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Concepts of Operating System

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.
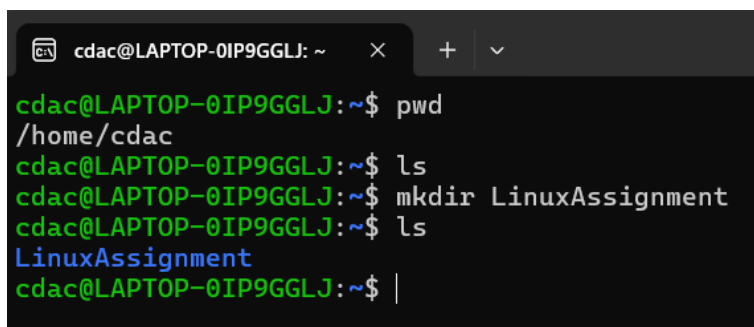
cdac@LAPTOP-0IP9GGLJ:~$ pwd

/home/cdac

cdac@LAPTOP-0IP9GGLJ:~$ ls

cdac@LAPTOP-0IP9GGLJ:~$ mkdir LinuxAssignment

cdac@LAPTOP-0IP9GGLJ:~$ ls

LinuxAssignment

cdac@LAPTOP-0IP9GGLJ:~$

b) File Management:

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

cdac@LAPTOP-0IP9GGLJ:~$ pwd

/home/cdac

cdac@LAPTOP-0IP9GGLJ:~$ ls

cdac@LAPTOP-0IP9GGLJ:~$ mkdir LinuxAssignment

cdac@LAPTOP-0IP9GGLJ:~$ ls

LinuxAssignment

cdac@LAPTOP-0IP9GGLJ:~$ cd

cdac@LAPTOP-0IP9GGLJ:~$ cd LinuxAssignment

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ touch file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ nano file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cat file1.text

cat: file1.text: No such file or directory

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cat file.txt

cat: file.txt: No such file or directory

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cat file1.txt

Linux is a free, open-source operating system that is used on many devices, including computers, servers, and smartphones. It was developed by Linus Torvalds in 1991.

```
cdac@LAPTOP-0IP9GGLJ:~$ pwd
/home/cdac
cdac@LAPTOP-0IP9GGLJ:~$ ls
cdac@LAPTOP-0IP9GGLJ:~$ mkdir LinuxAssignment
cdac@LAPTOP-0IP9GGLJ:~$ ls
LinuxAssignment
cdac@LAPTOP-0IP9GGLJ:~$ cd
cdac@LAPTOP-0IP9GGLJ:~$ cd LinuxAssignment
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ touch file1.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ nano file1.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cat file1.text
cat: file1.text: No such file or directory
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cat file.txt
cat: file.txt: No such file or directory
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cat file1.txt
Linux is a free, open-source operating system that is used on many devices, including computers, servers, and smartphone
s. It was developed by Linus Torvalds in 1991.

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ |
```
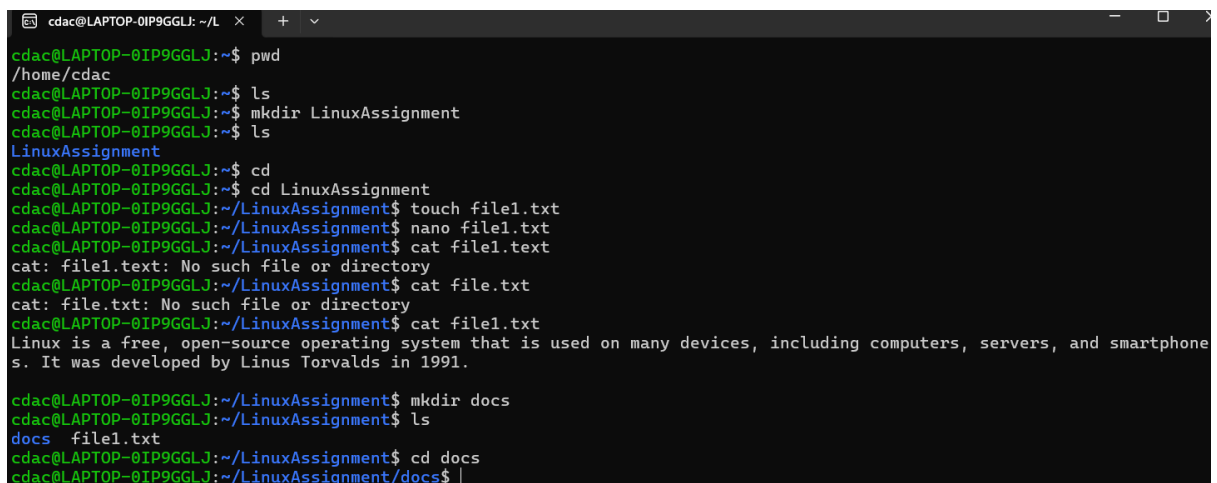
c) Directory Management:

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

cdac@LAPTOP-0IP9GGLJ:~$ pwd

/home/cdac

cdac@LAPTOP-0IP9GGLJ:~$ ls

cdac@LAPTOP-0IP9GGLJ:~$ mkdir LinuxAssignment

cdac@LAPTOP-0IP9GGLJ:~$ ls

LinuxAssignment

cdac@LAPTOP-0IP9GGLJ:~$ cd

cdac@LAPTOP-0IP9GGLJ:~$ cd LinuxAssignment

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ touch file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ nano file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cat file1.text

cat: file1.text: No such file or directory

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cat file.txt

cat: file.txt: No such file or directory

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cat file1.txt

Linux is a free, open-source operating system that is used on many devices, including computers, servers, and smartphones. It was developed by Linus Torvalds in 1991.

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ mkdir docs

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls

docs file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cd docs

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment/docs$

d) Copy and Move Files:

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

cdac@LAPTOP-0IP9GGLJ:~$ pwd

/home/cdac

cdac@LAPTOP-0IP9GGLJ:~$ ls

LinuxAssignment

cdac@LAPTOP-0IP9GGLJ:~$ cd LinuxAssignment

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls

docs file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cp file1.txt docs

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cd docs

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment/docs$ ls

file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment/docs$ mv file1.txt file2.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment/docs$ ls

file2.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment/docs$

```
cdac@LAPTOP-0IP9GGLJ:~$ pwd
/home/cdac
cdac@LAPTOP-0IP9GGLJ:~$ ls
LinuxAssignment
cdac@LAPTOP-0IP9GGLJ:~$ cd LinuxAssignment
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls
docs   file1.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cp file1.txt docs
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cd docs
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment/docs$ ls
file1.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment/docs$ mv file1.txt file2.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment/docs$ ls
file2.txt
cdac@LAPTOP-0IP9GGLJ:~/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@LAPTOP-0IP9GGLJ:~/LinuxAssignment/docs$ chmod 744 file2.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment/docs$ ls -l

total 4

-rwxr--r-- 1 cdac cdac 168 Feb 26 18:28 file2.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment/docs$ chown $(whoami) file2.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment/docs$ ls -l

total 4

-rwxr--r-- 1 cdac cdac 168 Feb 26 18:28 file2.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment/docs$

```
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment/docs$ chmod 744 file2.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment/docs$ ls -l
total 4
-rwxr--r-- 1 cdac cdac 168 Feb 26 18:28 file2.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment/docs$ chown $(whoami) file2.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment/docs$ ls -l
total 4
-rwxr--r-- 1 cdac cdac 168 Feb 26 18:28 file2.txt
cdac@LAPTOP-0IP9GGLJ:~/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@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls -l

total 8

drwxr-xr-x 2 cdac cdac 4096 Feb 26 18:30 docs

-rw-r--r-- 1 cdac cdac 168 Feb 26 18:03 file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls -l

total 8

drwxr-xr-x 2 cdac cdac 4096 Feb 26 18:30 docs

-rw-r--r-- 1 cdac cdac 168 Feb 26 18:03 file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls -la

total 16

drwxr-xr-x 3 cdac cdac 4096 Feb 26 18:06 .

drwxr-x--- 6 cdac cdac 4096 Feb 26 17:58 ..

drwxr-xr-x 2 cdac cdac 4096 Feb 26 18:30 docs

-rw-r--r-- 1 cdac cdac 168 Feb 26 18:03 file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$

g) File Searching:

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

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ find . -type f -name "*.txt"

./file1.txt

./docs/file2.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cd docs

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment/docs$ find . -type f -name "*.txt"

./file2.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment/docs$

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

word to search).

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ grep "many" file1.txt

Linux is a free, open-source operating system that is used on many devices, including computers, servers, and smartphones. It was developed by Linus Torvalds in 1991.

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$

```
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ grep "many" file1.txt
Linux is a free, open-source operating system that is used on many devices, including computers, servers, and smartphones. It was developed by Linus Torvald
s in 1991.
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$
```

h) System Information:

a. Display the current system date and time

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ date

Thu Feb 27 17:18:31 UTC 2025

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ +"%Y-%m-%d"

+%Y-%m-%d: command not found

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ +"%Y-%m-%d"

+%Y-%m-%d: command not found

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ + "%Y-%m-%d"

+: command not found

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ date

Thu Feb 27 17:21:50 UTC 2025

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ date +"%Y-%m-%d"

2025-02-27

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ date +"%H-%M-%S"

17-23-04

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$

```
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ date
Thu Feb 27 17:18:31 UTC 2025
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ +"%Y-%m-%d"
+%Y-%m-%d: command not found
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ +"%Y-%m-%d"
+%Y-%m-%d: command not found
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ + "%Y-%m-%d"
+: command not found
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ date
Thu Feb 27 17:21:50 UTC 2025
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ date +"%Y-%m-%d"
2025-02-27
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ date +"%H-%M-%S"
17-23-04
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$
```

i) Networking:

a. Display the IP address of the system.

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ipconfig.exe

Windows IP Configuration

Ethernet adapter Ethernet:

  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 Local Area Connection* 1:

  Media State . . . . : Media disconnected

  Connection-specific DNS Suffix . :

Wireless LAN adapter Wi-Fi:

  Connection-specific DNS Suffix . :

  IPv6 Address. . . . . : 2401:4900:889e:33c2:a3f9:6833:4b75:6b74

  Temporary IPv6 Address. . . . . . : 2401:4900:889e:33c2:9168:2f8a:324d:c441

Link-local IPv6 Address . . . . . : fe80::efe:23a2:401d:b17e%6

IPv4 Address. . . . . : 192.168.1.12

Subnet Mask . . . . : 255.255.255.0

Default Gateway . . . . : fe80::324f:75ff:feb1:3cdf%6

                          192.168.1.1

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::c130:addc:c3a8:5d53%36

   IPv4 Address. . . . . : 172.22.16.1

   Subnet Mask . . . . : 255.255.240.0

   Default Gateway . . . . :

   cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$

```
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ipconfig.exe

Windows IP Configuration


Ethernet adapter Ethernet:

   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 Local Area Connection* 1:

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

Wireless LAN adapter Wi-Fi:

   Connection-specific DNS Suffix  . :
   IPv6 Address. . . . . . . . . . . : 2401:4900:889e:33c2:a3f9:6833:4b75:6b74
   Temporary IPv6 Address. . . . . . : 2401:4900:889e:33c2:9168:2f8a:324d:c441
   Link-local IPv6 Address . . . . . : fe80::efe:23a2:401d:b17e%6
   IPv4 Address. . . . . . . . . . . : 192.168.1.12
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : fe80::324f:75ff:feb1:3cdf%6
                                       192.168.1.1

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::c130:addc:c3a8:5d53%36
   IPv4 Address. . . . . . . . . . . : 172.22.16.1
   Subnet Mask . . . . . . . . . . . : 255.255.240.0
   Default Gateway . . . . . . . . . :
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ |
```

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

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ping -c 4 google.com

PING google.com (142.251.42.78) 56(84) bytes of data.

64 bytes from bom12s21-in-f14.1e100.net (142.251.42.78): icmp_seq=1 ttl=117 time=10.7 ms

64 bytes from bom12s21-in-f14.1e100.net (142.251.42.78): icmp_seq=2 ttl=117 time=8.35 ms

64 bytes from bom12s21-in-f14.1e100.net (142.251.42.78): icmp_seq=3 ttl=117 time=8.99 ms

64 bytes from bom12s21-in-f14.1e100.net (142.251.42.78): icmp_seq=4 ttl=117 time=9.30 ms

--- google.com ping statistics ---

 4 packets transmitted, 4 received, 0% packet loss, time 3105ms

 rtt min/avg/max/mdev = 8.347/9.327/10.674/0.849 ms

 cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$

▪▪

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ping -c 4 jio.com

PING jio.com (49.40.8.203) 56(84) bytes of data.

--- jio.com ping statistics ---

4 packets transmitted, 0 received, 100% packet loss, time 3213ms

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ping -c 4 hotstar.com

PING hotstar.com (108.159.80.89) 56(84) bytes of data.

64 bytes from server-108-159-80-89.bom78.r.cloudfront.net (108.159.80.89): icmp_seq=1 ttl=248 time=9.70 ms

64 bytes from server-108-159-80-89.bom78.r.cloudfront.net (108.159.80.89): icmp_seq=2 ttl=248 time=9.91 ms

64 bytes from server-108-159-80-89.bom78.r.cloudfront.net (108.159.80.89): icmp_seq=3 ttl=248 time=13.6 ms

64 bytes from server-108-159-80-89.bom78.r.cloudfront.net (108.159.80.89): icmp_seq=4 ttl=248 time=34.5 ms

--- hotstar.com ping statistics ---

4 packets transmitted, 4 received, 0% packet loss, time 3108ms

rtt min/avg/max/mdev = 9.696/16.922/34.504/10.267 ms

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ping -c 4 flipkart.com

PING flipkart.com (103.243.32.90) 56(84) bytes of data.

64 bytes from 103.243.32.90: icmp_seq=1 ttl=56 time=33.4 ms

64 bytes from 103.243.32.90: icmp_seq=2 ttl=56 time=32.1 ms

64 bytes from 103.243.32.90: icmp_seq=3 ttl=56 time=33.8 ms

64 bytes from 103.243.32.90: icmp_seq=4 ttl=56 time=35.3 ms

--- flipkart.com ping statistics ---

4 packets transmitted, 4 received, 0% packet loss, time 3070ms

rtt min/avg/max/mdev = 32.094/33.664/35.328/1.153 ms

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$

```
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ping -c 4 google.com
PING google.com (142.251.42.78) 56(84) bytes of data.
64 bytes from bom12s21-in-f14.1e100.net (142.251.42.78): icmp_seq=1 ttl=117 time=10.7 ms
64 bytes from bom12s21-in-f14.1e100.net (142.251.42.78): icmp_seq=2 ttl=117 time=8.35 ms
64 bytes from bom12s21-in-f14.1e100.net (142.251.42.78): icmp_seq=3 ttl=117 time=8.99 ms
64 bytes from bom12s21-in-f14.1e100.net (142.251.42.78): icmp_seq=4 ttl=117 time=9.30 ms

--- google.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3105ms
rtt min/avg/max/mdev = 8.347/9.327/10.674/0.849 ms
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$
```

```
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ping -c 4 jio.com
PING jio.com (49.40.8.203) 56(84) bytes of data.

--- jio.com ping statistics ---
4 packets transmitted, 0 received, 100% packet loss, time 3213ms

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ping -c 4 hotstar.com
PING hotstar.com (108.159.80.89) 56(84) bytes of data.
64 bytes from server-108-159-80-89.bom78.r.cloudfront.net (108.159.80.89): icmp_seq=1 ttl=248 time=9.70 ms
64 bytes from server-108-159-80-89.bom78.r.cloudfront.net (108.159.80.89): icmp_seq=2 ttl=248 time=9.91 ms
64 bytes from server-108-159-80-89.bom78.r.cloudfront.net (108.159.80.89): icmp_seq=3 ttl=248 time=13.6 ms
64 bytes from server-108-159-80-89.bom78.r.cloudfront.net (108.159.80.89): icmp_seq=4 ttl=248 time=34.5 ms

--- hotstar.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3108ms
rtt min/avg/max/mdev = 9.696/16.922/34.504/10.267 ms
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ping -c 4 flipkart.com
PING flipkart.com (103.243.32.90) 56(84) bytes of data.
64 bytes from 103.243.32.90: icmp_seq=1 ttl=56 time=33.4 ms
64 bytes from 103.243.32.90: icmp_seq=2 ttl=56 time=32.1 ms
64 bytes from 103.243.32.90: icmp_seq=3 ttl=56 time=33.8 ms
64 bytes from 103.243.32.90: icmp_seq=4 ttl=56 time=35.3 ms

--- flipkart.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3070ms
rtt min/avg/max/mdev = 32.094/33.664/35.328/1.153 ms
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$
```

j) File Compression:

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

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ **sudo apt install zip**

[sudo] password for cdac:

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 89 not upgraded.

Need to get 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 unzip amd64 6.0-28ubuntu4.1 [174 kB]

Get:2 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 zip amd64 3.0-13ubuntu0.2 [176 kB]

Fetched 350 kB in 3s (101 kB/s)

Selecting previously unselected package unzip.

(Reading database ... 40823 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) ...

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ **zip -r docs.zip docs**

 adding: docs/ (stored 0%)

 adding: docs/file2.txt (deflated 23%)

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls docs

file2.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls

docs docs.zip file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$

```
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ sudo apt install zip
[sudo] password for cdac:
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 89 not upgraded.
Need to get 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 unzip amd64 6.0-28ubuntu4.1 [174 kB]
Get:2 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 zip amd64 3.0-13ubuntu0.2 [176 kB]
Fetched 350 kB in 3s (101 kB/s)
Selecting previously unselected package unzip.
(Reading database ... 40823 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) ...
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ zip -r docs.zip docs
  adding: docs/ (stored 0%)
  adding: docs/file2.txt (deflated 23%)
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls docs
file2.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls
docs  docs.zip  file1.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$
```

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

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls

docs docs.zip file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ mkdir docs1

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls

docs docs.zip docs1 file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ unzip docs.zip -d docs1

Archive: docs.zip

  creating: docs1/docs/

  inflating: docs1/docs/file2.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls

docs docs.zip docs1 file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls

docs docs.zip file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ mkdir docs1

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls

docs docs.zip docs1 file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ unzip docs.zip -d docs1

Archive: docs.zip

  creating: docs1/docs/

  inflating: docs1/docs/file2.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls

docs docs.zip docs1 file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$

```
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls
docs   docs.zip  file1.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ mkdir docs1
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls
docs   docs.zip  docs1  file1.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ unzip docs.zip -d docs1
Archive:  docs.zip
   creating: docs1/docs/
  inflating: docs1/docs/file2.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls
docs   docs.zip  docs1  file1.txt
```

k) File Editing:

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

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls

docs docs.zip docs1 file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ nano file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cat file1.txt

Pradnya More CDAC Mumbai Linux is a free, open-source operating system that is used on many devices, including computers, servers, and smartphones. It was developed by Linus Torvalds in 1991.

cdac@LAPTOP-0IP9GGLJ:~/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@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ sed -i 's/many/Home/g' file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls

docs docs.zip docs1 file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cat file1.txt

Pradnya More CDAC Mumbai Linux is a free, open-source operating system that is used on Home devices, including computers, servers, and smartphones. It was developed by Linus Torvalds in 1991.

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$

```
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ sed -i 's/many/Home/g' file1.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls
docs  docs.zip  docs1  file1.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cat file1.txt
Pradnya More CDAC Mumbai Linux is a free, open-source operating system that is used on
 Home devices, including computers, servers, and smartphones. It was developed by Linu
s Torvalds in 1991.
```

****

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 <mark>first 10 lines</mark> of this file to quickly glance at its contents using a command.

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls

docs docs.zip docs1 file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ touch data.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ nano data.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls

data.txt docs docs.zip docs1 file1.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ head -n 10 data.txt

Pradnya

shreya

khushi

Raj

Manish

Saurbha

Prajkta

Priya

Anu

Hira

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$

```
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls
docs  docs.zip  docs1  file1.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ touch data.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ nano data.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls
data.txt  docs  docs.zip  docs1  file1.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ head -n 10 data.txt
Pradnya
shreya
khushi
Raj
Manish
Saurbha
Prajkta
Priya
Anu
Hira
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ |
```

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

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ tail -n 5 data.txt

ring

pen

66

papper

book

```
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ tail -n 5 data.txt
ring
pen
66
papper
book
```

c. In a file named "numbers.txt," there are a series of numbers. Display the <mark>first 15 lines</mark> of this file to analyze the initial data set.

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ touch numbers.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ nano numbers.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls

data.txt docs docs.zip docs1 file1.txt numbers.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ head -n 15 number.txt

head: cannot open 'number.txt' for reading: No such file or directory

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ head -n 15 numbers.txt

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$

```
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ touch numbers.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ nano numbers.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls
data.txt  docs  docs.zip  docs1  file1.txt  numbers.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ head -n 15 number.txt
head: cannot open 'number.txt' for reading: No such file or directory
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ head -n 15 numbers.txt
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$
```

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

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls

data.txt docs docs.zip docs1 file1.txt numbers.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ tail -n 3 numbers.txt

18

19

20

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$

```
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls
data.txt  docs  docs.zip  docs1  file1.txt  numbers.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ tail -n 3 numbers.txt
18
19
20
cdac@LAPTOP-0IP9GGLJ:~/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@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ touch input.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ nano input.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls

data.txt docs docs.zip docs1 file1.txt input.txt numbers.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cat input.txt

Pradnya More

heLLO UniverSe

XYZ

PqR

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ tr '[:upper:]' '[:lower:]' < input.txt > output.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls

data.txt docs docs.zip docs1 file1.txt input.txt numbers.txt output.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cat output.txt

pradnya more

hello universe

xyz

pqr

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$

```
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ touch input.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ nano input.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls
data.txt  docs  docs.zip  docs1  file1.txt  input.txt  numbers.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cat input.txt
Pradnya More
heLLO UniverSe
XYZ
PqR
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ tr '[:upper:]' '[:lower:]' < input.txt > output.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls
data.txt  docs  docs.zip  docs1  file1.txt  input.txt  numbers.txt  output.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cat output.txt
pradnya more
hello universe
xyz
pqr
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$
```

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@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls

data.txt docs docs.zip docs1 file1.txt input.txt numbers.txt output.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ touch duplicate.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ nano duplicate.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls

data.txt docs docs.zip docs1 duplicate.txt file1.txt input.txt numbers.txt output.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cat duplicate.txt

pen

pen

game

New

sakshi

plant

Sakshi

New

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ sort duplicate.txt | uniq -u

Sakshi

game

pen

pen

plant

sakshi

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$

```
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls
data.txt  docs  docs.zip  docs1  file1.txt  input.txt  numbers.txt  output.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ touch duplicate.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ nano duplicate.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls
data.txt  docs  docs.zip  docs1  duplicate.txt  file1.txt  input.txt  numbers.txt  output.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cat duplicate.txt
```

```
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cat duplicate.txt
pen
pen
game
New
sakshi
plant
Sakshi
New
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ sort duplicate.txt | uniq -u
Sakshi
game
pen
pen
plant
sakshi
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ |
```

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@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ touch fruit.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ nano fruit.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls

data.txt docs docs.zip docs1 duplicate.txt file1.txt fruit.txt input.txt numbers.txt output.txt

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cat fruit.txt

mango

mango

apple

orange

orange

kiwi

pear

banana

banana

pineapple

dragonfruit

dragonfruit

watwermelon

apple

apple

apple

orange

watermelon

kiwi

kiwi

kiwi

kiwi

kiwi

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ sort fruit.txt | uniq -c

```
      4 apple
      2 banana
      2 dragonfruit
      5 kiwi
      1 kiwi
```

2 mango

3 orange

1 pear

1 pineapple

1 watermelon

1 watwermelon

cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$

```
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ touch fruit.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ nano fruit.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ ls
data.txt  docs  docs.zip  docs1  duplicate.txt  file1.txt  fruit.txt  input.txt  numbers.txt  output.txt
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ cat fruit.txt
mango
mango
apple
orange
orange
kiwi
pear
banana
banana
pineapple
dragonfruit
dragonfruit
watwermelon
apple
apple
apple
orange
watermelon
kiwi
kiwi
kiwi
kiwi
kiwi
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$ sort fruit.txt | uniq -c
      4 apple
      2 banana
      2 dragonfruit
      5 kiwi
      1 kiwi
      2 mango
      3 orange
      1 pear
      1 pineapple
      1 watermelon
      1 watwermelon
cdac@LAPTOP-0IP9GGLJ:~/LinuxAssignment$
```