

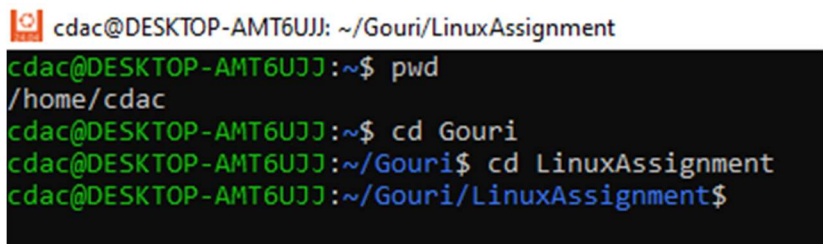
Assignment 1

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:

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@DESKTOP-AMT6UJJ:~$ pwd
/home/cdac
cdac@DESKTOP-AMT6UJJ:~$ cd Gouri
cdac@DESKTOP-AMT6UJJ:~/Gouri$ cd LinuxAssignment
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$
```

A terminal window with a dark background and light green text. The prompt is 'cdac@DESKTOP-AMT6UJJ: ~/Gouri/LinuxAssignment'. The commands and their outputs are: 'pwd' returns '/home/cdac', 'cd Gouri' returns 'cdac@DESKTOP-AMT6UJJ:~/Gouri\$', 'cd LinuxAssignment' returns 'cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment\$'.

```
cdac@DESKTOP-AMT6UJJ: ~/Gouri/LinuxAssignment
cdac@DESKTOP-AMT6UJJ:~$ pwd
/home/cdac
cdac@DESKTOP-AMT6UJJ:~$ cd Gouri
cdac@DESKTOP-AMT6UJJ:~/Gouri$ cd LinuxAssignment
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$
```

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

```
cdac@DESKTOP-AMT6UJJ:~$ pwd
/home/cdac
cdac@DESKTOP-AMT6UJJ:~$ cd Gouri
cdac@DESKTOP-AMT6UJJ:~/Gouri$ cd LinuxAssignment
```

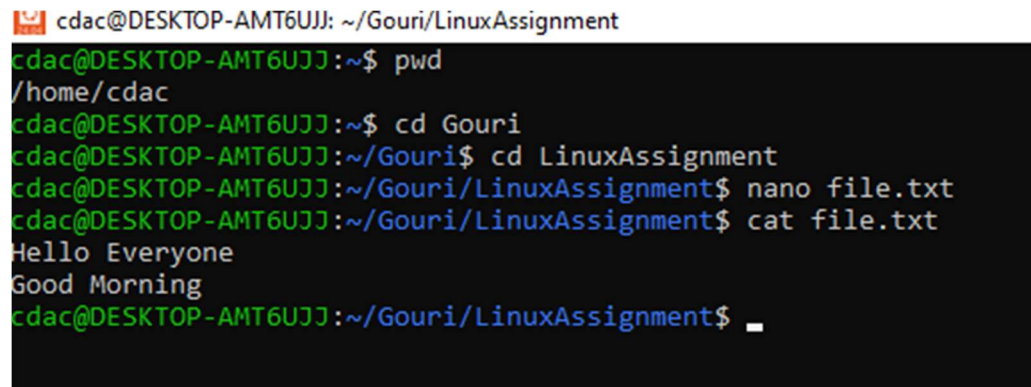
```
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ nano file.txt
```

```
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ cat file.txt
```

Hello Everyone

Good Morning

```
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$
```

A terminal window with a dark background and light-colored text. The prompt is 'cdac@DESKTOP-AMT6UJJ: ~/Gouri/LinuxAssignment'. The user enters 'pwd' and the output is '/home/cdac'. Then the user enters 'cd Gouri' and the prompt changes to 'cdac@DESKTOP-AMT6UJJ:~/Gouri\$'. Next, the user enters 'cd LinuxAssignment' and the prompt changes to 'cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment\$'. The user then enters 'nano file.txt' and 'cat file.txt', which outputs 'Hello Everyone' and 'Good Morning' respectively. The prompt returns to 'cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment\$' with a cursor at the end.

```
cdac@DESKTOP-AMT6UJJ: ~/Gouri/LinuxAssignment
cdac@DESKTOP-AMT6UJJ:~$ pwd
/home/cdac
cdac@DESKTOP-AMT6UJJ:~$ cd Gouri
cdac@DESKTOP-AMT6UJJ:~/Gouri$ cd LinuxAssignment
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ nano file.txt
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ cat file.txt
Hello Everyone
Good Morning
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ _
```

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

```
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ mkdir docs
```

```
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ ls
```

docs file.txt

```
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ cd docs
```

```
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$
```

cdac@DESKTOP-AMT6UJJ: ~/Gouri/LinuxAssignment/docs

```
cdac@DESKTOP-AMT6UJJ:~$ pwd
/home/cdac
cdac@DESKTOP-AMT6UJJ:~$ cd Gouri
cdac@DESKTOP-AMT6UJJ:~/Gouri$ cd LinuxAssignment
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ nano file.txt
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ cat file.txt
Hello Everyone
Good Morning
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ mkdir docs
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ ls
docs  file.txt
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ cd docs
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$ _
```

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

cdac@DESKTOP-AMT6UJJ: ~/Gouri/LinuxAssignment/docs

```
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ mv file.txt docs/
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ ls
docs
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ cd docs
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$ ls
file.txt  file2.txt
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$ _
```

```
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$ ls
file.txt  file2.txt
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$ mv file.txt file3.txt
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$ ls
file2.txt  file3.txt
cdac@DESKTOP-AMT6UJJ:~/Gouri/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@DESKTOP-AMT6UJJ: ~/Gouri/LinuxAssignment/docs
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$ ls -l
total 0
-rw-r--r-- 1 cdac cdac 6 Feb 27 14:41 file2.txt
-rwxrwxrwx 1 cdac cdac 28 Feb 27 13:39 file3.txt
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$ chmod 777 file3.txt
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$ ls -l
total 0
-rw-r--r-- 1 cdac cdac 6 Feb 27 14:41 file2.txt
-rwxrwxrwx 1 cdac cdac 28 Feb 27 13:39 file3.txt
cdac@DESKTOP-AMT6UJJ:~/Gouri/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@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$ cd ..
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ ls
docs
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ cd ..
cdac@DESKTOP-AMT6UJJ:~/Gouri$ ls
LinuxAssignment abc.txt xyz
cdac@DESKTOP-AMT6UJJ:~/Gouri$ cd ..
cdac@DESKTOP-AMT6UJJ:~$ ls
Gouri abc abc.txt
cdac@DESKTOP-AMT6UJJ:~$ cd ..
cdac@DESKTOP-AMT6UJJ:/home$ ls
cdac
cdac@DESKTOP-AMT6UJJ:/home$ ls
cdac
cdac@DESKTOP-AMT6UJJ:/home$ cd ..
cdac@DESKTOP-AMT6UJJ:/ $ ls
bin boot etc init lib.usr-is-merged media opt root sbin snap sys usr
bin.usr-is-merged dev home lib lib64 mnt proc run sbin.usr-is-merged srv tmp var
cdac@DESKTOP-AMT6UJJ:/ $
```

g) File Searching:

- Search for all files with the extension ".txt" in the current directory and its subdirectories.
- Display lines containing a specific word in a file (provide a file name and the specific word to search).

```
cdac@DESKTOP-AMT6UJJ: ~/Gouri
cdac@DESKTOP-AMT6UJJ:~$ cd Gouri
cdac@DESKTOP-AMT6UJJ:~/Gouri$ ls
LinuxAssignment  abc.txt  xyz
cdac@DESKTOP-AMT6UJJ:~/Gouri$ cd LinuxAssignment
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ ls
docs
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ cd docs
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$ ls
file2.txt  file3.txt
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$ cd ..
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ cd ..
cdac@DESKTOP-AMT6UJJ:~/Gouri$ cat abc.txt
good morning
hello
good night
hii
Ridhi
gouri
sanket
jay
roy
daisy
lilly
cdac@DESKTOP-AMT6UJJ:~/Gouri$
```

```
cdac@DESKTOP-AMT6UJJ: ~/Gouri/LinuxAssignment/docs
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$ cat file2.txt
hello
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$ cat file3.txt
Hello Everyone
Good Morning
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$
```

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


```
cdac@DESKTOP-AMT6UJJ: ~/Gouri/LinuxAssignment/docs
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$ cat file2.txt
hello
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$ cat file3.txt
Hello Everyone
Good Morning
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$
```

- 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).

```
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$ ip addr
12: eth0: <> mtu 1500 group default qlen 1
    link/ether a4:4c:c8:56:d8:04
    inet 169.254.135.103/16 brd 169.254.255.255 scope global dynamic
        valid_lft forever preferred_lft forever
    inet6 fe80::6f27:60eb:cb03:51e5/64 scope link dynamic
        valid_lft forever preferred_lft forever
17: eth1: <> mtu 1500 group default qlen 1
    link/ether 9c:da:3e:9f:d8:36
    inet 169.254.21.203/16 brd 169.254.255.255 scope global dynamic
        valid_lft forever preferred_lft forever
    inet6 fe80::8b1e:da3a:53bf:552f/64 scope link dynamic
        valid_lft forever preferred_lft forever
1: lo: <LOOPBACK,UP> mtu 1500 group default qlen 1
    link/loopback 00:00:00:00:00:00
    inet 127.0.0.1/8 brd 127.255.255.255 scope global dynamic
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host dynamic
        valid_lft forever preferred_lft forever
14: wifi0: <BROADCAST,MULTICAST,UP> mtu 1500 group default qlen 1
    link/ieee802.11 9c:da:3e:9f:d8:32
    inet 192.168.1.35/24 brd 192.168.1.255 scope global dynamic
        valid_lft 63399sec preferred_lft 63399sec
    inet6 fe80::7a89:3b12:27ea:3e3b/64 scope link dynamic
        valid_lft forever preferred_lft forever
11: wifi1: <> mtu 1500 group default qlen 1
    link/ieee802.11 9c:da:3e:9f:d8:33
    inet 169.254.73.159/16 brd 169.254.255.255 scope global dynamic
        valid_lft forever preferred_lft forever
    inet6 fe80::3bb1:1391:bd25:e884/64 scope link dynamic
        valid_lft forever preferred_lft forever
```

- 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-AMT6UJJ: ~/Gouri/LinuxAssignment/docs/zip
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$ zip -r_file2.zip docs
zip error: Invalid command arguments (short option '_' not supported)
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$ zip -r file2.zip docs
zip warning: name not matched: docs

zip error: Nothing to do! (try: zip -r file2.zip . -i docs)
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$ zip -r file3.zip file3.txt
adding: file3.txt (stored 0%)
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs$ cd zip
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs/zip$ unzip file3.zip
unzip: cannot find or open file3.zip, file3.zip.zip or file3.zip.ZIP.
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs/zip$ unzip file3.txt
unzip: cannot find or open file3.txt, file3.txt.zip or file3.txt.ZIP.
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment/docs/zip$ 

```

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-AMT6UJJ:~/Gouri/LinuxAssignment$ cat file1.txt
operating system
java
Database
web design
object oriented programming
software design
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ grep java c++
grep: c++: No such file or directory
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ grep
Usage: grep [OPTION]... PATTERNS [FILE]...
Try 'grep --help' for more information.
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ grep java
c++
^C
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ cat file1.txt
operating system
java
Database
web design
object oriented programming
software design
cdac@DESKTOP-AMT6UJJ:~/Gouri/LinuxAssignment$ grep 

```

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.

```
cdac@DESKTOP-AMT6UJJ: ~  
You can upgrade by running 'wsl.exe --update' or by visiting https://aka.ms/wslstorepage  
Installing WSL from the Microsoft Store will give you the latest WSL updates, faster.  
For more information please visit https://aka.ms/wslstoreinfo  
  
cdac@DESKTOP-AMT6UJJ:~$ nano data.txt  
cdac@DESKTOP-AMT6UJJ:~$ cat data.txt  
operating system is a resource manager of hardware.  
Operating system is itself a code.  
Operating system is installed on hardware.  
Software is installed on operating system.  
Operating system is interface between hardware and user.  
Function of operating system  
process management  
Device mahagement  
Disk management  
File management  
Network Management  
Security Management  
cdac@DESKTOP-AMT6UJJ:~$ head -10 data.txt  
operating system is a resource manager of hardware.  
Operating system is itself a code.  
Operating system is installed on hardware.  
Software is installed on operating system.  
Operating system is interface between hardware and user.  
Function of operating system  
process management  
Device mahagement  
Disk management  
File management  
cdac@DESKTOP-AMT6UJJ:~$
```


- 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-AMT6UJJ: ~  
cdac@DESKTOP-AMT6UJJ:~$ nano data.txt  
cdac@DESKTOP-AMT6UJJ:~$ cat data.txt  
operating system is a resource manager of hardware.  
Operating system is itself a code.  
Operating system is installed on hardware.  
Software is installed on operating system.  
Operating system is interface between hardware and user.  
Function of operating system  
process management  
Device mahagement  
Disk management  
File management  
Network Management  
Security Management  
Multitasking  
Multiprocessing  
Multiprogramming  
Clustred system  
Distributed system  
Process scheduling algorithm  
cdac@DESKTOP-AMT6UJJ:~$ tail -5 data.txt  
Multiprocessing  
Multiprogramming  
Clustred system  
Distributed system  
Process scheduling algorithm  
cdac@DESKTOP-AMT6UJJ:~$ _
```

- 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-AMT6UJJ: ~  
cdac@DESKTOP-AMT6UJJ:~$ nano number.txt  
cdac@DESKTOP-AMT6UJJ:~$ cat number.txt  
Series of numbers  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29
```

```
cdac@DESKTOP-AMT6UJJ: ~  
22  
23  
24  
25  
26  
27  
28  
29  
30  
cdac@DESKTOP-AMT6UJJ:~$ head -15 number.txt  
Series of numbers  
1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
cdac@DESKTOP-AMT6UJJ:~$ _
```

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

```
cdac@DESKTOP-AMT6UJJ:~$ head -15 number.txt
Series of numbers
1
2
3
4
5
6
7
8
9
10
11
12
13
14
cdac@DESKTOP-AMT6UJJ:~$ tail -3 number.txt
28
29
30
cdac@DESKTOP-AMT6UJJ:~$
```

- 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-AMT6UJJ: ~
cdac@DESKTOP-AMT6UJJ:~$ cat input.txt
daisy
lilliy
marigold
rose
lotus
orchid
jasmine
sunflower
blossom
tulip
aster
hibiscus
cdac@DESKTOP-AMT6UJJ:~$ tr '[:lower:]' '[:upper:]' < input.txt
DAISY
LILLIY
MARIGOLD
ROSE
LOTUS
ORCHID
JASMINE
SUNFLOWER
BLOSSOM
TULIP
ASTER
HIBISCUS
cdac@DESKTOP-AMT6UJJ:~$ nano.txt
```

```

cdac@DESKTOP-AMT6UJJ:~$ nano.txt
nano.txt: command not found
cdac@DESKTOP-AMT6UJJ:~$ nano output.txt
cdac@DESKTOP-AMT6UJJ:~$
cdac@DESKTOP-AMT6UJJ:~$ cat input.txt > output.txt
cdac@DESKTOP-AMT6UJJ:~$ cat output.txt
daisy
lilliy
marigold
rose
lotus
orchid
jasmine
sunflower
blossom
tulip
aster
hibiscus

```

- 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-AMT6UJJ: ~
cdac@DESKTOP-AMT6UJJ:~$ nano duplicate.txt
cdac@DESKTOP-AMT6UJJ:~$
cdac@DESKTOP-AMT6UJJ:~$ cat duplicate.txt
Apple
Grapes
Strawbery
Orange
Apple
Grapes
Mango
Pinapple
Watermelon
Mango
Orange
Strawbery
Banana
Pear
Pomogranate
Lichi
pear
Apple
cdac@DESKTOP-AMT6UJJ:~$ sort duplicate.txt | uniq -d
Apple
Grapes
Mango
Orange
Strawbery
cdac@DESKTOP-AMT6UJJ:~$

```


- 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-AMT6UJJ: ~  
cdac@DESKTOP-AMT6UJJ:~$ nano fruit.txt  
cdac@DESKTOP-AMT6UJJ:~$  
cdac@DESKTOP-AMT6UJJ:~$ cat fruit.txt  
Apple  
Grapes  
Banana  
Orange  
Apple  
Strawberry  
Cherry  
Lichi  
Pear  
Cherry  
Apple  
Pomogranate  
Orange  
Banana  
cdac@DESKTOP-AMT6UJJ:~$ sort fruit.txt | uniq -d  
Apple  
Banana  
Cherry  
Orange  
cdac@DESKTOP-AMT6UJJ:~$ sort fruit.txt | uniq -c  
  3 Apple  
  2 Banana  
  2 Cherry  
  1 Grapes  
  1 Lichi  
  2 Orange  
  1 Pear  
  1 Pomogranate  
  1 Strawberry
```