

# OS Assignment -1

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**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:

Start by navigating to your home directory and list its contents. Then, move into a directory named "LinuxAssignment" if it exists; otherwise, create it.

Ans:

```
cdac@sumitideapad: ~  
cdac@sumitideapad:~$ pwd  
/home/cdac  
cdac@sumitideapad:~$ ls  
SSSSSuuuMMMiTTT Sumiiiiittt cdac_Info.txt cdac_data.txt  
cdac@sumitideapad:~$ mkdir LinuxAssignment  
cdac@sumitideapad:~$ ls  
LinuxAssignment Sumiiiiittt cdac_data.txt  
SSSSSuuuMMMiTTT cdac_Info.txt  
cdac@sumitideapad:~$ |
```

## b) File Management:

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

Ans:

```
cdac@sumitideapad:~$  
cdac@sumitideapad:~$ pwd  
/home/cdac  
cdac@sumitideapad:~$ ls  
LinuxAssignment Sumiiiiittt cdac_data.txt  
SSSSSuuuMMMiTTT cdac_Info.txt  
cdac@sumitideapad:~$ cd LinuxAssignment  
cdac@sumitideapad:~/LinuxAssignment$ cat > file1.txt  
It is a file comes under LinuxAssignment Directory. Thank You!!  
cdac@sumitideapad:~/LinuxAssignment$ ls  
file1.txt  
cdac@sumitideapad:~/LinuxAssignment$ ls  
file1.txt  
cdac@sumitideapad:~/LinuxAssignment$ cat  
cdac@sumitideapad:~/LinuxAssignment$ cat file1.txt  
It is a file comes under LinuxAssignment Directory. Thank You!!  
cdac@sumitideapad:~/LinuxAssignment$
```

### c) Directory Management:

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

Ans:

```
cdac@sumitideapad:~/LinuxAssignment$ mkdir docs
cdac@sumitideapad:~/LinuxAssignment$ ls
docs  file1.txt
cdac@sumitideapad:~/LinuxAssignment$ |
```

### d) Copy and Move Files:

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

Ans:

```
cdac@sumitideapad:~/LinuxAssignment$ ls
docs  file1.txt
cdac@sumitideapad:~/LinuxAssignment$ cp ~/LinuxAssignment/file1.txt ~/LinuxAssignment/docs/file2.txt
cdac@sumitideapad:~/LinuxAssignment$ ls
docs  file1.txt
cdac@sumitideapad:~/LinuxAssignment$ cd docs
cdac@sumitideapad:~/LinuxAssignment/docs$ ls
file2.txt
cdac@sumitideapad:~/LinuxAssignment/docs$ cat file2.txt
It is a file comes under LinuxAssignment Directory. Thank You!!
cdac@sumitideapad:~/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.

Ans:

```
cdac@sumitideapad:~/LinuxAssignment/docs$ chmod 704 file2.txt
cdac@sumitideapad:~/LinuxAssignment/docs$ ls -l file2.txt
-rwx---r-- 1 cdac cdac 64 Aug 18 15:33 file2.txt
cdac@sumitideapad:~/LinuxAssignment/docs$ chown cdac file2.txt
cdac@sumitideapad:~/LinuxAssignment/docs$ ls -l file2.txt
-rwx---r-- 1 cdac cdac 64 Aug 18 15:33 file2.txt
```

### f) Final Checklist:

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

Ans:

```
cdac@sumitideapad:~/LinuxAssignment/docs$ cd ..
cdac@sumitideapad:~/LinuxAssignment$ ls
aaaaaa.txt  d2.txt      docs          file1.txt    fruit.txt    numbers.txt
code.txt     data.txt    duplicate.txt file3.txt    input.txt    output.txt
cdac@sumitideapad:~/LinuxAssignment$ cd ..
cdac@sumitideapad:~$ ls
CDAC          SSSSSuuuMMMiTTT  cdac_Info.txt  linux
Example       Sumiiiiitttt      cdac_data.txt  sample_code.sh
LinuxAssignment  addition.sh       code.sh
cdac@sumitideapad:~$ |
```

#### g) File Searching:

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

Ans:

```
cdac@sumitideapad:~$ find . -name "*.txt"
./cdac_data.txt
./CDAC/cars.txt
./LinuxAssignment/d2.txt
./LinuxAssignment/code.txt
./LinuxAssignment/file3.txt
./LinuxAssignment/fruit.txt
./LinuxAssignment/duplicate.txt
./LinuxAssignment/aaaaaa.txt
./LinuxAssignment/data.txt
./LinuxAssignment/input.txt
./LinuxAssignment/file1.txt
./LinuxAssignment/docs/file2.txt
./LinuxAssignment/numbers.txt
./LinuxAssignment/output.txt
./cdac_Info.txt
cdac@sumitideapad:~$
```

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

Ans:

```
cdac@sumitideapad:~/LinuxAssignment$ cat file1.txt
It is a file comes under LinuxAssignment Directory. Thank You!!
cdac@sumitideapad:~/LinuxAssignment$ grep "comes" file1.txt
It is a file comes under LinuxAssignment Directory. Thank You!!
cdac@sumitideapad:~/LinuxAssignment$ |
```

#### h) System Information:

a. Display the current system date and time.

Ans:

```
cdac@sumitideapad:~/LinuxAssignment$ date
Thu Aug 21 15:38:26 UTC 2025
cdac@sumitideapad:~/LinuxAssignment$ |
```

## i) Networking:

a. Display the IP address of the system.

Ans:

```
cdac@sumitideapad:~/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:54:86:8a brd ff:ff:ff:ff:ff:ff
    inet 192.168.113.185/20 brd 192.168.127.255 scope global eth0
        valid_lft forever preferred_lft forever
    inet6 fe80::215:5dff:fe54:868a/64 scope link
        valid_lft forever preferred_lft forever
cdac@sumitideapad:~/LinuxAssignment$
```

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

Ans:

```
cdac@sumitideapad:~/LinuxAssignment$ ping youtube.com
PING youtube.com (142.251.220.78) 56(84) bytes of data:
64 bytes from hkg97551-in-f14.1e100.net (142.251.220.78): icmp_seq=1 ttl=117 time=7.80 ms
64 bytes from hkg97551-in-f14.1e100.net (142.251.220.78): icmp_seq=2 ttl=117 time=27.9 ms
64 bytes from hkg97551-in-f14.1e100.net (142.251.220.78): icmp_seq=3 ttl=117 time=6.01 ms
64 bytes from hkg97551-in-f14.1e100.net (142.251.220.78): icmp_seq=4 ttl=117 time=9.89 ms
64 bytes from hkg97551-in-f14.1e100.net (142.251.220.78): icmp_seq=4 ttl=117 time=12.0 ms (DUP!)
64 bytes from hkg97551-in-f14.1e100.net (142.251.220.78): icmp_seq=5 ttl=117 time=14.3 ms
64 bytes from hkg97551-in-f14.1e100.net (142.251.220.78): icmp_seq=6 ttl=117 time=22.4 ms
^C
--- youtube.com ping statistics ---
6 packets transmitted, 6 received, +1 duplicates, 0% packet loss, time 5284ms
rtt min/avg/max/mdev = 6.009/14.326/27.878/7.429 ms
cdac@sumitideapad:~/LinuxAssignment$
```

## j) File Compression:

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

Ans:

```
cdac@sumitideapad:~/LinuxAssignment$ zip -r docs.zip docs
adding: docs/ (stored 0%)
adding: docs/file2.txt (stored 0%)
cdac@sumitideapad:~/LinuxAssignment$ grep "docs.zip"
aaaaaa.txt code.txt d2.txt data.txt docs docs.zip duplicate.txt file1.txt file3.txt fruit.txt input.txt numbers.txt output.txt
cdac@sumitideapad:~/LinuxAssignment$ cat docs.zip
PK
*[[docs/UT
  *Gh*shux
  *[[4-0000docs/file2.txtUT
    *Gh*Ghux
    **It is a file comes under LinuxAssignment Directory. Thank You!!
  *[[4docs/UT*Ghux
  *[[4-00007docs/file2.txtUT*Ghux
  **Hueedac@sumitideapad:~/LinuxAssignment$
```

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

Ans:

```
cdac@sumitideapad:~/LinuxAssignment$ mkdir docsNew
cdac@sumitideapad:~/LinuxAssignment$ unzip LinuxAssignment/docs.zip -d LinuxAssignment/docsNew
unzip: cannot find or open LinuxAssignment/docs.zip, LinuxAssignment/docs.zip or LinuxAssignment/docs.zip.ZIP.
cdac@sumitideapad:~/LinuxAssignment$ unzip ~/LinuxAssignment/docs.zip -d LinuxAssignment/docsNew
Archive: /home/cdac/LinuxAssignment/docs.zip
checkdir: cannot create extraction directory: LinuxAssignment/docsNew
No such file or directory
cdac@sumitideapad:~/LinuxAssignment$ unzip ~/LinuxAssignment/docs.zip -d ~/LinuxAssignment/docsNew
Archive: /home/cdac/LinuxAssignment/docs.zip
creating: /home/cdac/LinuxAssignment/docsNew/docs/
extracting: /home/cdac/LinuxAssignment/docsNew/docs/file2.txt
cdac@sumitideapad:~/LinuxAssignment$ ls
aaaaaa.txt code.txt d2.txt data.txt docs docsNew duplicate.txt file1.txt file3.txt fruit.txt input.txt numbers.txt output.txt
```

### k) File Editing:

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

Ans:

```
cdac@sumitideapad:~/LinuxAssignment$ vi file1.txt
cdac@sumitideapad:~/LinuxAssignment$ cat file1.txt
#!/bin/bash
It is a file comes under LinuxAssignment Directory.
This is written in VI Editor
Thank You!!
cdac@sumitideapad:~/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).

Ans:

```
cdac@sumitideapad:~/LinuxAssignment$ cat file1.txt
#!/bin/bash
It is a file comes under LinuxAssignment Directory.
This is written in VI Editor
Thank You!!
cdac@sumitideapad:~/LinuxAssignment$ s/under/inside/g file1.txt
-bash: s/under/inside/g: No such file or directory
cdac@sumitideapad:~/LinuxAssignment$ sed s/under/inside/g file1.txt
#!/bin/bash
It is a file comes inside LinuxAssignment Directory.
This is written in VI Editor
Thank You!!
cdac@sumitideapad:~/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.

Ans:

```
cdac@sumitideapad:~/LinuxAssignment$ cat data.txt
Mercedes
Lamborghini
Scoda
Tata
Land Rover

Ferrari
Toyota
Hyundai
Limo
Urus
DEFENDER
Buggatti
Aston Martin
Rolls Royce
Jeep
BMW
Audi
Chevorlett
MAruti Suzuki- The GOAT
cdac@sumitideapad:~/LinuxAssignment$ head -10 data.txt
Mercedes
Lamborghini
Scoda
Tata
Land Rover

Ferrari
Toyota
Hyundai
Limo
```

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

Ans:

```
cdac@sumitideapad:~/LinuxAssignment$ tail -5 data.txt
Jeep
BMW
Audi
Chevorlett
MAruti Suzuki- The GOAT
```

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.

Ans:

```

cdac@sumitideapad:~/LinuxAssignment$ cat > number.txt
1
12
15
42
5
32
0
125
2
1
02
3
718
16
28
0500
10
11
2.5
30.0
cdac@sumitideapad:~/LinuxAssignment$ mv number.txt numbers.txt
cdac@sumitideapad:~/LinuxAssignment$ head -15 numbers.txt
1
12
15
42
5
32
0
125
2
1
02
3
718
16
28

```

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

Ans:

```

cdac@sumitideapad:~/LinuxAssignment$ tail -3 numbers.txt
11
2.5
30.0
cdac@sumitideapad:~/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."

Ans:

```

cdac@sumitideapad:~/LinuxAssignment$ cat > input.txt
THIS Side Sumit Mote...
How are you doing? I HOPE yoU are doinG GREAt.
cdac@sumitideapad:~/LinuxAssignment$ tr 'a-z' 'A-Z' < input.txt > output.txt
cdac@sumitideapad:~/LinuxAssignment$ cat output.txt
THIS SIDE SUMIT MOTE...
HOW ARE YOU DOING? I HOPE YOU ARE DOING GREAT.
cdac@sumitideapad:~/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."

Ans:

```

cdac@sumitideapad:~/LinuxAssignment$ cat duplicate.txt
Sumit
sumit
Karan
Prabhakar
Sadhana
Pratik
Karan
Vishvajeet
Raj
Aditya
karan

Kanhaiya
Yogesh
Patil
Mote
Chatla
Sangale
Shinde
Kodag
chatla
Harsha
kodag
Kodag
Raju
Raju

cdac@sumitideapad:~/LinuxAssignment$ sort duplicate.txt | uniq

Aditya
Chatla
Harsha
Kanhaiya
Karan
Kodag
Mote
Patil
Prabhakar
Pratik
Raj
Raju
Sadhana
Sangale
Shinde
Sumit
Vishvajeet
Yogesh
chatla
karan
kodag

```

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."

Ans:

```

cdac@sumitideapad:~/LinuxAssignment$ cat > fruit.txt
Mango
Banana
Orange
Guava
Pineapple
Guava
Banana
Apple
apple
Watermelon
watermelon
Orange

cdac@sumitideapad:~/LinuxAssignment$ tr 'a-z' 'A-Z' < fruit.txt | sort | uniq -c
  2 APPLE
  2 BANANA
  2 GUAVA
  1 MANGO
  2 ORANGE
  1 PINEAPPLE
  2 WATERMELON

```