/ (stored 0%)
adding: docs/file2.txt (stored 0%)
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ ls
docs docs.zip file1.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ mkdir extra
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ |
```

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

```
cdac@LAPTOP-9K9CUDH3: ~, X + v
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ unzip docs.zip -d extra
Archive: docs.zip
creating: extra/docs/
extracting: extra/docs/file2.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ |
```

k) File Editing:

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

```
cdac@LAPTOP-9K9CUDH3: ~, X + v
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ ls
docs docs.zip extra file1.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ nano file1.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ cat file1.txt
Hello , How are you?
Hello World
Nice to see you
hii

cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ |
```

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@LAPTOP-9K9CUDH3: ~, X + v
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ ls
docs docs.zip extra file1.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ nano file1.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ cat file1.txt
Hello , How are you?
Hello World
Nice to see you
hii

cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ sed -i 's/hii/Hii/g' file1.txt
cdac@LAPTOP-9K9CUDH3:~/LinuxAssignment$ cat file1.txt
Hello , How are you?
Hello World
Nice to see you
Hii

cdac@LAPTOP-9K9CUDH3:~/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@LAPTOP-9K9CUDH3: ~, X + v
cdac@LAPTOP-9K9CUDH3:~/Assign2$ head -10 data.txt
Summary
This is Assign2 folder.
Here the Assignment 1 Q2 is done here .
it is also stored here.
so it is scpecificaly for this only .
for lecture we have diffrent directory,
and for assignemnt we have for now 2 directory
1st is linuxAssignment
2nd is Assign 2;
while other are for practice and theory lecture ,
cdac@LAPTOP-9K9CUDH3:~/Assign2$ |
```

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@LAPTOP-9K9CUDH3: ~, × + ∨  
cdac@LAPTOP-9K9CUDH3:~/Assign2$ tail -5 data.txt  
2nd is Assign 2;  
while other are for practice and theory lecture ,  
which will help in seprating;  
and also avoiding confusion  
cdac@LAPTOP-9K9CUDH3:~/Assign2$ |
```

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@LAPTOP-9K9CUDH3: ~, × + ∨  
cdac@LAPTOP-9K9CUDH3:~/Assign2$ head -15 numbers.txt  
0  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
cdac@LAPTOP-9K9CUDH3:~/Assign2$ |
```

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

```
cdac@LAPTOP-9K9CUDH3: ~, × + ∨  
cdac@LAPTOP-9K9CUDH3:~/Assign2$ tail -3 numbers.txt  
18  
19  
20  
cdac@LAPTOP-9K9CUDH3:~/Assign2$ |
```

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@LAPTOP-9K9CUDH3:~/Assign2$ tr [:lower:] [:upper:] < input
.txt > output.txt
cdac@LAPTOP-9K9CUDH3:~/Assign2$ cat output.txt
HELLO , HOW ARE YOU?
cdac@LAPTOP-9K9CUDH3:~/Assign2$ cat input.txt
Hello , How are you?
cdac@LAPTOP-9K9CUDH3:~/Assign2$ |
```

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@LAPTOP-9K9CUDH3: ~/ × + ▾
cdac@LAPTOP-9K9CUDH3:~/Assign2$ uniq duplicate.txt
papers ,
assignment papers,
Question papers,
Blank papers,
graph papers.
Papers,
Papers.
cdac@LAPTOP-9K9CUDH3:~/Assign2$
```

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@LAPTOP-9K9CUDH3: ~/ × + ▾
cdac@LAPTOP-9K9CUDH3:~/Assign2$ uniq -c fruit.txt
  3 banana,
  1 apple,
  1 mango,
  1 apple,
  1 mango,
  1 pineapple,
  1 Banana,
  1 alphonso mango.
  1
cdac@LAPTOP-9K9CUDH3:~/Assign2$ |
```