

COS ASSIGNMENT 1

Q-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.

```
user@Onyanu:~/cdac$ /
bash: /: Is a directory
user@Onyanu:~/cdac$ ls
AAB  ABCD  ASDF  a      aaaaaa  aaaaaaaaa  file1.txt  file3.txt  number.txt
ABC  ASDA  CXVBV  aaa    aaaaaaa  bikenames.txt  file2.txt  file4.txt
user@Onyanu:~/cdac$ mkdir ~/LinuxAssignment
user@Onyanu:~/cdac$ ls
AAB  ABCD  ASDF  a      aaaaaa  aaaaaaaaa  file1.txt  file3.txt  number.txt
ABC  ASDA  CXVBV  aaa    aaaaaaa  bikenames.txt  file2.txt  file4.txt
user@Onyanu:~/cdac$ mkdir LinuxAssignment
user@Onyanu:~/cdac$ ls -l
total 4
-rw-rw-r-- 1 user user  0 Aug 19 09:59 AAB
-rw-rw-r-- 1 user user  0 Aug 19 09:59 ABC
-rw-rw-r-- 1 user user  0 Aug 19 09:59 ABCD
-rw-rw-r-- 1 user user  0 Aug 19 09:59 ASDA
-rw-rw-r-- 1 user user  0 Aug 19 09:59 ASDF
-rw-rw-r-- 1 user user  0 Aug 19 09:59 CXVBV
drwxrwxr-x 1 user user 512 Aug 19 13:45 LinuxAssignment
-rw-rw-r-- 1 user user  0 Aug 19 10:00 a
-rw-rw-r-- 1 user user  0 Aug 19 10:00 aaa
-rw-rw-r-- 1 user user  0 Aug 19 10:00 aaaaaa
-rw-rw-r-- 1 user user  0 Aug 19 10:00 aaaaaaaa
-rw-rw-r-- 1 user user  0 Aug 19 10:00 aaaaaaaaaa
-rw-rw-r-- 1 user user 536 Aug 19 09:51 bikenames.txt
-rw-rw-r-- 1 user user  0 Aug 19 09:16 file1.txt
-rw-rw-r-- 1 user user  75 Aug 19 09:17 file2.txt
-rw-rw-r-- 1 user user  17 Aug 19 09:20 file3.txt
-rw-rw-r-- 1 user user 408 Aug 19 11:57 file4.txt
-rw-rw-r-- 1 user user  41 Aug 19 09:48 number.txt
user@Onyanu:~/cdac$ ls
AAB  ASDA  LinuxAssignment  aaaaaa  bikenames.txt  file3.txt
ABC  ASDF  a                aaaaaaaa  file1.txt      file4.txt
ABCD  CXVBV  aaa              aaaaaaaaa  file2.txt      number.txt
user@Onyanu:~/cdac$ cd ~/LinuxAssignment
bash: /home/user/LinuxAssignment: Is a directory
user@Onyanu:~/cdac$ cd LinuxAssignment
user@Onyanu:~/cdac/LinuxAssignment$ mkdir docs
```

- b) File Management: a. Inside the "LinuxAssignment" directory, create a new file named "file1.txt". Display its contents.

```
user@Onyanu:~/cdac$ cd LinuxAssignment
user@Onyanu:~/cdac/LinuxAssignment$ cat > file1.txt
This is first time i am using ubuntu.
```

- c) Directory Management: a. Create a new directory named "docs" inside the "LinuxAssignment" directory

```
user@Onyanu:~/cdac$ cd LinuxAssignment
user@Onyanu:~/cdac/LinuxAssignment$ mkdir docs
user@Onyanu:~/cdac/LinuxAssignment$ ls
docs
```

- d) Copy and Move Files: a. Copy the "file1.txt" file into the "docs" directory and rename it to "file2.txt".

```
user@Dnyanu:~/cdac/LinuxAssignment$ mv file1.txt file2.txt
user@Dnyanu:~/cdac/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

```
user@Dnyanu:~/cdac/LinuxAssignment$ ls -l
total 0
drwxrwxr-x 1 user user 512 Aug 19 13:49 docs
-rw-rw-r-- 1 user user 38 Aug 19 13:50 file2.txt
user@Dnyanu:~/cdac/LinuxAssignment$ chmod u+x g-w file2.txt
chmod: cannot access 'g-w': No such file or directory
user@Dnyanu:~/cdac/LinuxAssignment$ chmod u+x file2.txt
user@Dnyanu:~/cdac/LinuxAssignment$ ls -l
total 0
drwxrwxr-x 1 user user 512 Aug 19 13:49 docs
-rwxrw-r-- 1 user user 38 Aug 19 13:50 file2.txt
user@Dnyanu:~/cdac/LinuxAssignment$ whoami
user
user@Dnyanu:~/cdac/LinuxAssignment$ chown user file2.txt
user@Dnyanu:~/cdac/LinuxAssignment$ ls -l
total 0
drwxrwxr-x 1 user user 512 Aug 19 13:49 docs
-rwxrw-r-- 1 user user 38 Aug 19 13:50 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.

```
user@Dnyanu:~/cdac$ ls -la
total 4
drwxrwxr-x 1 user user 512 Aug 19 13:45 .
drwxr-x--- 1 user user 512 Aug 19 13:45 ..
-rw-rw-r-- 1 user user 0 Aug 19 09:59 AAB
-rw-rw-r-- 1 user user 0 Aug 19 09:59 ABC
-rw-rw-r-- 1 user user 0 Aug 19 09:59 ABCD
-rw-rw-r-- 1 user user 0 Aug 19 09:59 ASDA
-rw-rw-r-- 1 user user 0 Aug 19 09:59 ASDF
-rw-rw-r-- 1 user user 0 Aug 19 09:59 CXVBV
drwxrwxr-x 1 user user 512 Aug 19 13:52 LinuxAssignment
-rw-rw-r-- 1 user user 0 Aug 19 10:00 a
-rw-rw-r-- 1 user user 0 Aug 19 10:00 aaa
-rw-rw-r-- 1 user user 0 Aug 19 10:00 aaaaaa
-rw-rw-r-- 1 user user 0 Aug 19 10:00 aaaaaaaa
-rw-rw-r-- 1 user user 0 Aug 19 10:00 aaaaaaaaaa
-rw-rw-r-- 1 user user 536 Aug 19 09:51 bikenames.txt
-rw-rw-r-- 1 user user 0 Aug 19 09:16 file1.txt
-rw-rw-r-- 1 user user 75 Aug 19 09:17 file2.txt
-rw-rw-r-- 1 user user 17 Aug 19 09:20 file3.txt
-rw-rw-r-- 1 user user 408 Aug 19 11:57 file4.txt
-rw-rw-r-- 1 user user 41 Aug 19 09:48 number.txt
```

- 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)

```
user@Dnyanu:~/cdac$ ls
AAB  ASDA  LinuxAssignment  aaaaaa  bikenames.txt  file3.txt
ABC  ASDF   a               aaaaaaaa  file1.txt      file4.txt
ABCD CXVBV  aaa            aaaaaaaaa  file2.txt      number.txt
user@Dnyanu:~/cdac$ grep -i "is" file2.txt
user@Dnyanu:~/cdac$ cd LinuxAssignment
user@Dnyanu:~/cdac/LinuxAssignment$ grep "is" file2.txt
This is first time i am using ubuntu.
```

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

```
user@Dnyanu:~/cdac/LinuxAssignment$ date
Tue Aug 19 15:58:34 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).

```
user@Dnyanu:~/cdac/LinuxAssignment$ ping google.com
PING google.com (2404:6800:4009:82a::200e) 56 data bytes
64 bytes from bom12s17-in-x0e.1e100.net (2404:6800:4009:82a::200e): icmp_seq=1 ttl=115 time=66.6 ms
64 bytes from bom12s17-in-x0e.1e100.net (2404:6800:4009:82a::200e): icmp_seq=2 ttl=115 time=64.5 ms
64 bytes from bom12s17-in-x0e.1e100.net (2404:6800:4009:82a::200e): icmp_seq=3 ttl=115 time=64.4 ms
^C
--- google.com ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2002ms
rtt min/avg/max/mdev = 64.421/65.156/66.585/1.010 ms
user@Dnyanu:~/cdac/LinuxAssignment$ hostname -I
192.168.162.64 2409:4081:180b:48ba:815e:1654:dd49:fe47 2409:4081:180b:48ba:34e0:6a1e:3a82:1ec6
```

- j) File Compression: a. Compress the "docs" directory into a zip file.
b. Extract the contents of the zip file into a new directory.

```
user@Dnyanu:~/cdac$ cd LinuxAssignment
user@Dnyanu:~/cdac/LinuxAssignment$ mkdir extracted_docs
user@Dnyanu:~/cdac/LinuxAssignment$ ls
docs  docs.zip  extracted_docs  file2.txt
user@Dnyanu:~/cdac/LinuxAssignment$ tar -czf docs.tar.gz docs
user@Dnyanu:~/cdac/LinuxAssignment$ ls -lh docs.tar.gz
-rw-rw-r-- 1 user user 109 Aug 19 16:17 docs.tar.gz
user@Dnyanu:~/cdac/LinuxAssignment$ tar -xzf docs.tar.gz -C extracted_docs
user@Dnyanu:~/cdac/LinuxAssignment$ ls -R extracted_docs
extracted_docs:
docs

extracted_docs/docs:
```

```
user@Dnyanu:~/cdac/LinuxAssignment$ ls -ltr
total 0
drwxrwxr-x 1 user user 512 Aug 19 13:49 docs
-rwxrw-r-- 1 user user  38 Aug 19 13:50 file2.txt
-rw-rw-r-- 1 user user  22 Aug 19 16:12 docs.zip
-rw-rw-r-- 1 user user 109 Aug 19 16:17 docs.tar.gz
drwxrwxr-x 1 user user 512 Aug 19 16:18 extracted_docs
-rw-rw-r-- 1 user user  41 Aug 19 17:06 file1.txt
```

- 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).

```
user@Dnyanu:~/cdac/LinuxAssignment$ vi file1.txt
user@Dnyanu:~/cdac/LinuxAssignment$ cat file1.txt
I am adding some new content in a file.
user@Dnyanu:~/cdac/LinuxAssignment$ sed -i 's/new/more/g' file1.txt
user@Dnyanu:~/cdac/LinuxAssignment$ cat file1.txt
I am adding some more content in a file.
```

Q-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.

```
user@Dnyanu:~/cdac$ vi data.txt
user@Dnyanu:~/cdac$ cat data.txt
Apple
Banana
Orange
Mango
Grapes
Strawberry
Watermelon
Pineapple
Papaya
Cherry
Pear
Lemon
Chiku
Coconut
Melon
Blackberry`

user@Dnyanu:~/cdac$ head -10 data.txt
Apple
Banana
Orange
Mango
Grapes
Strawberry
Watermelon
Pineapple
Papaya
Cherry
```

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

```
user@Dnyanu:~/cdac$ tail -n 5 data.txt
Lemon
Chiku
Coconut
Melon
Blackberry`
```

- 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.

```
user@Dnyanu:~/cdac$ vi numbers.txt
user@Dnyanu:~/cdac$ head -15 numbers.txt
1
2
3
4
5
7
8
9
12
3
4
56
78
234
23
user@Dnyanu:~/cdac$ sed -n '1,15p;15q' numbers.txt
1
2
3
4
5
7
8
9
12
3
4
56
78
234
23
user@Dnyanu:~/cdac$ sed -n '1,15p' numbers.txt
1
2
3
4
5
7
8
9
12
3
4
56
78
234
23
```

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

```
user@Dnyanu:~/cdac$ tail -n 3 numbers.txt
87
65
43
user@Dnyanu:~/cdac$ vi input.txt
```

- 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."

```
user@Dnyanu:~/cdac$ vi input.txt
user@Dnyanu:~/cdac$ cat input.txt
this is the linux vi editor.
user@Dnyanu:~/cdac$ tr 'a-z' 'A-Z' input.txt
tr: extra operand 'input.txt'
Try 'tr --help' for more information.
user@Dnyanu:~/cdac$ tr 'a-z' 'A-Z'
*
*

user@Dnyanu:~/cdac$ cat input.txt
this is the linux vi editor.
user@Dnyanu:~/cdac$ tr 'a-z' 'A-Z' <input.txt> output.txt
user@Dnyanu:~/cdac$ cat output.txt
THIS IS THE LINUX VI EDITOR.
```

- 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."

```
user@Dnyanu:~/cdac$ vi duplicate.txt
user@Dnyanu:~/cdac$ cat duplicate.txt
Linux
Linux
Unix
Windows
Windows
Os
os
development
development
user@Dnyanu:~/cdac$ uniq duplicate.txt
Linux
Unix
Windows
Os
os
development
```

- 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."

```
user@Dnyanu:~/cdac$ vi fruit.txt
user@Dnyanu:~/cdac$ cat fruit.txt
Orange
Pineapple
Pineapple
Banana
Orange
Apple
Banana
Cherry
Blackberry
Strawberry
Cherry
Cherry
Banana
Banana
user@Dnyanu:~/cdac$ sort fruit.txt | uniq -c
      1 Apple
      4 Banana
      1 Blackberry
      3 Cherry
      2 Orange
      2 Pineapple
      1 Strawberry
```