CDAC MUMBAI

Concepts of Operating Systems

Assignment 1

Name: Ankita Yatin Kher
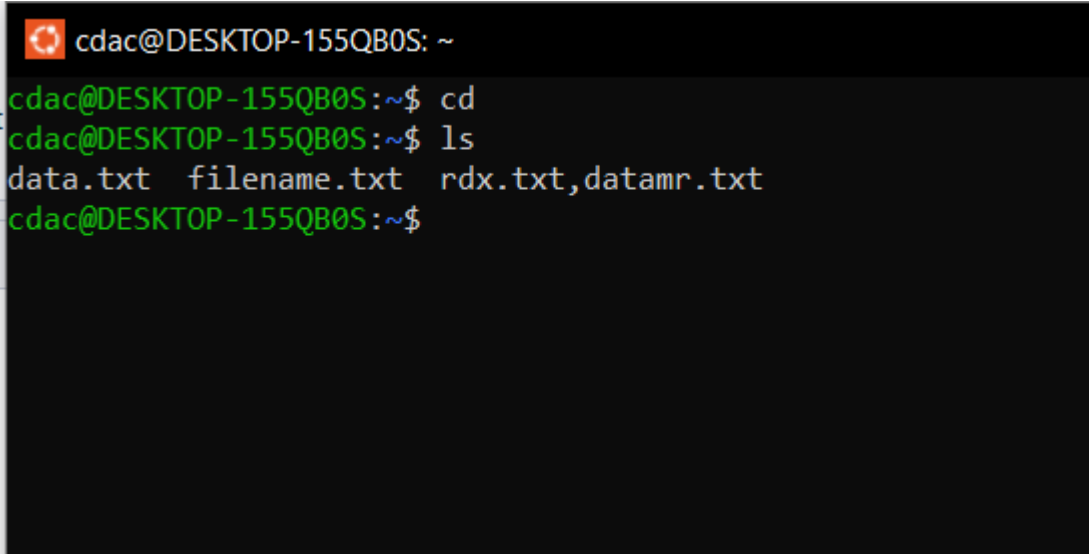
Problem 1: Read the instructions carefully and answer accordingly. If you need to insert data, do that as well.

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.

Ans: **Command: cd,ls**

b) **File Management:**

a. Inside the "Linux Assignment" directory, create a new file named "file1.txt". Display its

contents.

Ans:

Command:

touch file1.txt

cat file1.txt

.

c) **Directory Management:**

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

Ans:-

Command: **mkdir docs**

d) **Copy and Move Files:**

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

Ans:-

Command: **cp file1.txt docs/file2.txt**

```
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ touch file.txt
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ ls
docs  file.txt
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ echo "This is file1 content" > file1.txt
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ cat file1.txt
This is file1 content
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ cp file1.txt docs/file2.txt
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ ls docs
file2.txt
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ _
```

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:- command : **chmod 744 docs/file2.txt**

```
cdac@DESKTOP-155QB0S: ~/LinuxAssignment/docs
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ ls docs
file2.txt
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ cd docs
cdac@DESKTOP-155QB0S:~/LinuxAssignment/docs$ chmod 744 file2.txt
cdac@DESKTOP-155QB0S:~/LinuxAssignment/docs$ ls -l file2.txt
-rwxr--r-- 1 cdac cdac 22 Aug 18 17:30 file2.txt
cdac@DESKTOP-155QB0S:~/LinuxAssignment/docs$ sudo chown $USER file2.txt
[sudo] password for cdac:
cdac@DESKTOP-155QB0S:~/LinuxAssignment/docs$
```

f) **Final Checklist:**

a. Finally, list the contents of the "LinuxAssignment" directory and the root directory to

ensure that all operations were performed correctly.

Ans:- command **ls -l ~/LinuxAssignment   2)ls /**

```
-bash: cd: docs: No such file or directory
cdac@DESKTOP-155QB0S:~/LinuxAssignment/docs$ cd LinuxAssignment
-bash: cd: LinuxAssignment: No such file or directory
cdac@DESKTOP-155QB0S:~/LinuxAssignment/docs$ cd ..
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ ls
docs  file.txt  file1.txt
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ ls/
-bash: ls/: No such file or directory
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ ls /
bin              boot  etc   init  lib.usr-is-merged  lost+found  mnt  proc  run   sbin.usr-is-merged  srv  tmp  var
bin.usr-is-merged dev   home  lib   lib64              media       opt  root  sbin  snap                sys  usr
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ 
```

g) File Searching:

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

Ans:-command: find . -name "*.txt"

```
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ ls/
-bash: ls/: No such file or directory
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ ls /
bin              boot  etc   init  lib.usr-is-merged  lost+found  mnt  proc  run   sbin.usr-is-merged  srv  tmp  var
bin.usr-is-merged dev   home  lib   lib64              media       opt  root  sbin  snap                sys  usr
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ find . -name "*.txt"
./file.txt
./file1.txt
./docs/file2.txt
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ 
```

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

word to search).

Ans:- command: **grep "word" filename.txt**

```
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ grep "Line" file1.txt
Line 1
Line 2
Line 3
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ 
```

h) System Information:

a. Display the current system date and time.

Ans- command:- **date**

```
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ date
Mon Aug 18 17:48:28 UTC 2025
cdac@DESKTOP-155QB0S:~/LinuxAssignment$
```

i) **Networking:**

a. Display the IP address of the system.

Command:- **ipconfig**

```
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ hostname -I
172.25.78.84
cdac@DESKTOP-155QB0S:~/LinuxAssignment$
```

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

Command: **ping google.com**

```
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ ping -c 4 google.com
PING google.com (142.251.222.78) 56(84) bytes of data.
64 bytes from pnbomb-bp-in-f14.1e100.net (142.251.222.78): icmp_seq=1 ttl=118 time=23.4 ms
64 bytes from pnbomb-bp-in-f14.1e100.net (142.251.222.78): icmp_seq=2 ttl=118 time=10.0 ms
64 bytes from pnbomb-bp-in-f14.1e100.net (142.251.222.78): icmp_seq=3 ttl=118 time=5.22 ms
64 bytes from pnbomb-bp-in-f14.1e100.net (142.251.222.78): icmp_seq=4 ttl=118 time=5.53 ms

--- google.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3072ms
rtt min/avg/max/mdev = 5.221/11.040/23.359/7.364 ms
cdac@DESKTOP-155QB0S:~/LinuxAssignment$
```

j) **File Compression:**

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

Command: **zip -r docs.zip docs**

```
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ zip -r docs.zip docs
  adding: docs/ (stored 0%)
  adding: docs/file2.txt (stored 0%)
cdac@DESKTOP-155QB0S:~/LinuxAssignment$
```

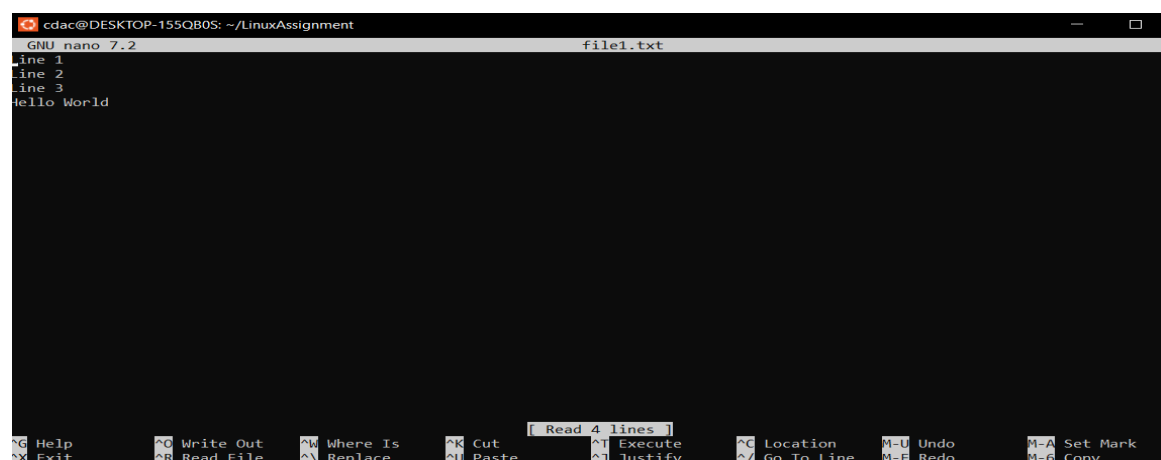b. Extract the contents of the zip file into a new directory.

Command: **unzip docs.zip -d newdocs**

```
 aauing. uucs/rilez.txt (storea 0%)
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ unzip docs.zip -d extracted_docs
Archive:  docs.zip
   creating: extracted_docs/docs/
 extracting: extracted_docs/docs/file2.txt
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ _
```

k) **File Editing:**

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

Ans: **nano file1.txt**

```
 cdac@DESKTOP-155QB0S: ~/LinuxAssignment                                  —    □
  GNU nano 7.2                          file1.txt
Line 1
Line 2
Line 3
Hello World




                          [ Read 4 lines ]
^G Help        ^O Write Out  ^W Where Is   ^K Cut      ^T Execute   ^C Location   M-U Undo    M-A Set Mark
^X Exit        ^R Read File  ^\ Replace    ^U Paste    ^J Justify   ^/ Go To Line M-E Redo    M-G Copy
```

b. Replace a specific word in the "file1.txt" file with another word (provide the original

word and the word to replace it with.

```
extracting: extracted_docs/docs/file2.txt
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ nano file1.txt
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ sed -i 's/Line/Row/g' file1.txt
cdac@DESKTOP-155QB0S:~/LinuxAssignment$ cat file1.txt
Row 1
Row 2
Row 3
Hello World
cdac@DESKTOP-155QB0S:~/LinuxAssignment$
```