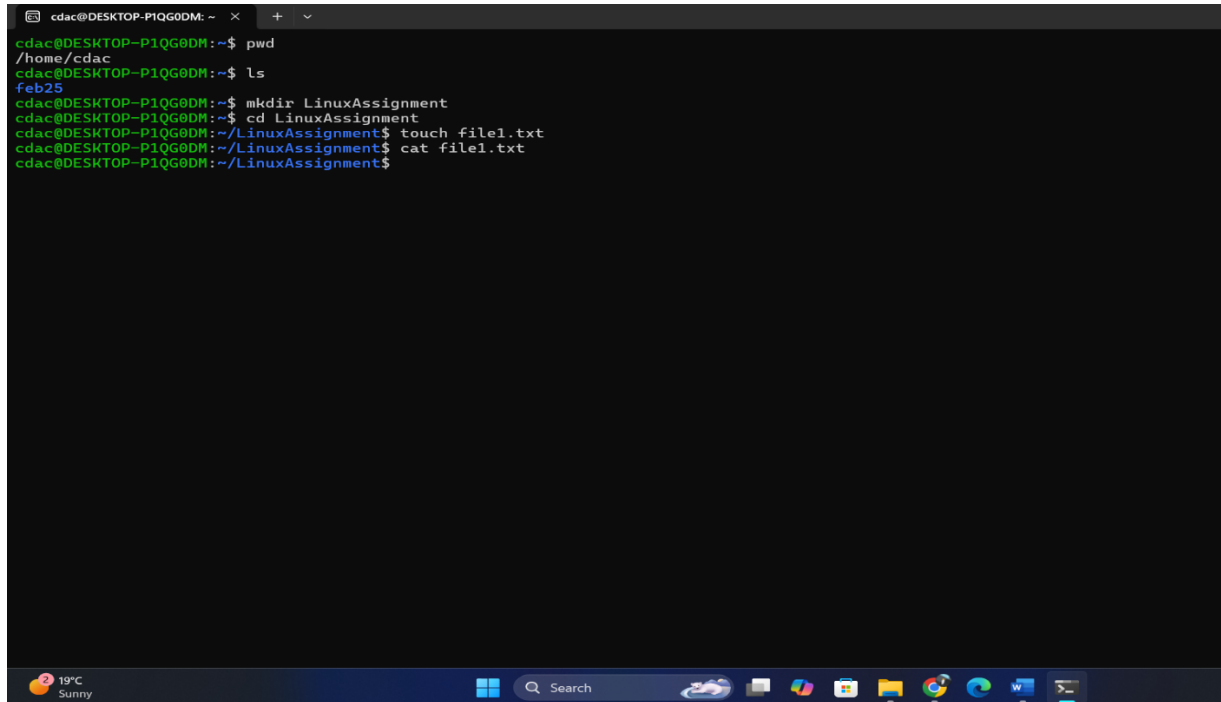**Problem 1: Read the instructions carefully and answer accordingly. If there is any need to insert some data then do that as well**

   a) **Navigate and List:**

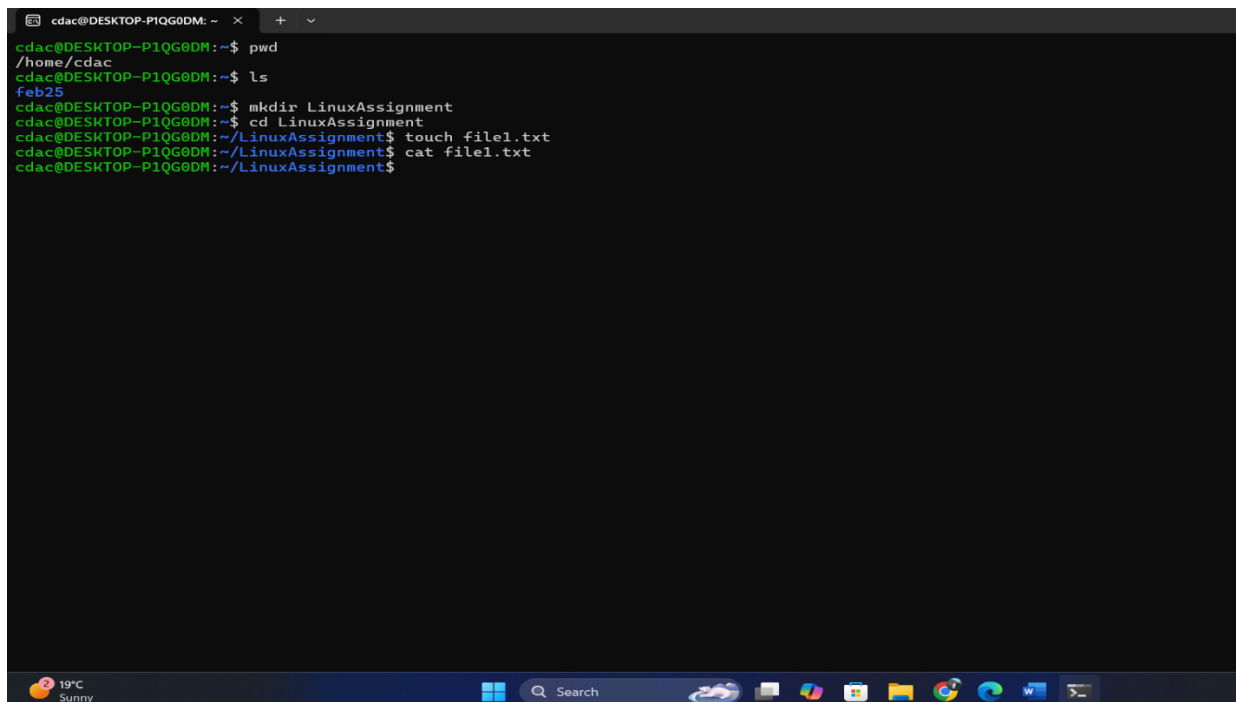   a. Start by navigating to your home directory and list its contents.
   Then, move into a directory named "LinuxAssignment" if it exists; otherwise, create it.

```
cdac@DESKTOP-P1QG0DM: ~    X    +    ∨
cdac@DESKTOP-P1QG0DM:~$ pwd
/home/cdac
cdac@DESKTOP-P1QG0DM:~$ ls
feb25
cdac@DESKTOP-P1QG0DM:~$ mkdir LinuxAssignment
cdac@DESKTOP-P1QG0DM:~$ cd LinuxAssignment
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ touch file1.txt
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ cat file1.txt
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$
```

   b) **File Management:**

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

```
cdac@DESKTOP-P1QG0DM: ~    X    +    ∨
cdac@DESKTOP-P1QG0DM:~$ pwd
/home/cdac
cdac@DESKTOP-P1QG0DM:~$ ls
feb25
cdac@DESKTOP-P1QG0DM:~$ mkdir LinuxAssignment
cdac@DESKTOP-P1QG0DM:~$ cd LinuxAssignment
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ touch file1.txt
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ cat file1.txt
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$
```

c) Directory Management:

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

```
cdac@DESKTOP-P1QG0DM: ~   X    +   v                                                    —   ☐   X
cdac@DESKTOP-P1QG0DM:~$ pwd
/home/cdac
cdac@DESKTOP-P1QG0DM:~$ ls
feb25
cdac@DESKTOP-P1QG0DM:~$ mkdir LinuxAssignment
cdac@DESKTOP-P1QG0DM:~$ cd LinuxAssignment
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ touch file1.txt
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ cat file1.txt
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ mkdir docs
```

d) Copy and Move Files:

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

```
cdac@DESKTOP-P1QG0DM: ~   X    +   v                                                    —   ☐   X
cdac@DESKTOP-P1QG0DM:~$ pwd
/home/cdac
cdac@DESKTOP-P1QG0DM:~$ ls
feb25
cdac@DESKTOP-P1QG0DM:~$ mkdir LinuxAssignment
cdac@DESKTOP-P1QG0DM:~$ cd LinuxAssignment
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ touch file1.txt
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ cat file1.txt
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ mkdir docs
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ cp file1.txt docs/file2.txt
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ ls
docs   file1.txt
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ cat file2.txt
cat: file2.txt: No such file or directory
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ cat 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@DESKTOP-P1QG0DM: ~   X    +   v                                                    —
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ cd docs/
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment/docs$ chmod 744 file2.txt
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment/docs$ ls -l
total 0
-rwxr--r-- 1 cdac cdac 0 Feb 27 02:01 file2.txt
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment/docs$ chown $(whoami) file2.txt
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment/docs$ ls -l file2.txt
-rwxr--r-- 1 cdac cdac 0 Feb 27 02:01 file2.txt
cdac@DESKTOP-P1QG0DM:~/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@DESKTOP-P1QG0DM:~/LinuxAssignment/docs$ cd ..
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ ls -l ~/LinuxAssignment
total 8
drwxr-xr-x 2 cdac cdac 4096 Feb 27 02:01 docs
-rw-r--r-- 1 cdac cdac   23 Feb 27 02:18 file1.txt
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ ls -l /
total 2488
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 27 12:48 dev
drwxr-xr-x  88 root root    4096 Feb 27 12:55 etc
drwxr-xr-x   3 root root    4096 Feb 25 14:16 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 25 01:05 lost+found
drwxr-xr-x   2 root root    4096 Feb 15 08:09 media
drwxr-xr-x   8 root root    4096 Feb 25 01:07 mnt
drwxr-xr-x   2 root root    4096 Feb 15 08:09 opt
dr-xr-xr-x 172 root root       0 Feb 27 12:47 proc
drwx------   4 root root    4096 Feb 25 14:08 root
drwxr-xr-x  18 root root     560 Feb 27 12:55 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 25 01:07 snap
drwxr-xr-x   2 root root    4096 Feb 15 08:09 srv
dr-xr-xr-x  11 root root       0 Feb 27 12:47 sys
drwxrwxrwt  12 root root    4096 Feb 27 13:21 tmp
drwxr-xr-x  12 root root    4096 Feb 15 08:09 usr
drwxr-xr-x  13 root root    4096 Feb 25 01:07 var
drwx------   2 root root    4096 Feb 25 08:52 wslDDPcFD
drwx------   2 root root    4096 Feb 25 08:56 wslDFKgnp
drwx------   2 root root    4096 Feb 25 08:52 wslFPNBID
drwx------   2 root root    4096 Feb 25 08:52 wslLLMfpC
drwx------   2 root root    4096 Feb 25 08:56 wslMkOBjp
drwx------   2 root root    4096 Feb 25 08:56 wslOeabpp
drwx------   2 root root    4096 Feb 25 08:56 wslbiknop
drwx------   2 root root    4096 Feb 25 08:56 wslglfhgp
drwx------   2 root root    4096 Feb 25 08:52 wsljkGenC
drwx------   2 root root    4096 Feb 25 08:52 wslpbHiGD
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$
```

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@DESKTOP-P1QG0DM:~/LinuxAssignment$ find . -type f -name "*.txt"
./file1.txt
./docs/file2.txt
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ grep "ashok" file1.txt
Dhanashri ashok Dgadae
sandhya ashok Dagade
Ankita ashok Dagade
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$
```

h) System Information:

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

```
cdac@DESKTOP-P1QG0DM: ~          ×     +    ∨

cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ date
Thu Feb 27 15:59:19 UTC 2025
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ date +"%Y-%m-%d"
2025-02-27
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ date +"%H:%M:%S"
15:59:42
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ date +"%A, %B %d, %Y %I:%M %p"
Thursday, February 27, 2025 03:59 PM
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ ipconfig.exe

Windows IP Configuration


Ethernet adapter Ethernet:

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

Wireless LAN adapter Local Area Connection* 1:

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

Wireless LAN adapter Local Area Connection* 2:

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

Wireless LAN adapter Wi-Fi 2:

   Connection-specific DNS Suffix  . : lan
   IPv6 Address. . . . . . . . . . . : 2409:40c2:4054:51f5:f01e:c2ea:ab53:5015
   Temporary IPv6 Address. . . . . . : 2409:40c2:4054:51f5:3c57:25c4:2cb6:74e
   Link-local IPv6 Address . . . . . : fe80::4b83:8b31:6c82:aa5d%8
   IPv4 Address. . . . . . . . . . . : 192.168.31.245
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : fe80::46fa:66ff:fedc:18c5%8
                                       192.168.31.1

Ethernet adapter Bluetooth Network Connection:

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

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

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::4a43:953:33bd:a5f1%40
   IPv4 Address. . . . . . . . . . . : 172.24.16.1
   Subnet Mask . . . . . . . . . . . : 255.255.240.0
   Default Gateway . . . . . . . . . :
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ ping -c 4 google.com
PING google.com (142.250.193.206) 56(84) bytes of data.
64 bytes from del11s17-in-f14.1e100.net (142.250.193.206): icmp_seq=1 ttl=110 time=90.3 ms
64 bytes from del11s17-in-f14.1e100.net (142.250.193.206): icmp_seq=2 ttl=110 time=93.1 ms
64 bytes from del11s17-in-f14.1e100.net (142.250.193.206): icmp_seq=3 ttl=110 time=89.9 ms
64 bytes from del11s17-in-f14.1e100.net (142.250.193.206): icmp_seq=4 ttl=110 time=89.7 ms

--- google.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3243ms
rtt min/avg/max/mdev = 89.738/90.760/93.098/1.364 ms
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$
```
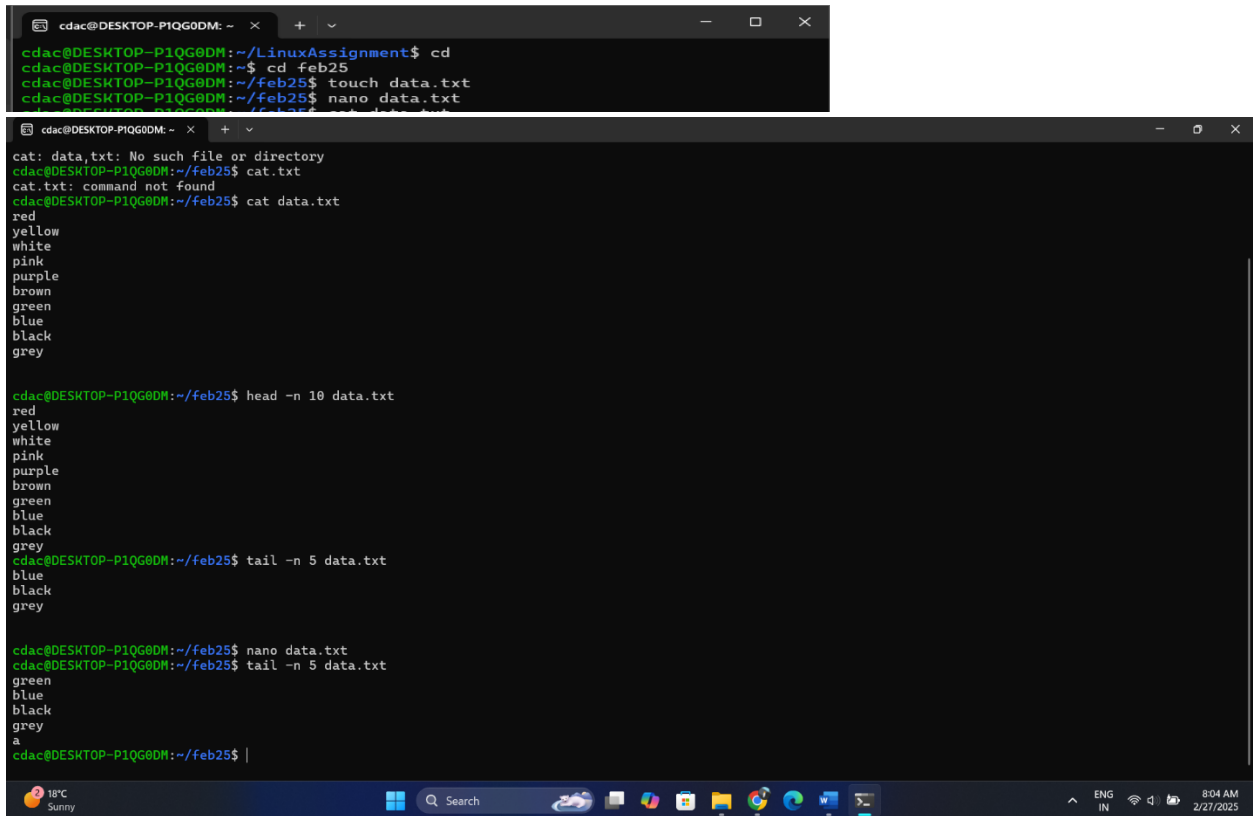
k) File Editing:

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

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@DESKTOP-P1QG0DM:~$ cd
cdac@DESKTOP-P1QG0DM:~$ cd LinuxAssignment
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ ls
docs  file1.txt
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ nano file1.txt
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ cat file.txt
cat: file.txt: No such file or directory
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ cat file1.txt
Dhanashri Ashko Dgadae
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ sed -i 's/original_word/replacement_word/g' file1.txt
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ sed -i 's/original_word/replacement_word/g' file1.txt
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ sed -i 's/Ashko/ashok/g' file1.txt
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$ cat file1.txt
Dhanashri ashok Dgadae
cdac@DESKTOP-P1QG0DM:~/LinuxAssignment$
```

19°C Sunny   Q Search   ENG IN   7:48 AM 2/27/2025

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.

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

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.

d. To focus on the last few numbers of the dataset, display the last 3 lines of "numbers.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@DESKTOP-P1QG0DM:~/feb25$ touch input.txt

nano input.txt
cdac@DESKTOP-P1QG0DM:~/feb25$ cat input.txt
abcdefghijklmnopqrst
cdac@DESKTOP-P1QG0DM:~/feb25$ touch output.txt
cdac@DESKTOP-P1QG0DM:~/feb25$ tr '[:lower:]' '[:upper:]' < input.txt > output.txt
cdac@DESKTOP-P1QG0DM:~/feb25$ cat output.txt
ABCDEFGHIJKLMNOPQRST
cdac@DESKTOP-P1QG0DM:~/feb25$
```

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@DESKTOP-P1QG0DM:~$ cd feb25
cdac@DESKTOP-P1QG0DM:~/feb25$ nano duplicate.txt
cdac@DESKTOP-P1QG0DM:~/feb25$ y
y: command not found
cdac@DESKTOP-P1QG0DM:~/feb25$ cat duplicate.txt
apple
banana
apple
orange
grape
banana
cdac@DESKTOP-P1QG0DM:~/feb25$ sort duplicate.txt| uniq
apple
banana
grape
orange
cdac@DESKTOP-P1QG0DM:~/feb25$
```

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."