

**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.

```
chaitali@LAPTOP-UCEI0K1V:~$ ls
LinuxAssignment cdac s10.sh s11.sh s12.sh s16.sh s2.txt s3.sh s4.sh s5.sh s6.sh s7.sh s8.sh s9.sh v4.sh
chaitali@LAPTOP-UCEI0K1V:~$
```

**b) File Management:**

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

Display its

contents.

```
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ touch file1.txt
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ echo "This is my first file in Linux" > file1.txt
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ cat file1.txt
This is my first file in Linux
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ A|
```

**c) Directory Management:**

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

```
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ mkdir docs
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ ls
docs echo file1.txt
```

**Copy and Move Files:**

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

```
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ ls
docs echo file1.txt
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ cat file1.txt
This is my first file in Linux
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ cp file1.txt docs/file2.txt
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ ls
docs echo file1.txt
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ cd docs
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment/docs$ ls
file2.txt
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment/docs$ cat file2.txt
This is my first file in Linux
chaitali@LAPTOP-UCEI0K1V:~/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.

```
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment/docs$ cat file2.txt
This is my first file in Linux
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment/docs$ chmod 744 file2.txt
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment/docs$ ls -lh
total 4.0K
```

```
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment/docs$ ls -lh
total 4.0K
-rwxr--r-- 1 chaitali chaitali 31 Aug 21 03:15 file2.txt
```

### Final Checklist:

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

```
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment/docs$ cd ..
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ ls
docs  echo  file1.txt
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ ls /
bin          boot  etc  init  lib.usr-is-merged  lost+found  mnt  proc  run  sbin.usr-is-merged  srv  tmp  var
bin.usr-is-merged  dev  home  lib  lib64  media  opt  root  sbin  snap  sys  usr
```

### 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).

```
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ find. -type f -name "*.txt"
Command 'find.' not found, did you mean:
  command 'find' from deb findutils (4.9.0-5)
Try: sudo apt install <deb name>
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ find . -type f -name "*.txt"
./docs/file2.txt
./file1.txt
```

### System Information:

- a. Display the current system date and time.

```
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ date
Thu Aug 21 03:36:46 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).

```
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ hostname -I
172.28.239.38
```

```

chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ ping Google.com
PING Google.com (142.250.207.174) 56(84) bytes of data:
64 bytes from pnbomb-bl-in-f14.1e100.net (142.250.207.174): icmp_seq=1 ttl=110 time=8.61 ms
64 bytes from pnbomb-bl-in-f14.1e100.net (142.250.207.174): icmp_seq=2 ttl=110 time=7.21 ms
64 bytes from pnbomb-bl-in-f14.1e100.net (142.250.207.174): icmp_seq=3 ttl=110 time=6.50 ms
64 bytes from pnbomb-bl-in-f14.1e100.net (142.250.207.174): icmp_seq=4 ttl=110 time=5.95 ms
64 bytes from pnbomb-bl-in-f14.1e100.net (142.250.207.174): icmp_seq=5 ttl=110 time=10.6 ms
64 bytes from pnbomb-bl-in-f14.1e100.net (142.250.207.174): icmp_seq=6 ttl=110 time=6.49 ms
64 bytes from pnbomb-bl-in-f14.1e100.net (142.250.207.174): icmp_seq=7 ttl=110 time=7.65 ms
64 bytes from pnbomb-bl-in-f14.1e100.net (142.250.207.174): icmp_seq=8 ttl=110 time=8.88 ms
64 bytes from pnbomb-bl-in-f14.1e100.net (142.250.207.174): icmp_seq=9 ttl=110 time=7.48 ms
64 bytes from pnbomb-bl-in-f14.1e100.net (142.250.207.174): icmp_seq=10 ttl=110 time=5.12 ms
64 bytes from pnbomb-bl-in-f14.1e100.net (142.250.207.174): icmp_seq=11 ttl=110 time=39.4 ms
64 bytes from pnbomb-bl-in-f14.1e100.net (142.250.207.174): icmp_seq=12 ttl=110 time=7.77 ms
64 bytes from pnbomb-bl-in-f14.1e100.net (142.250.207.174): icmp_seq=13 ttl=110 time=27.9 ms
64 bytes from pnbomb-bl-in-f14.1e100.net (142.250.207.174): icmp_seq=14 ttl=110 time=8.46 ms
64 bytes from pnbomb-bl-in-f14.1e100.net (142.250.207.174): icmp_seq=15 ttl=110 time=9.11 ms
64 bytes from pnbomb-bl-in-f14.1e100.net (142.250.207.174): icmp_seq=16 ttl=110 time=6.80 ms
^C
--- Google.com ping statistics ---
16 packets transmitted, 16 received, 0% packet loss, time 15027ms
rtt min/avg/max/mdev = 5.123/10.866/39.351/8.928 ms

```

## j) File Compression:

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

```

chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ sudo apt-get install zip
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 185 not upgraded.
Need to get 176 kB/350 kB of archives.
After this operation, 933 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 zip amd64 3.0-13ubuntu0.2 [176
Fetched 176 kB in 1s (134 kB/s)
Selecting previously unselected package unzip.
(Reading database ... 40794 files and directories currently installed.)
Preparing to unpack .../unzip_6.0-28ubuntu4.1_amd64.deb ...
Unpacking unzip (6.0-28ubuntu4.1) ...
Selecting previously unselected package zip.
Preparing to unpack .../zip_3.0-13ubuntu0.2_amd64.deb ...
Unpacking zip (3.0-13ubuntu0.2) ...
Setting up unzip (6.0-28ubuntu4.1) ...
Setting up zip (3.0-13ubuntu0.2) ...
Processing triggers for man-db (2.12.0-4build2) ...
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ zip -r file2.txt docs
  adding: docs/ (stored 0%)
  adding: docs/file2.txt (deflated 3%)

```

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

## 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).

```

chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ zip -r docs.zip docs
  adding: docs/ (stored 0%)
  adding: docs/file2.txt (deflated 3%)
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ ls
docs docs.zip echo file1.txt file2.txt unzippeddocs
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ unzip docs.zip -d unzippeddocs
Archive: docs.zip
  creating: unzippeddocs/docs/
  inflating: unzippeddocs/docs/file2.txt

```



```
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ cat file1.txt
This is my first file in Linux
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ sed -i 's/Linux/Unix/g' file1.txt
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ cat file1.txt
This is my first file in Unix
chaitali@LAPTOP-UCEI0K1V:~/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.

```
chaitali@LAPTOP-UCEI0K1V:~$ cd LinuxAssignment
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ vi data.txt
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ head -20 data.txt
Welcome to Linux practice
Learning vi editor
Creating and editing files
Understanding insert mode
Saving files with commands
Exiting vi safely
Practicing file operations
Exploring permissions
Working with directories
Linux is powerful
Working with processes
Learning about users
Understanding groups
Using system commands
Navigating file systems
Compressing and extracting files
Searching with grep
Sorting file contents
Displaying system informa
Practice makes perfect in Linux
```

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

```
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ tail -n 5 data.txt
Searching with grep
Sorting file contents
Displaying system informa
Practice makes perfect in Linux
```

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

```
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ vi numbers.txt
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ head -n 15 numbers.txt
1
2
3
4
5
6
7
8
9
10
11
12
13
15
16
```

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

```
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ tail -n 3 numbers.txt
18
19
20
```

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".

```

chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ vi input.txt
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ cat
^C
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ cat input.txt

linux is powerful
file management is easy
learning commands daily
practice makes perfect
bash scripting is fun
working with files and directories
permissions are important
text processing with tr command
uppercase and lowercase conversion
hello world from linux

chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ tr 'a-z' 'A-Z' < input.txt > output.txt
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ cat output.txt

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```

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."

```

chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ vi duplicate.txt
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ sort duplicate | uniq
sort: cannot read: duplicate: No such file or directory
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ sort duplicate.txt | uniq

apple
banana
grape
kiwi
mango
orange

```

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."

```

chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ vi fruit.txt
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ sort fruit.txt | uniq -c

  4 apple
  4 banana
  2 grape
  1 kiwi
  2 mango
  2 orange
chaitali@LAPTOP-UCEI0K1V:~/LinuxAssignment$ |

```