

a) Navigate and List:

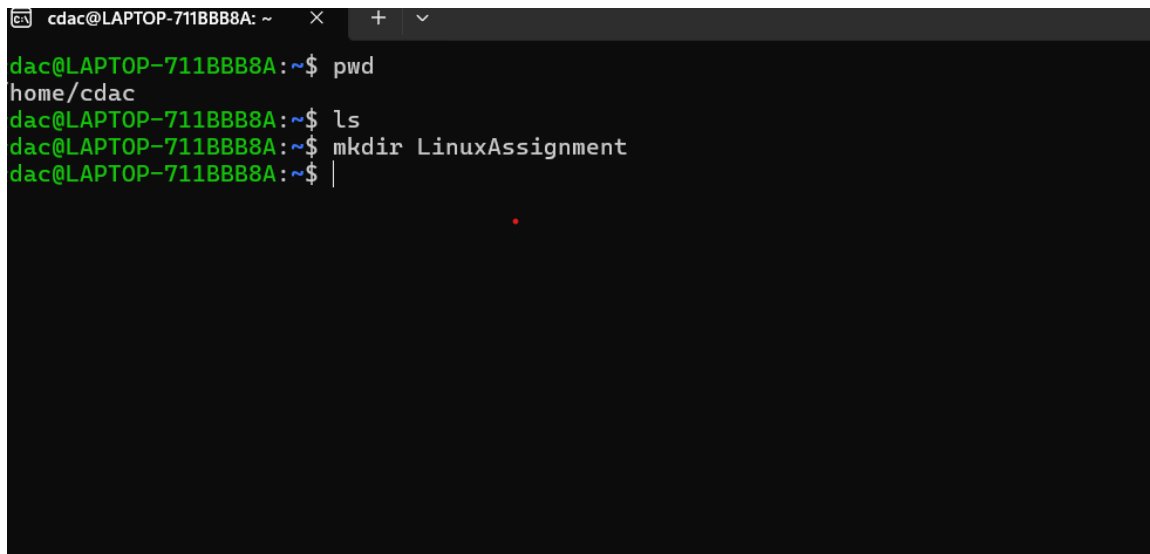
a. Start by navigating to your home directory and list its contents. Then, move into a directory named "LinuxAssignment" if it exists; otherwise, create it.

=>

pwd

ls

mkdir LinuxAssignment

A terminal window with a dark background and green text. The window title is 'cdac@LAPTOP-711BBB8A: ~'. The terminal shows the following commands and output: 'pwd' returns 'home/cdac', 'ls' shows an empty directory, and 'mkdir LinuxAssignment' creates the directory. The prompt is now '|'.

```
cdac@LAPTOP-711BBB8A: ~$ pwd
home/cdac
cdac@LAPTOP-711BBB8A: ~$ ls
cdac@LAPTOP-711BBB8A: ~$ mkdir LinuxAssignment
cdac@LAPTOP-711BBB8A: ~$ |
```

b) File Management:

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

=>

cd LinuxAssignment/

touch file1.txt

nano file1.txt

hello cdac 2024 aug batch

cat file1.txt

```
cdac@LAPTOP-711BBB8A: ~/L × + v
cdac@LAPTOP-711BBB8A:~$ pwd
/home/cdac
cdac@LAPTOP-711BBB8A:~$ ls
cdac@LAPTOP-711BBB8A:~$ mkdir LinuxAssignment
cdac@LAPTOP-711BBB8A:~$ cd ~/LinuxAssignment
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ nano file1.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ cat file1.txt
SHUBHANGI KANDEKAR_KH
PG-DAC CDAC
AUG 24 BATCH
OPERATING SYSYTEM BATCH
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ |
```

c) Directory Management:

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

=>

```
cd LinuxAssignment/
mkdir docs
ls
```

```
cdac@LAPTOP-711BBB8A:~$ pwd
/home/cdac
cdac@LAPTOP-711BBB8A:~$ ls
cdac@LAPTOP-711BBB8A:~$ mkdir LinuxAssignment
cdac@LAPTOP-711BBB8A:~$ cd ~/LinuxAssignment
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ nano file1.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ cat file1.txt
SHUBHANGI KANDEKAR_KH
PG-DAC CDAC
AUG 24 BATCH
OPERATING SYSYTEM BATCH
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ cd
cdac@LAPTOP-711BBB8A:~$ ls
LinuxAssignment
cdac@LAPTOP-711BBB8A:~$ cd ~/LinuxAssignment
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ mkdir docs
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ ls
docs file1.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ |
```

d) Copy and Move Files:

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

=>

```
cp file1.txt docs
cd docs/
mv file1.txt file2.txt
ls
```

```
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ cp file1.txt docs
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ ls
docs  file1.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ cd ~/docs
-bash: cd: /home/cdac/docs: No such file or directory
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ cd ~/docs
-bash: cd: /home/cdac/docs: No such file or directory
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ ls
docs  file1.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ ~/docs
-bash: /home/cdac/docs: No such file or directory
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ cd
cdac@LAPTOP-711BBB8A:~$ cd ~/docs
-bash: cd: /home/cdac/docs: No such file or directory
cdac@LAPTOP-711BBB8A:~$ cd docs/
-bash: cd: docs/: No such file or directory
cdac@LAPTOP-711BBB8A:~$ cd LinuxAssignment/
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ cd docs/
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ ls
file1.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ cat file1.txt
SHUBHANGI KANDEKAR_KH
PG-DAC CDAC
AUG 24 BATCH
OPERATING SYSYTEM BATCH
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ mv file1.txt file2.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ ls
file2.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ cat file2.txt
SHUBHANGI KANDEKAR_KH
PG-DAC CDAC
AUG 24 BATCH
OPERATING SYSYTEM BATCH
cdac@LAPTOP-711BBB8A:~/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.

=>

```
cd LinuxAssignment/ cd docs/ chmod u+rw file2.txt
chmod o+r file2.txt
chown user1 file2.txt
sudo chown user1 file2.txt
ls -l
```

```
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ cat file2.txt
SHUBHANGI KANDEKAR_KH
PG-DAC CDAC
AUG 24 BATCH
OPERATING SYSTEM BATCH
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ chmod u+rw file2.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ chmod o+r file2.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$
```

```
OPERATING SYSTEM BATCH
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ chmod u+rw file2.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ chmod o+r file2.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ ls
file2.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ chown user1 file2.txt
chown: changing ownership of 'file2.txt': Operation not permitted
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ sudo chown user1 file2.txt
[sudo] password for cdac:
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ ls
file2.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ ls -l
total 4
-rwxr--r-- 1 user1 cdac 72 Aug 28 20:54 file2.txt
cdac@LAPTOP-711BBB8A:~/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-711BBB8A:~$ ls
LinuxAssignment  file1.txt
cdac@LAPTOP-711BBB8A:~$ cd LinuxAssignment/
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ ls
docs  file1.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ ls -l
docs
file1.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ cd
cdac@LAPTOP-711BBB8A:~$ ls-l
ls-l: command not found
cdac@LAPTOP-711BBB8A:~$ ls -l
total 8
drwxr-xr-x 3 cdac cdac 4096 Aug 28 20:50 LinuxAssignment
-rw-rw-r-- 1 cdac cdac  46 Aug 28 22:19 file1.txt
cdac@LAPTOP-711BBB8A:~$ |

```

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).

=>

```

find . -type f -name "*.txt"
cd LinuxAssignment/ grep -Rnw 'file1.txt' -e 'helloo'

```

```

cdac@LAPTOP-711BBB8A:~$ find . -type f -name "*.txt"
./file1.txt
./LinuxAssignment/docs/file2.txt
./LinuxAssignment/file1.txt
cdac@LAPTOP-711BBB8A:~$ cd LinuxAssignment/
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ find . -type f -name "*.txt"
./docs/file2.txt
./file1.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ docs/
bash: docs/: Is a directory
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ cd docs/
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ find . -type f -name "*.txt"
./file2.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ |

```

```

OPERATING SYSTEM BATCH
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ chmod u+rw file2.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ chmod o+r file2.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ ls
file2.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ chown user1 file2.txt
chown: changing ownership of 'file2.txt': Operation not permitted
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ sudo chown user1 file2.txt
[sudo] password for cdac:
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ ls
file2.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ ls -l
total 4
-rwxr--r-- 1 user1 cdac 72 Aug 28 20:54 file2.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment/docs$ |

```

h) System Information:

a. Display the current system date and time.

=>

date

```

Try 'date --help' for more information.
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ date
Wed Aug 28 23:46:27 IST 2024
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ |

```

i) Networking:

a. Display the IP address of the system.

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

=>

hostname -I

ping ipaddress

```

wed Aug 28 23:49:18 IST 2024
cdac@LAPTOP-711BBB8A:~$ ip address
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group def
    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 d
    link/ether 00:15:5d:66:31:b9 brd ff:ff:ff:ff:ff:ff
    inet 172.17.24.3/20 brd 172.17.31.255 scope global eth0
        valid_lft forever preferred_lft forever
    inet6 fe80::215:5dff:fe66:31b9/64 scope link
        valid_lft forever preferred_lft forever
cdac@LAPTOP-711BBB8A:~$ cd LinuxAssignment/
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ ip address
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group def
    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 d
    link/ether 00:15:5d:66:31:b9 brd ff:ff:ff:ff:ff:ff
    inet 172.17.24.3/20 brd 172.17.31.255 scope global eth0
        valid_lft forever preferred_lft forever
    inet6 fe80::215:5dff:fe66:31b9/64 scope link
        valid_lft forever preferred_lft forever
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ hostname -I
172.17.24.3
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ ping 172.17.24.3
PING 172.17.24.3 (172.17.24.3) 56(84) bytes of data.
64 bytes from 172.17.24.3: icmp_seq=1 ttl=64 time=81.0 ms
64 bytes from 172.17.24.3: icmp_seq=2 ttl=64 time=0.060 ms
64 bytes from 172.17.24.3: icmp_seq=3 ttl=64 time=0.066 ms
64 bytes from 172.17.24.3: icmp_seq=4 ttl=64 time=0.083 ms
64 bytes from 172.17.24.3: icmp_seq=5 ttl=64 time=0.099 ms
64 bytes from 172.17.24.3: icmp_seq=6 ttl=64 time=16.6 ms
64 bytes from 172.17.24.3: icmp_seq=7 ttl=64 time=0.058 ms
64 bytes from 172.17.24.3: icmp_seq=8 ttl=64 time=0.035 ms
64 bytes from 172.17.24.3: icmp_seq=9 ttl=64 time=0.055 ms
64 bytes from 172.17.24.3: icmp_seq=10 ttl=64 time=0.035 ms
^C
--- 172.17.24.3 ping statistics ---
10 packets transmitted, 10 received, 0% packet loss, time 9332ms
rtt min/avg/max/mdev = 0.035/9.816/81.029/24.246 ms

```

j) File Compression:

- a. Compress the "docs" directory into a zip file.
- b. Extract the contents of the zip file into a new directory.

=>

```
zip docs.zip docs
mkdir new
unzip docs -d new
```

```
10 packets transmitted, 10 received, 0% packet loss, time 9332ms
rtt min/avg/max/mdev = 0.035/9.816/81.029/24.246 ms
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ zip docs.zip docs
Command 'zip' not found, but can be installed with:
sudo apt install zip
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ sudo apt install zip
[sudo] password for cdac:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  unzip
The following NEW packages will be installed:
  unzip zip
0 upgraded, 2 newly installed, 0 to remove and 128 not upgraded.
Need to get 350 kB of archives.
After this operation, 930 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 unzip amd64 6.0-26ubuntu3.2 [175 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy/main amd64 zip amd64 3.0-12build2 [176 kB]
Fetched 350 kB in 2s (142 kB/s)
Selecting previously unselected package unzip.
(Reading database ... 24208 files and directories currently installed.)
Preparing to unpack .../unzip_6.0-26ubuntu3.2_amd64.deb ...
Unpacking unzip (6.0-26ubuntu3.2) ...
Selecting previously unselected package zip.
Preparing to unpack .../zip_3.0-12build2_amd64.deb ...
Unpacking zip (3.0-12build2) ...
Setting up unzip (6.0-26ubuntu3.2) ...
Setting up zip (3.0-12build2) ...
Processing triggers for man-db (2.10.2-1) ...
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ zip docs.zip docs
  adding: docs/ (stored 0%)
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ ping 172.17.24.3
docs docs.zip 172.17.24.3 172.17.24.3
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ mkdir new
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ unzip docs -d new
Archive:  docs.zip
  creating: new/docs/
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ unzip docs -d new
Archive:  docs.zip
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ |
```

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).

=> replace juhu with kh

```
cat file1.txt
```

```
nano file1.txt
```

```
cat file1.txt
```



```
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ cat file1.txt
SHUBHANGI KANDEKAR_JUHU
PG-DAC CDAC
AUG 24 BATCH
OPERATING SYSYTEM BATCH
LINUX ASSIGNMENT 1
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ nano file1.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ cat file1.txt
SHUBHANGI KANDEKAR_KH
PG-DAC CDAC
AUG 24 BATCH
OPERATING SYSYTEM BATCH
LINUX ASSIGNMENT 1
cdac@LAPTOP-711BBB8A:~/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-711BBB8A:~/LinuxAssignment$ nano data.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ cat data.txt
apple
pineapple
apple
grapes
kharbuj
mango
potato
rose
mogra
tomato
potato
chilli
peas
sunflower
lily
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ head data.txt
apple
pineapple
apple
grapes
kharbuj
mango
potato
rose
mogra
tomato
```

```
=>nano data.txt
    cat data.txt
    head -10 data.txt
```

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

```
=>
    cat data.txt
    tail -5 data.txt
```

```
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ cat data.txt
apple
pineapple
apple
grapes
kharbuj
mango
potato
rose
mogra
tomato
potato
chilli
peas
sunflower
lily
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ tail -5 data.txt
potato
chilli
peas
sunflower
lily
cdac@LAPTOP-711BBB8A:~/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.

```
=>
    nano numbers.txt
    cat numbers.txt
    head -15 numbers.txt
```

```
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ nano numbers.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ cat numbers.txt
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ head -15 numbers.txt
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ |
```

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

=>

```
cat numbers.txt
head -3 numbers.txt
```

```
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ cat numbers.txt
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ head -3 numbers.txt
1
2
3
cdac@LAPTOP-711BBB8A:~/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."

=>

```
touch output.txt
sed -e 's/.*\u&/' input.txt>output.txt
cat output.txt
```

```

cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ nano output.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ sed -e 's/./\U&/' input.txt > output.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ cat output.txt
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-711BBB8A:~/LinuxAssignment$ cat input.txt
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-711BBB8A:~/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."

=>

uniq -u duplicate.txt

```

cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ nano duplicate.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ cat duplicate.txt
Apple
apple
banana
Tomato
tomato
tomato
red chilli
green chilli
Garlic
Garlic
Ginger
potato
peas
all
bellow all

cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ unique duplicate.txt
Command 'unique' not found, but can be installed with:
sudo apt install john
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ unique duplicate.txt | less

[1]+  Stopped                  unique duplicate.txt | less
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ uniq -u duplicate.txt
Apple
apple
banana
Tomato
red chilli
green chilli
Ginger
potato
peas
all
bellow all

```

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."

=>

```

nano fruit.txt
uniq -c fruit.txt

```

```
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ nano fruit.txt
cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ cat fruit.txt
apple
banana
orange
apple
grapes
potato
apple
apple
kiwi

cdac@LAPTOP-711BBB8A:~/LinuxAssignment$ uniq -c fruit.txt
 1 apple
 1 banana
 1 orange
 1 apple
 1 grapes
 1 potato
 2 apple
 1 kiwi
 2
```