Name : Utsav Gavli KH

Linux commands assignment:

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-UGL28VA:~$ pwd
/home/cdac
cdac@DESKTOP-UGL28VA:~$ ls
snap
cdac@DESKTOP-UGL28VA:~$ mkdir LinuxAssignment
cdac@DESKTOP-UGL28VA:~$ cd LinuxAssignment
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ touch file.txt
```

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

```
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ touch file1
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ cat file1
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ nano file1
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ cat file1
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ nano file1
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ cat file1
Utsav
Gavli
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$
```

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

```
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ mkdir docs
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ cd docs
cdac@DESKTOP-UGL28VA:~/LinuxAssignment/docs$
```

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

```
cdac@DESKTOP-UGL28VA:~/docs$ mkdir doc3
cdac@DESKTOP-UGL28VA:~/docs$ cp file2 doc3/file3
cdac@DESKTOP-UGL28VA:~/docs$ cd doc3
cdac@DESKTOP-UGL28VA:~/docs/doc3$ ls
file3
cdac@DESKTOP-UGL28VA:~/docs/doc3$
```

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-UGL28VA:~/LinuxAssignment/docs$ chmod 744 docs/file2.txt
chmod: cannot access 'docs/file2.txt': No such file or directory
cdac@DESKTOP-UGL28VA:~/LinuxAssignment/docs$ chmod 744 file2
cdac@DESKTOP-UGL28VA:~/LinuxAssignment/docs$ chown $(whoami) file2
cdac@DESKTOP-UGL28VA:~/LinuxAssignment/docs$ ls -l file2
-rwxr--r-- 1 cdac cdac 13 Feb 26 20:00 file2
cdac@DESKTOP-UGL28VA:~/LinuxAssignment/docs$ stat file2
  File: file2
  Size: 13              Blocks: 8          IO Block: 4096   regular file
Device: 8,32    Inode: 11780       Links: 1
Access: (0744/-rwxr--r--)  Uid: ( 1000/    cdac)   Gid: ( 1000/    cdac)
Access: 2025-02-26 20:00:35.370610108 +0000
Modify: 2025-02-26 20:00:35.370610108 +0000
Change: 2025-02-26 20:09:50.002352178 +0000
 Birth: 2025-02-26 20:00:35.370610108 +0000
```

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-UGL28VA:~$ ls -l ~/LinuxAssignment
total 28
-rw-r--r-- 1 cdac cdac   45 Feb 26 20:42 data.txt
drwxr-xr-x 2 cdac cdac 4096 Feb 26 20:00 docs
-rw-r--r-- 1 cdac cdac  482 Feb 26 20:26 docs.zip
drwxr-xr-x 3 cdac cdac 4096 Feb 26 20:27 extracted_docs
-rw-r--r-- 1 cdac cdac   13 Feb 26 19:45 fil
-rw-r--r-- 1 cdac cdac    0 Feb 26 19:44 file.txt
-rw-r--r-- 1 cdac cdac   16 Feb 26 20:47 file1
-rw-r--r-- 1 cdac cdac    1 Feb 26 20:49 file1.save
```

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-UGL28VA:~$ find . -type f -name "*.txt"
./LinuxAssignment/file.txt
cdac@DESKTOP-UGL28VA:~$ grep "Utsav" file1
grep: file1: No such file or directory
cdac@DESKTOP-UGL28VA:~$ cd LinuxAssignment
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ grep "Utsav" file1
Utsav
```

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

```
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ date
Wed Feb 26 20:19:30 UTC 2025
```

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).

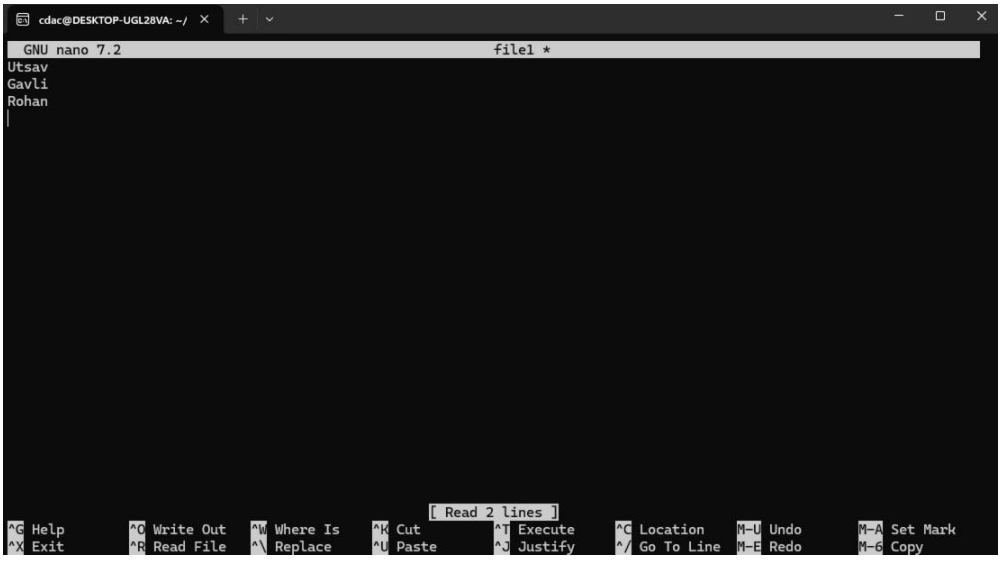
```
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet 10.255.255.254/32 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:35:4d:d3 brd ff:ff:ff:ff:ff:ff
    inet 172.24.235.90/20 brd 172.24.239.255 scope global eth0
       valid_lft forever preferred_lft forever
    inet6 fe80::215:5dff:fe35:4dd3/64 scope link
       valid_lft forever preferred_lft forever
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ hostname -I
172.24.235.90
```

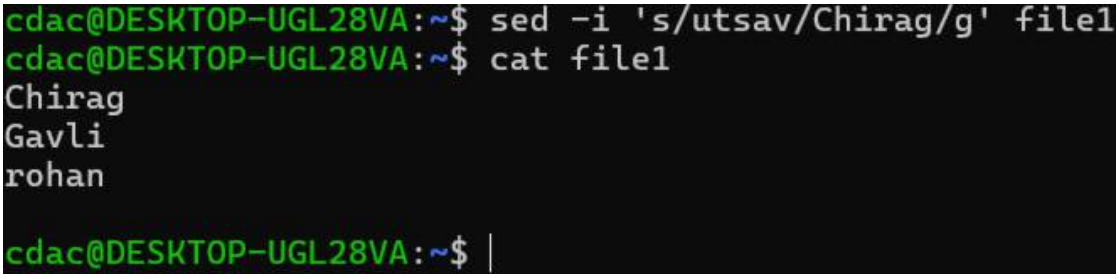
```
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ ping -c 4 google.com
PING google.com (142.250.183.46) 56(84) bytes of data.
64 bytes from bom12s11-in-f14.1e100.net (142.250.183.46): icmp_seq=1 ttl=57 time=3.17 ms
64 bytes from bom12s11-in-f14.1e100.net (142.250.183.46): icmp_seq=2 ttl=57 time=3.62 ms
64 bytes from bom12s11-in-f14.1e100.net (142.250.183.46): icmp_seq=3 ttl=57 time=3.94 ms
64 bytes from bom12s11-in-f14.1e100.net (142.250.183.46): icmp_seq=4 ttl=57 time=3.58 ms

--- google.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 2999ms
rtt min/avg/max/mdev = 3.168/3.574/3.936/0.272 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.

```
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ zip -r docs.zip docs
  adding: docs/ (stored 0%)
  adding: docs/file1 (stored 0%)
  adding: docs/file2 (stored 0%)
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ unzip docs.zip -d extracted_docs
Archive:  docs.zip
   creating: extracted_docs/docs/
 extracting: extracted_docs/docs/file1
 extracting: extracted_docs/docs/file2
```

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-UGL28VA:~$ sed -i 's/utsav/Chirag/g' file1
cdac@DESKTOP-UGL28VA:~$ cat file1
Chirag
Gavli
rohan
cdac@DESKTOP-UGL28VA:~$

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.

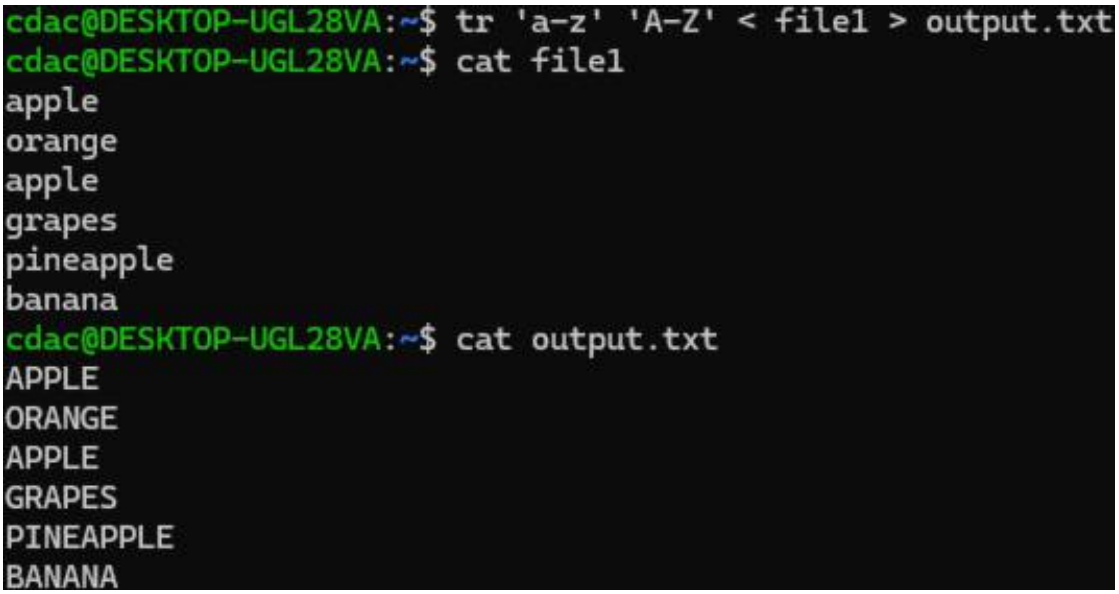
```
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ touch data.txt
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ nano data.txt
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ head -10 data.txt
Utsav
Gavli
a
b
c
d
e
f
g
h
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ tail -5 data.txt
m
n
o
p
```

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.

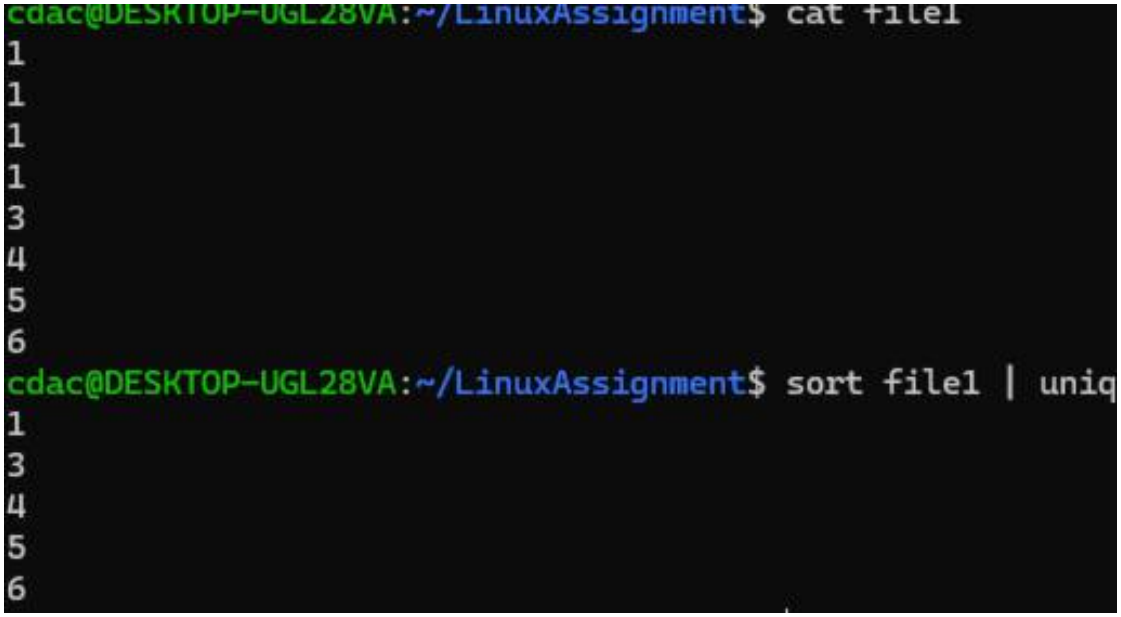
d. To focus on the last few numbers of the dataset, display the last 3 lines of "numbers.txt".

```
head: cannot open 'file1.txt' for reading: No such file or directory
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ head -10 file1
1
2
3
4
5
6
7
8
9
10
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ tail -5 file1
13
14
15
16
17
cdac@DESKTOP-UGL28VA:~/LinuxAssignment$ tail -3 file1
15
16
17
```

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."



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."



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."