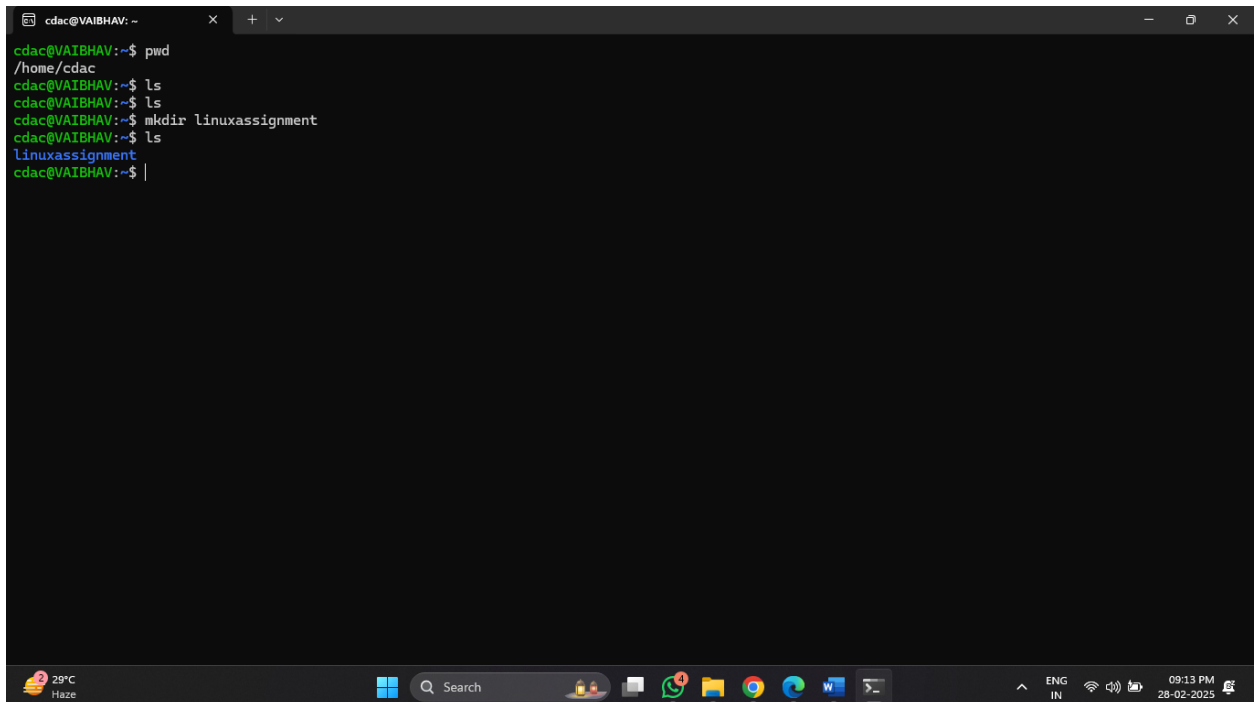


ASSIGNMENT-1

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@VAIBHAV: ~  
cdac@VAIBHAV:~$ pwd  
/home/cdac  
cdac@VAIBHAV:~$ ls  
cdac@VAIBHAV:~$ ls  
cdac@VAIBHAV:~$ mkdir linuxassignment  
cdac@VAIBHAV:~$ ls  
linuxassignment  
cdac@VAIBHAV:~$ |
```

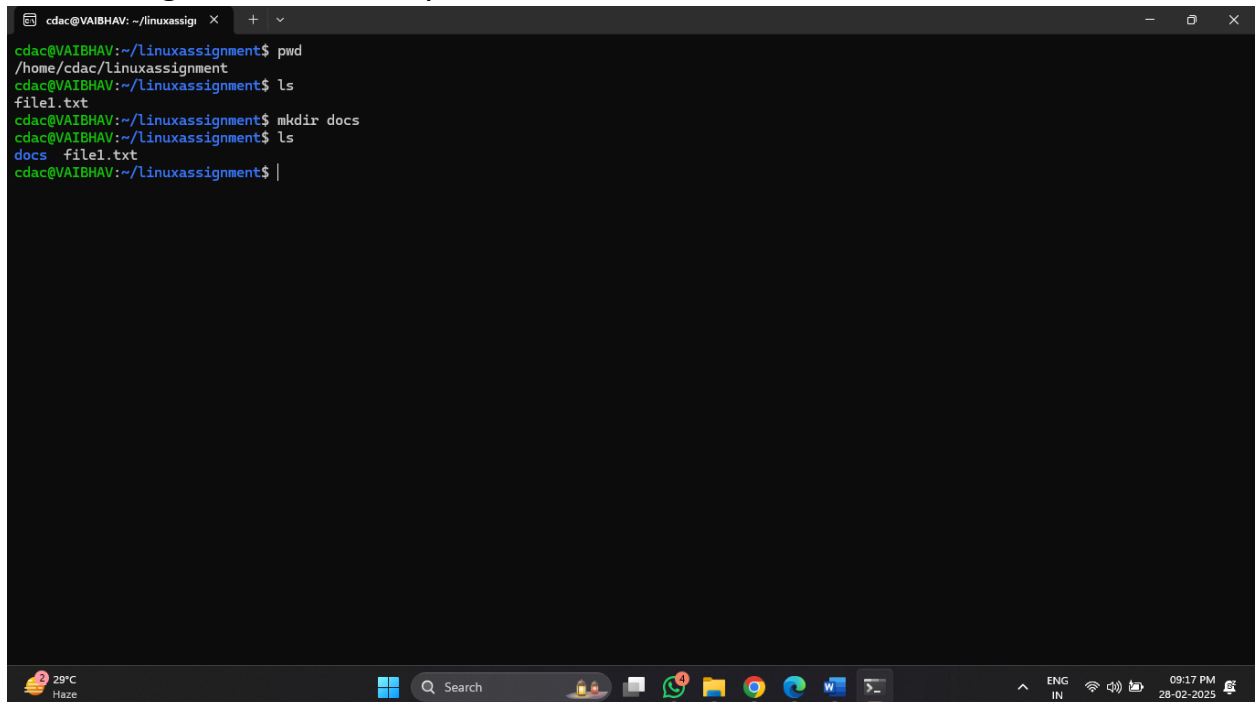
A screenshot of a terminal window titled 'cdac@VAIBHAV: ~'. The terminal shows a series of commands and their outputs: 'pwd' returns '/home/cdac', 'ls' is run twice, 'mkdir linuxassignment' is executed, and 'ls' is run again showing 'linuxassignment'. The prompt 'cdac@VAIBHAV:~\$' is followed by a vertical bar '|'. The terminal window is overlaid on a Windows desktop environment. The taskbar at the bottom shows the Start button, a search bar, and several application icons including File Explorer, Microsoft Edge, and Word. The system tray on the right indicates the temperature is 29°C with haze, the language is set to English (India), and the date and time are 09:13 PM on 28-02-2025.

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

```
linuxassignment
cdac@VAIBHAV:~$ cd linuxassignment
cdac@VAIBHAV:~/linuxassignment$ touch file1.txt
cdac@VAIBHAV:~/linuxassignment$ cat file1.txt
cdac@VAIBHAV:~/linuxassignment$ nano file1.txt
cdac@VAIBHAV:~/linuxassignment$ cat file1.txt
Hello Myself Vaibhav Waghule

cdac@VAIBHAV:~/linuxassignment$ |
```

- c) Directory Management: a. Create a new directory named "docs" inside the "LinuxAssignment" directory.---



The screenshot shows a Windows terminal window with the title bar "cdac@VAIBHAV: ~/linuxassigni". The terminal displays the following commands and output:

```
cdac@VAIBHAV:~/linuxassignment$ pwd
/home/cdac/linuxassignment
cdac@VAIBHAV:~/linuxassignment$ ls
file1.txt
cdac@VAIBHAV:~/linuxassignment$ mkdir docs
cdac@VAIBHAV:~/linuxassignment$ ls
docs  file1.txt
cdac@VAIBHAV:~/linuxassignment$ |
```

The Windows taskbar is visible at the bottom, showing the Start button, Search bar, and various application icons. The system tray on the right indicates the temperature is 29°C, the weather is Haze, and the time is 09:17 PM on 28-02-2025.

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

```
cdac@VAIBHAV:~/linuxassignment$ cp file1.txt docs
cdac@VAIBHAV:~/linuxassignment$ cd docs/
cdac@VAIBHAV:~/linuxassignment/docs$ ls
file1.txt
cdac@VAIBHAV:~/linuxassignment/docs$ mv file1.txt file2.txt
mv: command not found
cdac@VAIBHAV:~/linuxassignment/docs$ ls
file1.txt
cdac@VAIBHAV:~/linuxassignment/docs$ mv my_file1.txt my_file2.txt
mv: cannot stat 'my_file1.txt': No such file or directory
cdac@VAIBHAV:~/linuxassignment/docs$ ls
file1.txt
cdac@VAIBHAV:~/linuxassignment/docs$ mv my_file1.txt my_file2.txt
mv: my_file1.txt: command not found
cdac@VAIBHAV:~/linuxassignment/docs$ ls
file1.txt
cdac@VAIBHAV:~/linuxassignment/docs$ mv file1.txt file2.txt
cdac@VAIBHAV:~/linuxassignment/docs$ ls
file1.txt  file2.txt
cdac@VAIBHAV:~/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@VAIBHAV: ~/linuxassign X + v
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

cdac@VAIBHAV:~$ pwd
/home/cdac
cdac@VAIBHAV:~$ ls
linuxassignment
cdac@VAIBHAV:~$ cd linuxassignment
cdac@VAIBHAV:~/linuxassignment$ cd docs
cdac@VAIBHAV:~/linuxassignment/docs$ chmod 744 file2.txt
cdac@VAIBHAV:~/linuxassignment/docs$ ls -l
total 8
-rw-r--r-- 1 cdac cdac 30 Feb 28 21:18 file1.txt
-rwxr--r-- 1 cdac cdac 30 Feb 28 21:25 file2.txt
cdac@VAIBHAV:~/linuxassignment/docs$ chown $(whoami) file2.txt
cdac@VAIBHAV:~/linuxassignment/docs$ ls -l file2.txt
-rwxr--r-- 1 cdac cdac 30 Feb 28 21:25 file2.txt
cdac@VAIBHAV:~/linuxassignment/docs$ ^C
cdac@VAIBHAV:~/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@VAIBHAV:~/linuxassignment/docs$ cd ..
cdac@VAIBHAV:~/linuxassignment$ cd docs
cdac@VAIBHAV:~/linuxassignment/docs$ chmod 744 file2.txt
cdac@VAIBHAV:~/linuxassignment/docs$ ls -l
total 8
-rw-r--r-- 1 cdac cdac 30 Feb 28 21:18 file1.txt
-rwxr--r-- 1 cdac cdac 30 Feb 28 21:25 file2.txt
cdac@VAIBHAV:~/linuxassignment/docs$ chown $(whoami) file2.txt
cdac@VAIBHAV:~/linuxassignment/docs$ ls -l file2.txt
-rwxr--r-- 1 cdac cdac 30 Feb 28 21:25 file2.txt
cdac@VAIBHAV:~/linuxassignment/docs$ cd ..
cdac@VAIBHAV:~/linuxassignment$ ls -l ~/linuxassignment
total 8
drwxr-xr-x 2 cdac cdac 4096 Feb 28 21:25 docs
-rw-r--r-- 1 cdac cdac 30 Feb 28 21:15 file1.txt
cdac@VAIBHAV:~/linuxassignment$ ls -l /
total 2436
lrwxrwxrwx 1 root root 7 May 31 2023 bin -> usr/bin
drwxr-xr-x 2 root root 4096 May 31 2023 boot
drwxr-xr-x 16 root root 3580 Feb 28 19:05 dev
drwxr-xr-x 99 root root 4096 Feb 28 21:35 etc
drwxr-xr-x 3 root root 4096 Feb 27 22:15 home
-rwxrwxrwx 1 root root 2424984 Feb 12 06:29 init
lrwxrwxrwx 1 root root 7 May 31 2023 lib -> usr/lib
lrwxrwxrwx 1 root root 9 May 31 2023 lib32 -> usr/lib32
lrwxrwxrwx 1 root root 9 May 31 2023 lib64 -> usr/lib64
lrwxrwxrwx 1 root root 10 May 31 2023 libx32 -> usr/libx32
drwx----- 2 root root 16384 Feb 27 22:14 lost+found
drwxr-xr-x 2 root root 4096 May 31 2023 media
drwxr-xr-x 9 root root 4096 Feb 27 22:15 mnt
drwxr-xr-x 2 root root 4096 May 31 2023 opt
```

```
dr-xr-xr-x 182 root root 0 Feb 28 19:45 proc
drwx----- 3 root root 4096 Feb 27 22:17 root
drwxr-xr-x 23 root root 700 Feb 28 19:45 run
lrwxrwxrwx 1 root root 8 May 31 2023 sbin -> usr/sbin
drwxr-xr-x 6 root root 4096 May 31 2023 snap
drwxr-xr-x 2 root root 4096 May 31 2023 srv
dr-xr-xr-x 11 root root 0 Feb 28 19:04 sys
drwxrwxrwt 11 root root 4096 Feb 28 21:35 tmp
drwxr-xr-x 14 root root 4096 May 31 2023 usr
drwxr-xr-x 13 root root 4096 May 31 2023 var
cdac@VAIBHAV:~/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@VAIBHAV: ~/linuxassigni X + v
cdac@VAIBHAV:~/linuxassignment$ l
docs/  file1.txt
cdac@VAIBHAV:~/linuxassignment$ ls
docs  file1.txt
cdac@VAIBHAV:~/linuxassignment$ find .txt
find: '.txt': No such file or directory
cdac@VAIBHAV:~/linuxassignment$
cdac@VAIBHAV:~/linuxassignment$
cdac@VAIBHAV:~/linuxassignment$ find find . -type f -name "*.txt"
find: 'find': No such file or directory
./docs/file2.txt
./docs/file1.txt
./file1.txt
cdac@VAIBHAV:~/linuxassignment$ |
```

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

```
cdac@VAIBHAV: ~/linuxassigni X + v
cdac@VAIBHAV:~/linuxassignment$ l
docs/ file1.txt
cdac@VAIBHAV:~/linuxassignment$ ls
docs file1.txt
cdac@VAIBHAV:~/linuxassignment$ find .txt
find: '.txt': No such file or directory
cdac@VAIBHAV:~/linuxassignment$
cdac@VAIBHAV:~/linuxassignment$ find find . -type f -name "*.txt"
find: 'find': No such file or directory
./docs/file2.txt
./docs/file1.txt
./file1.txt
cdac@VAIBHAV:~/linuxassignment$ nano file1.txt
cdac@VAIBHAV:~/linuxassignment$ cat file1.txt
Random access memory (RAM) is the hardware in a computing device that provides temporary storage for the operating system (OS), software programs and
any other data in current use so they're quickly available to the device's processor. RAM is often referred

cdac@VAIBHAV:~/linuxassignment$ |
```

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

```
cdac@VAIBHAV: ~/linuxassigni X + v
cdac@VAIBHAV:~/linuxassignment$ date
Fri Feb 28 21:54:31 IST 2025
cdac@VAIBHAV:~/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).

```
cdac@VAIBHAV: ~/linuxassign X + v
cdac@VAIBHAV:~/linuxassignment$ date
Fri Feb 28 21:54:31 IST 2025
cdac@VAIBHAV:~/linuxassignment$ ipconfig.exe

Windows IP Configuration

Ethernet adapter Ethernet:

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

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

    Connection-specific DNS Suffix  . :
    Link-local IPv6 Address . . . . . : fe80::f6e5:93a5:6d72:b397%35
    IPv4 Address. . . . . : 172.26.224.1
    Subnet Mask . . . . . : 255.255.240.0
    Default Gateway . . . . . :

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:

    Connection-specific DNS Suffix  . : lan
    IPv6 Address. . . . . : 2409:40c2:404b:f712:f6bc:a86c:b19d:11ba
    Temporary IPv6 Address. . . . . : 2409:40c2:404b:f712:1490:6fac:b853:6f86

Temporary IPv6 Address. . . . . : 2409:40c2:404b:f712:1490:6fac:b853:6f86
Link-local IPv6 Address . . . . . : fe80::ba22:ba4f:3d64:859e%6
IPv4 Address. . . . . : 192.168.31.140
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : fe80::7a46:5cff:feef:270%6
                            192.168.31.1

Ethernet adapter Bluetooth Network Connection:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :
cdac@VAIBHAV:~/linuxassignment$ |
```

j) File Compression:

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

```
cdac@VAIBHAV:~/linuxassignment$ zip -r docs.zip docs
adding: docs/ (stored 0%)
adding: docs/file2.txt (stored 0%)
adding: docs/file1.txt (stored 0%)
cdac@VAIBHAV:~/linuxassignment$ |
```

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

```
cdac@VAIBHAV: ~/linuxassigni  X + v
cdac@VAIBHAV:~/linuxassignment$ ls
docs docs.zip file1.txt
cdac@VAIBHAV:~/linuxassignment$ mkdir docs1
cdac@VAIBHAV:~/linuxassignment$ ls
docs docs.zip docs1 file1.txt
cdac@VAIBHAV:~/linuxassignment$ unzip docs.zip docs1
Archive: docs.zip
caution: filename not matched: docs1
cdac@VAIBHAV:~/linuxassignment$ unzip docs.zip -d docs1
Archive: docs.zip
creating: docs1/docs/
extracting: docs1/docs/file2.txt
extracting: docs1/docs/file1.txt
cdac@VAIBHAV:~/linuxassignment$ ls
docs docs.zip docs1 file1.txt
cdac@VAIBHAV:~/linuxassignment$ |
```

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

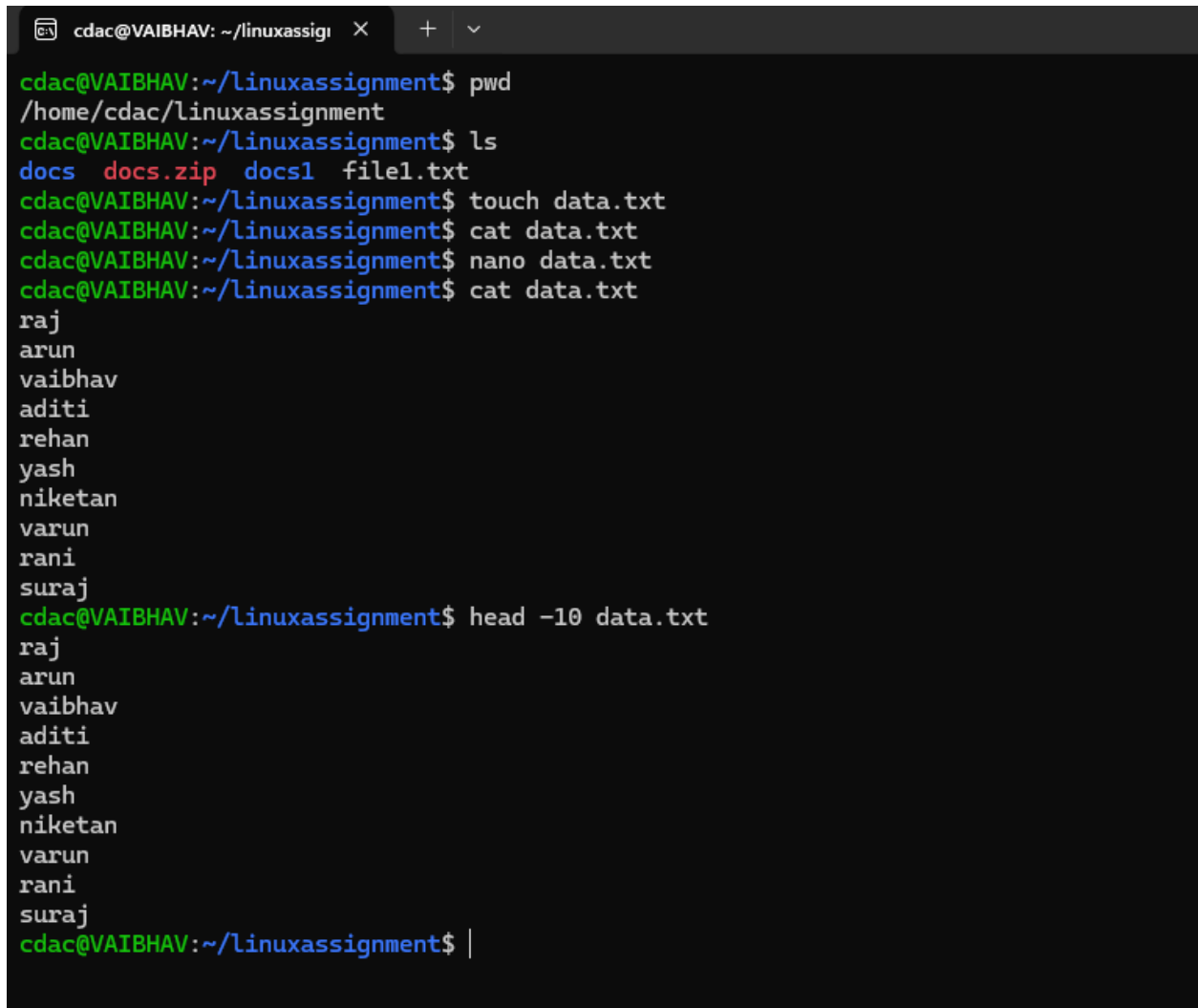
```
-----  
cdac@VAIBHAV: ~/linuxassigni X + v  
cdac@VAIBHAV:~/linuxassignment$ ls  
docs docs.zip docs1 file1.txt  
cdac@VAIBHAV:~/linuxassignment$ nano file1.txt  
cdac@VAIBHAV:~/linuxassignment$  
cdac@VAIBHAV:~/linuxassignment$ cat file1.txt  
Random access memory (RAM) is the hardware in a computing device that provides temporary storage for the operating system (OS), software programs and any other data in current use so they're quickly available to the device's processor. RAM is often referred  
  
cdac@VAIBHAV:~/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@VAIBHAV: ~/linuxassigni X + v  
cdac@VAIBHAV:~/linuxassignment$ ls  
docs docs.zip docs1 file1.txt  
cdac@VAIBHAV:~/linuxassignment$ nano file1.txt  
cdac@VAIBHAV:~/linuxassignment$ cat file1.txt  
Random access memory (RAM) is the hardware in a computing device that provides temporary storage for the operating system (OS), software programs and any other data in current use so they're quickly available to the device's processor. RAM is often referred as random access memory  
  
my self vaibhav waghule  
  
cdac@VAIBHAV:~/linuxassignment$ |
```

Problem 2: Read the instructions carefully and answer accordingly. If there is any need to insert some data then do that as well.

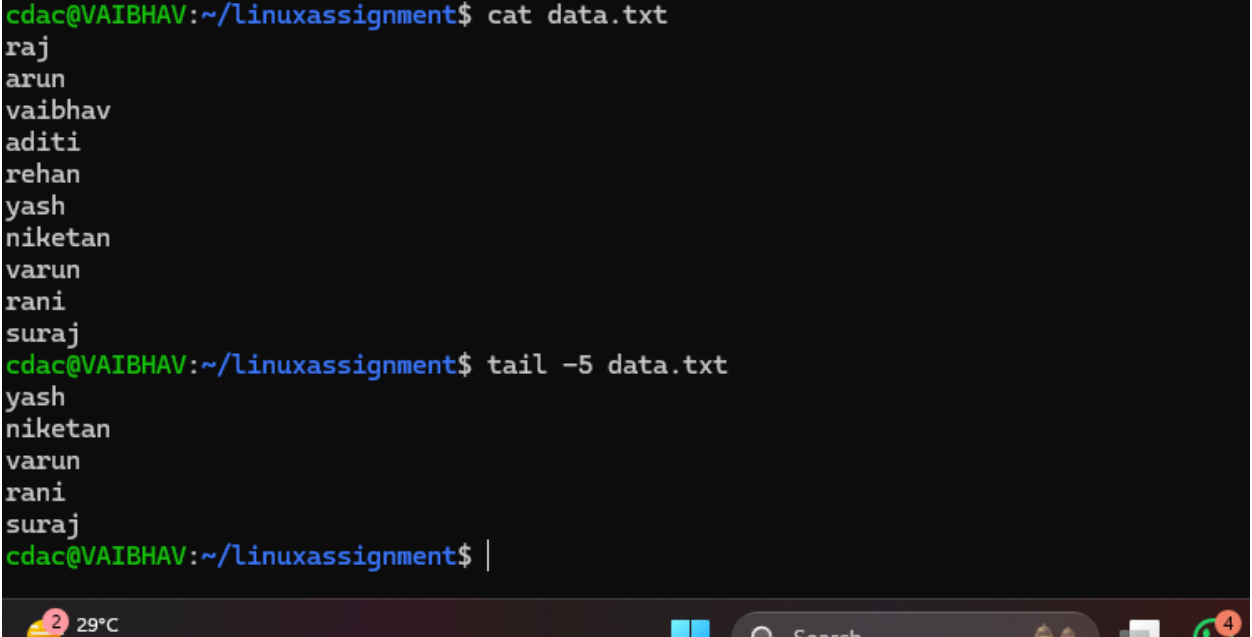
- a. Suppose you have a file named "data.txt" containing important information. Display the first 10 lines of this file to quickly glance at its contents using a command.



```
cdac@VAIBHAV: ~/linuxassigni X + v
cdac@VAIBHAV:~/linuxassignment$ pwd
/home/cdac/linuxassignment
cdac@VAIBHAV:~/linuxassignment$ ls
docs docs.zip docs1 file1.txt
cdac@VAIBHAV:~/linuxassignment$ touch data.txt
cdac@VAIBHAV:~/linuxassignment$ cat data.txt
cdac@VAIBHAV:~/linuxassignment$ nano data.txt
cdac@VAIBHAV:~/linuxassignment$ cat data.txt
raj
arun
vaibhav
aditi
rehan
yash
niketan
varun
rani
suraj
cdac@VAIBHAV:~/linuxassignment$ head -10 data.txt
raj
arun
vaibhav
aditi
rehan
yash
niketan
varun
rani
suraj
cdac@VAIBHAV:~/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@VAIBHAV:~/linuxassignment$ cat data.txt  
raj  
arun  
vaibhav  
aditi  
rehan  
yash  
niketan  
varun  
rani  
suraj  
cdac@VAIBHAV:~/linuxassignment$ tail -5 data.txt  
yash  
niketan  
varun  
rani  
suraj  
cdac@VAIBHAV:~/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.

```
123456789015963
cdac@VAIBHAV: ~/linuxassigni X + v
cdac@VAIBHAV:~/linuxassignment$ nano numbers.txt
cdac@VAIBHAV:~/linuxassignment$ cat numbers.txt
1
2
3
4
5
6
7
8
9
1
5
8
9
6
0

cdac@VAIBHAV:~/linuxassignment$ head -15 numbers.txt
1
2
3
4
5
6
7
8
9
1
5
8
9
6
0
```

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

```
-----  
cdac@VAIBHAV:~/linuxassignment$ cat numbers.txt  
1  
2  
3  
4  
5  
6  
7  
8  
9  
1  
5  
8  
9  
6  
0  
  
cdac@VAIBHAV:~/linuxassignment$ tail -3 numbers.txt  
6  
0  
  
cdac@VAIBHAV:~/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@VAIBHAV: ~  
cdac@VAIBHAV:~$ pwd  
/home/cdac  
cdac@VAIBHAV:~$ ls  
linuxassignment  
cdac@VAIBHAV:~$ nano input.txt  
cdac@VAIBHAV:~$ cat input.txt  
hi  
myself  
vaibhav  
waghule  
from  
wardha maharashtra  
cdac@VAIBHAV:~$ cat input.txt | tr [a-z] [A-Z]  
HI  
MYSELF  
VAIBHAV  
WAGHULE  
FROM  
WARDHA MAHARASHTRA  
cdac@VAIBHAV:~$ cp input.txt output.txt  
cdac@VAIBHAV:~$ cat output.txt  
hi  
myself  
vaibhav  
waghule  
from  
wardha maharashtra  
cdac@VAIBHAV:~$ |
```

- 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@VAIBHAV: ~  
cdac@VAIBHAV:~$  
cdac@VAIBHAV:~$ pwd  
/home/cdac  
cdac@VAIBHAV:~$ ls  
input.txt  linuxassignment  output.txt  
cdac@VAIBHAV:~$ nano input.txt  
cdac@VAIBHAV:~$ y  
y: command not found  
cdac@VAIBHAV:~$ cat input.txt  
hi  
myself  
vaibhav  
waghule  
from  
wardha maharashtra  
cdac@VAIBHAV:~$ cat input.txt | tr [a-z] [A-Z]  
HI  
MYSELF  
VAIBHAV  
WAGHULE  
FROM  
WARDHA MAHARASHTRA  
cdac@VAIBHAV:~$ cp input.txt output.txt  
cdac@VAIBHAV:~$ cat output.txt  
hi  
myself  
vaibhav  
waghule  
from  
wardha maharashtra  
cdac@VAIBHAV:~$ |
```

- 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@VAIBHAV: ~
cdac@VAIBHAV:~$ pwd
/home/cdac
cdac@VAIBHAV:~$ ls
input.txt  linuxassignment  output.txt
cdac@VAIBHAV:~$ nano fruits.txt
cdac@VAIBHAV:~$ cat fruits.txt
apple
mango
banana
watermelon
grapes
apple
pears
custard
pears
mango
watermelon
cdac@VAIBHAV:~$ cat fruits.txt | tr -cd 'n\t\r' | sort | uniq -c
1 nnnnnn
cdac@VAIBHAV:~$ cat fruits.txt | sort | uniq -c
2 apple
1 banana
1 custard
1 grapes
2 mango
1 pears
1 pears
1 watermelon
1 watermelon
cdac@VAIBHAV:~$ |
```