

## GOURAV SAHU\_KH

### COS ASSIGNMENT -1

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#### Problem 1

a) Navigate and List:

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-VAMK9UF: ~$ pwd
/home/cdac
cdac@DESKTOP-VAMK9UF:~$ ls
docs  myfile1  myfile2  snap
cdac@DESKTOP-VAMK9UF:~$ mkdir LinuxAssignment
cdac@DESKTOP-VAMK9UF:~$ cd LinuxAssignment/
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ |
```

b) File Management:

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

```
cdac@DESKTOP-VAMK9UF: ~$ pwd
/home/cdac
cdac@DESKTOP-VAMK9UF:~$ ls
docs  myfile1  myfile2  snap
cdac@DESKTOP-VAMK9UF:~$ mkdir LinuxAssignment
cdac@DESKTOP-VAMK9UF:~$ cd LinuxAssignment/
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ nano file1.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls
file1.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ cat file1.txt
Hello...!
This is COS first assignment
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ |
```

### C. Directory Management:

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

```
cdac@DESKTOP-VAMK9UF: ~$ ls
LinuxAssignment docs myfile1 myfile2 snap
cdac@DESKTOP-VAMK9UF:~$ cd LinuxAssignment/
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ mkdir docs
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls
docs file1.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ |
```

### d) Copy and Move Files:

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

```
cdac@DESKTOP-VAMK9UF: ~$ ls
LinuxAssignment docs myfile1 myfile2 snap
cdac@DESKTOP-VAMK9UF:~$ cd LinuxAssignment/
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls
docs file1.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ cp file1.txt docs
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls
docs file1.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ mv file1.txt file2.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls
docs file2.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ |
```

### e) Permissions and Ownership:

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-VAMK9UF: ~$ ls
LinuxAssignment docs myfile1 myfile2 snap
cdac@DESKTOP-VAMK9UF:~$ cd LinuxAssignment/
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls
docs file1.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ cp file1.txt docs
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls
docs file1.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ mv file1.txt file2.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls
docs file2.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls -l
total 8
drwxr-xr-x 2 cdac cdac 4096 Feb 27 19:10 docs
-rw-r--r-- 1 cdac cdac  40 Feb 27 18:53 file2.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ chmod 744 file2.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls -l
total 8
drwxr-xr-x 2 cdac cdac 4096 Feb 27 19:10 docs
-rwxr--r-- 1 cdac cdac  40 Feb 27 18:53 file2.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ sudo chown $(whoami) file2.txt
[sudo] password for cdac:
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls -l
total 8
drwxr-xr-x 2 cdac cdac 4096 Feb 27 19:10 docs
-rwxr--r-- 1 cdac cdac  40 Feb 27 18:53 file2.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ |
```

f) Final Checklist:

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

```
cdac@DESKTOP-VAMK9UF: ~$ pwd
/home/cdac
cdac@DESKTOP-VAMK9UF:~$ ls
LinuxAssignment docs myfile1 myfile2 snap
cdac@DESKTOP-VAMK9UF:~$ cd LinuxAssignment/
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls
docs file2.txt
cdac@DESKTOP-VAMK9UF:~/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@DESKTOP-VAMK9UF: ~ X + v
cdac@DESKTOP-VAMK9UF:~$ ls
LinuxAssignment docs myfile1 myfile2 snap
cdac@DESKTOP-VAMK9UF:~$ find -name "*.txt"
./LinuxAssignment/docs/file1.txt
./LinuxAssignment/file2.txt
./docs/file1.txt
cdac@DESKTOP-VAMK9UF:~$ |
```

```
cdac@DESKTOP-VAMK9UF: ~ X + v
cdac@DESKTOP-VAMK9UF:~$ ls
LinuxAssignment docs myfile1 myfile2 snap
cdac@DESKTOP-VAMK9UF:~$ cd LinuxAssignment/
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls
AFile docs file2.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ grep -liar Microsoft
AFile
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ |
```

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

```
cdac@DESKTOP-VAMK9UF: ~ X + v
cdac@DESKTOP-VAMK9UF:~$ date
Thu Feb 27 19:34:09 IST 2025
cdac@DESKTOP-VAMK9UF:~$ |
```

- i) Networking:
- Display the IP address of the system.
  - Ping a remote server to check connectivity (provide a remote server address to ping).



```
cdac@DESKTOP-VAMK9UF:~$ ip addr
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 1492 qdisc mq state UP group default qlen 1000
    link/ether 00:15:5d:c5:c1:aa brd ff:ff:ff:ff:ff:ff
    inet 172.17.163.197/20 brd 172.17.175.255 scope global eth0
        valid_lft forever preferred_lft forever
    inet6 fe80::215:5dff:fec5:c1aa/64 scope link
        valid_lft forever preferred_lft forever
cdac@DESKTOP-VAMK9UF:~$
```

```
cdac@DESKTOP-VAMK9UF:~$
cdac@DESKTOP-VAMK9UF:~$ ping www.google.com
PING www.google.com (142.250.183.4) 56(84) bytes of data.
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=1 ttl=117 time=30.5 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=2 ttl=117 time=154 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=3 ttl=117 time=75.4 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=4 ttl=117 time=45.7 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=5 ttl=117 time=42.4 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=6 ttl=117 time=27.1 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=7 ttl=117 time=17.5 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=8 ttl=117 time=93.5 ms
64 bytes from bom07s30-in-f4.1e100.net (142.250.183.4): icmp_seq=9 ttl=117 time=27.2 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-VAMK9UF: ~$ ls
LinuxAssignment docs myfile1 myfile2 snap
cdac@DESKTOP-VAMK9UF:~$ cd LinuxAssignment/
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls
AFile docs file2.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ zip -r Docs.zip docs
  adding: docs/ (stored 0%)
  adding: docs/file1.txt (stored 0%)
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls
AFile Docs.zip docs file2.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ unzip Docs.zip -d Extractedfiles
Archive: Docs.zip
  creating: Extractedfiles/docs/
  extracting: Extractedfiles/docs/file1.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls
AFile Docs.zip Extractedfiles docs file2.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ cd Extractedfiles/
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment/Extractedfiles$
```

#### 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-VAMK9UF: ~$ ls
LinuxAssignment docs myfile1 myfile2 snap
cdac@DESKTOP-VAMK9UF:~$ cd LinuxAssignment/
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls
AFile Docs.zip Extractedfiles docs file2.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ nano file1.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ cat file1.txt
Hello This is First asssignment of COS
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ sed -i 's/Hello/Namashkar/g' file1.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ cat file.txt
cat: file.txt: No such file or directory
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ cat file1.txt
Namashkar This is First asssignment of COS
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ |
```

## Problem 2:

- 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@DESKTOP-VAMK9UF: ~$ cd LinuxAssignment/
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ nano data.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ head -10 data.txt
Delhi
Mumbai
Kolkata
Bangalore
Ghaziabad
Nagpur
Bhubaneswar
Mysore
Ajmer
Agra
cdac@DESKTOP-VAMK9UF:~/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@DESKTOP-VAMK9UF: ~ | X + v
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls
AFile Docs.zip Extractedfiles data.txt docs
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ tail -5 data.txt
Gangtok
Datia
Kapurthala
Sujangarh
Indore
cdac@DESKTOP-VAMK9UF:~/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.

```
cdac@DESKTOP-VAMK9UF: ~ | X + v
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls
AFile Docs.zip Extractedfiles data.txt docs numbers.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ head -15 numbers.txt
11
26
52
89
98
45
63
25
75
18
92
94
67
81
32
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ |
```

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

```
cdac@DESKTOP-VAMK9UF: ~, X + v
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls
AFile Docs.zip Extractedfiles data.txt docs numbers.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ tail -3 numbers.txt
22
8
49
cdac@DESKTOP-VAMK9UF:~/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@DESKTOP-VAMK9UF: ~, X + v
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls
Docs.zip Extractedfiles docs input.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ cat input.txt | tr 'a-z' 'A-Z' > output.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls
Docs.zip Extractedfiles docs input.txt output.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ cat output.txt
LINUX IS SUPPORTED ON MANY COMPUTER PLATFORMS, INCLUDING X86, ARM, AND SPARC.
IT'S USED IN MANY DEVICES, INCLUDING PHONES, CARS, AND THERMOSTATS.
LINUX IS KNOWN FOR ITS SECURITY AND VERSATILITY.
cdac@DESKTOP-VAMK9UF:~/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@DESKTOP-VAMK9UF: ~. X + v
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls
Docs.zip Extractedfiles docs duplicate.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ cat duplicate.txt
Gourav
Rahul
Gourav
Raman
Raghav
Rahul
Piyush
Raghav
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ sort duplicate.txt | uniq
Gourav
Piyush
Raghav
Rahul
Raman
cdac@DESKTOP-VAMK9UF:~/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@DESKTOP-VAMK9UF: ~. X + v
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ ls
Docs.zip Extractedfiles docs fruits.txt
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ sort fruits.txt | uniq -c
1
8 Apple
4 Banana
3 Guava
2 Mango
5 Orange
2 Papaya
2 Pineapple
2 Strawberry
cdac@DESKTOP-VAMK9UF:~/LinuxAssignment$ |
```

----END---