

Assignment 1

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.

```
rajesh@DESKTOP-8KHGKBQ:~$ ls
LinuxAssignment abc docs file1.txt
rajesh@DESKTOP-8KHGKBQ:~$ cd LinuxAssignment
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$
```

b) File Management:

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

```
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ touch file1.txt
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ ls
file1.txt
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$
```

c) Directory Management:

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

```
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ mkdir docs
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ cp file1.txt ~/docs
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ ls
docs file1.txt
```

d) Copy and Move Files:

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

```
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ cp file1.txt ~/docs
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ ls
docs  file1.txt
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ nano file1.txt
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ mv file1.txt file
2.txt
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ ls
docs  file2.txt
```

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

```
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ ls
docs  file1.txt  file2.txt
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ chmod +rwx file2.
txt
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ chmod -rwx file2.
txt
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ ls
docs  file1.txt  file2.txt
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ █
```

f) Final Checklist:

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

```
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ ls
docs  file1.txt  file2.txt
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ chmod +rwx file2.
txt
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ chmod -rwx file2.
txt
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ ls
docs  file1.txt  file2.txt
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ █
```

g) File Searching:

- a. Search for all files with the extension ".txt" in the current directory and its subdirectories.

```
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ ls | grep -i ".txt"
file1.txt
file2.txt
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$
```

System Information:

- a. Display the current system date and time

```
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ date -u
Thu Feb 27 14:11:39 UTC 2025
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$
```

Networking:

- a. Display the IP address of the system.

```
Processing triggers for man-db (2.12.0-4build2) ...
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 172.26.198.145 netmask 255.255.240.0 broadcast 172.26.207.255
    inet6 fe80::215:5dff:feb1:bbcd prefixlen 64 scopeid 0x20<link>
    ether 00:15:5d:b1:bb:cd txqueuelen 1000 (Ethernet)
    RX packets 3341 bytes 942950 (942.9 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 1440 bytes 92243 (92.2 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 54 bytes 5928 (5.9 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 54 bytes 5928 (5.9 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$
```

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

```
ping: www.google.cpm: Name or service not known
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$ ping www.google.com
PING www.google.com (216.58.200.164) 56(84) bytes of data.
64 bytes from nrt12s11-in-f164.1e100.net (216.58.200.164): icmp_seq=1 ttl=52 time=37.4 ms
64 bytes from nrt12s11-in-f164.1e100.net (216.58.200.164): icmp_seq=2 ttl=52 time=37.0 ms
64 bytes from nrt12s11-in-f164.1e100.net (216.58.200.164): icmp_seq=3 ttl=52 time=35.9 ms
64 bytes from nrt12s11-in-f164.1e100.net (216.58.200.164): icmp_seq=4 ttl=52 time=36.9 ms
64 bytes from nrt12s11-in-f164.1e100.net (216.58.200.164): icmp_seq=5 ttl=52 time=36.5 ms
64 bytes from nrt12s11-in-f164.1e100.net (216.58.200.164): icmp_seq=6 ttl=52 time=36.5 ms
64 bytes from nrt12s11-in-f164.1e100.net (216.58.200.164): icmp_seq=7 ttl=52 time=55.9 ms
64 bytes from nrt12s11-in-f164.1e100.net (216.58.200.164): icmp_seq=9 ttl=52 time=37.2 ms
64 bytes from nrt12s11-in-f164.1e100.net (216.58.200.164): icmp_seq=10 ttl=52 time=37.8 ms
64 bytes from nrt12s11-in-f164.1e100.net (216.58.200.164): icmp_seq=11 ttl=52 time=96.0 ms
64 bytes from nrt12s11-in-f164.1e100.net (216.58.200.164): icmp_seq=12 ttl=52 time=38.8 ms
64 bytes from nrt12s11-in-f164.1e100.net (216.58.200.164): icmp_seq=13 ttl=52 time=38.1 ms
^C
--- www.google.com ping statistics ---
13 packets transmitted, 12 received, 7.69231% packet loss, time 12128ms
rtt min/avg/max/mdev = 35.854/43.666/96.047/16.630 ms
rajesh@DESKTOP-8KHGKBQ:~/LinuxAssignment$
```

File Compression:

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

```
rajesh@DESKTOP-8KHGKBQ:~$ man zip
rajesh@DESKTOP-8KHGKBQ:~$ zip -r zippeddocs.zip docs/
  adding: docs/ (stored 0%)
  adding: docs/file1.txt (stored 0%)
rajesh@DESKTOP-8KHGKBQ:~$ ls -lh
total 24K
drwxr-xr-x 4 rajesh rajesh 4.0K Feb 27 13:24 LinuxAssignment
drwxr-xr-x 3 rajesh rajesh 4.0K Feb 27 09:55 abc
drwxr-xr-x 2 rajesh rajesh 4.0K Feb 27 12:38 docs
drwxr-xr-x 2 rajesh rajesh 4.0K Feb 27 13:25 file1.txt
drwx----- 3 rajesh rajesh 4.0K Feb 27 16:38 snap
-rw-r--r-- 1 rajesh rajesh 316 Feb 27 17:12 zippeddocs.zip
rajesh@DESKTOP-8KHGKBQ:~$
```

Extract the contents of the zip file into a new directory

```
rajesh@DESKTOP-8KHGKBQ:~$ unzip zippeddocs.zip -d xyz/
Archive:  zippeddocs.zip
  creating: xyz/docs/
  extracting: xyz/docs/file1.txt
rajesh@DESKTOP-8KHGKBQ:~$ ls -lh
total 28K
```

Replace a specific word in the "file1.txt" file with another word (provide the original word and the word to replace it with).

```
9 Bangalore
rajesh@DESKTOP-8KHGKBQ: $ sed -i 's/noida__word/telangana__word/g' file2.txt
rajesh@DESKTOP-8KHGKBQ: $ sed -i 's/noida__word/telangana__word/g' file2.txt
rajesh@DESKTOP-8KHGKBQ: $ cat -n file2.txt
1 top 10 cities in india
2
3 mumbai
4 delhi
5 kolkata
6 noida
7 hyderabad
8 pune
9 Bangalore
rajesh@DESKTOP-8KHGKBQ: $ sed -i 's/noida/vishakhapattanam/g' file1.txt
sed: couldn't edit file1.txt: not a regular file
rajesh@DESKTOP-8KHGKBQ: $ sed -i 's/noida/vishakhapattanam/g' file2.txt
rajesh@DESKTOP-8KHGKBQ: $ cat -n file2.txt
1 top 10 cities in india
2
3 mumbai
4 delhi
5 kolkata
6 vishakhapattanam
7 hyderabad
8 pune
9 Bangalore
rajesh@DESKTOP-8KHGKBQ: $ sed -i 's/delhi/raipur/g' file2.txt
rajesh@DESKTOP-8KHGKBQ: $ cat -n file2.txt
cat: file2.txt: No such file or directory
rajesh@DESKTOP-8KHGKBQ: $ cat -n file2.txt
1 top 10 cities in india
2
3 mumbai
4 raipur
5 kolkata
6 vishakhapattanam
7 hyderabad
8 pune
9 Bangalore
rajesh@DESKTOP-8KHGKBQ: $
```

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.

```
rajesh@DESKTOP-8KHGKBQ: $ ls
linuxAssignment abc docs file.txt file1.txt file2.txt snap xyz zippeddocs.zip
rajesh@DESKTOP-8KHGKBQ: $ pwd
/home/rajesh
rajesh@DESKTOP-8KHGKBQ: $ touch data.txt
rajesh@DESKTOP-8KHGKBQ: $ nano data.txt
rajesh@DESKTOP-8KHGKBQ: $ cat -n data.txt
1 1 red
2 2 green
3 3 blue
4 4 pink
5 5 yellow
6 6 violet
7 7 orange
8 8 magenta
9 9 black
10 10 white
11 11 purple
12 12 red vine
13 13 red orange
14 14 pearl white
15 15 sky blue
rajesh@DESKTOP-8KHGKBQ: $ head -10 data.txt
1 red
2 green
3 blue
4 pink
5 yellow
6 violet
7 orange
8 magenta
9 black
10 white
rajesh@DESKTOP-8KHGKBQ: $
```

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

```
Ubuntu
rajesh@DESKTOP-8KHGKBQ: ~$ ls
LinuxAssignment abc docs file.txt file1.txt file2.txt snap xyz zippeddocs.zip
rajesh@DESKTOP-8KHGKBQ: ~$ pwd
/home/rajesh
rajesh@DESKTOP-8KHGKBQ: ~$ touch data.txt
rajesh@DESKTOP-8KHGKBQ: ~$ nano data.txt
rajesh@DESKTOP-8KHGKBQ: ~$ cat -n data.txt
 1 1 red
 2 2 green
 3 3 blue
 4 4 pink
 5 5 yellow
 6 6 violet
 7 7 orange
 8 8 magenta
 9 9 black
10 10 white
11 11 purple
12 12 red vine
13 13 red orange
14 14 pearl white
15 15 sky blue
rajesh@DESKTOP-8KHGKBQ: ~$ head -10 data.txt
1 red
2 green
3 blue
4 pink
5 yellow
6 violet
7 orange
8 magenta
9 black
10 white
rajesh@DESKTOP-8KHGKBQ: ~$ tail -5 data.txt
11 purple
12 red vine
13 red orange
14 pearl white
15 sky blue
rajesh@DESKTOP-8KHGKBQ: ~$
```

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

```
Ubuntu
rajesh@DESKTOP-8KHGKBQ: ~$ touch numbers.txt
rajesh@DESKTOP-8KHGKBQ: ~$ nano numbers.txt
rajesh@DESKTOP-8KHGKBQ: ~$ head -15 numbers.txt
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
rajesh@DESKTOP-8KHGKBQ: ~$
```

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

```
rajesh@DESKTOP-8KHGKBQ:~$ tail -3 numbers.txt
18
19
20
rajesh@DESKTOP-8KHGKBQ:~$
```

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."

```
Ubuntu
rajesh@DESKTOP-8KHGKBQ:~$ touch input.txt
rajesh@DESKTOP-8KHGKBQ:~$ nano input.txt
rajesh@DESKTOP-8KHGKBQ:~$ cat input.txt
India, officially the Republic of India, is a country in South Asia.
It is the seventh-largest country by area;
the most populous country from June 2023 onwards;
and since its independence in 1947,
the world's most populous democracy
rajesh@DESKTOP-8KHGKBQ:~$ cat input.txt | tr '[:lower:]' '[:upper:]' > output.txt
rajesh@DESKTOP-8KHGKBQ:~$ cat output.txt
INDIA, OFFICIALLY THE REPUBLIC OF INDIA, IS A COUNTRY IN SOUTH ASIA.
IT IS THE SEVENTH-LARGEST COUNTRY BY AREA;
THE MOST POPULOUS COUNTRY FROM JUNE 2023 ONWARDS;
AND SINCE ITS INDEPENDENCE IN 1947,
THE WORLD'S MOST POPULOUS DEMOCRACY
rajesh@DESKTOP-8KHGKBQ:~$
```

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."

```
Ubuntu
rajesh@DESKTOP-8KHGKBQ:~$ touch duplicate.txt
rajesh@DESKTOP-8KHGKBQ:~$ nano duplicate.txt
rajesh@DESKTOP-8KHGKBQ:~$ cat -n duplicate.txt
 1 india
 2 japan
 3 america
 4 taiwan
 5 bhutan
 6 bangladesh
 7 africa
 8 newzeland
 9 america
10 bhutan
11 california
12 newyork
13 india
14 indoneshia
15 austrelia
16 bangladesh
rajesh@DESKTOP-8KHGKBQ:~$ cat duplicate.txt | sort | uniq
africa
america
austrelia
bangladesh
bhutan
california
india
indoneshia
japan
newyork
newzeland
taiwan
rajesh@DESKTOP-8KHGKBQ:~$
```

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."

```
Ubuntu
rajesh@DESKTOP-8KHGKBQ:~$ touch fruit.txt
rajesh@DESKTOP-8KHGKBQ:~$ nano fruit.txt
rajesh@DESKTOP-8KHGKBQ:~$ cat -n fruit.txt
 1 Mango
 2 Banana
 3 Water melon
 4 Banana
 5 Orange
 6 Kiwi
 7 Mango
 8 Grappes
 9 Lichi
10 Dragon fruits
11 Kiwi
12 Lichi
13 Apple
14 papaya
```



```
rajesh@DESKTOP-8KHGKBQ:~$ cat fruit.txt | sort | uniq
Apple
Banana
Dragon fruits
Grappes
Kiwi
Lichi
Mango
Orange
Water melon
papaya
```