Assignment No 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@Nandini:~$ pwd
/home/cdac
cdac@Nandini:~$ ls
LinuxAssignment  a.sh          file1.txt  hello1.sh  li.sh     nnn.txt       op.sh       s4.sh      tabble.sh
MODULE1          abc.txt       file2.txt  hi.sh      lp.sh     number.sh     output.txt  s5.sh      table.sh
Q10.sh           add.sh        fr.txt     hj.sh      n.sh      numbers.txt   p.sh        s7.sh      tableof.sh
Q11.sh           cdac          fri.txt    i.sh       na.sh     o.sh          q.sh        sh.sh      traingle.sh
Q6.sh            data.txt      fruit.txt  input.txt  name.sh   odd.sh        s,sh        ss.sh      u.sh
Q7.sh            docs.zip      g.sh       j.sh       name1.sh  oddeven.sh    s.sh        sss.sh     w.sh
Q8.sh            du.txt        h.sh       k.sh       nan.sh    oddnumber.sh  s16.sh      sss.txt
Q9.sh            duplicate.txt hello.sh   l.sh       nnn.java  ons.sh        s3.sh       swami.txt
cdac@Nandini:~$ mkdir linuxassignment
```

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

```
cdac@Nandini:~$ mkdir linuxassignment
cdac@Nandini:~$ cd linuxassignment
cdac@Nandini:~/linuxassignment$ cat >file1.txt
This is Nandini.
```

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

```
cdac@Nandini:~/linuxassignment$ mkdir docs
cdac@Nandini:~/linuxassignment$
```

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

```
cdac@Nandini:~/linuxassignment$ cp file1.txt docs/file2.txt
cdac@Nandini:~/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.

```
cdac@Nandini:~/linuxassignment$ cd docs
cdac@Nandini:~/linuxassignment/docs$ ls
file2.txt
cdac@Nandini:~/linuxassignment/docs$ chmod 744 file2.txt
cdac@Nandini:~/linuxassignment/docs$ chown cdac file2.txt
cdac@Nandini:~/linuxassignment/docs$ ls -l file2.txt
-rwxr--r-- 1 cdac cdac 17 Aug 26 04:01 file2.txt
```

Assignment No 1

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@Nandini:~/LinuxAssignment/docs$ ls -l /
total 2740
lrwxrwxrwx   1 root root       7 Apr 22  2024 bin -> usr/bin
drwxr-xr-x   2 root root    4096 Feb 26  2024 bin.usr-is-merged
drwxr-xr-x   2 root root    4096 Apr 22  2024 boot
drwxr-xr-x  15 root root    3860 Aug 19 11:49 dev
drwxr-xr-x  88 root root    4096 Aug 19 11:57 etc
drwxr-xr-x   3 root root    4096 Aug 18 03:21 home
-rwxrwxrwx   1 root root 2724480 Jul 31 14:56 init
lrwxrwxrwx   1 root root       7 Apr 22  2024 lib -> usr/lib
drwxr-xr-x   2 root root    4096 Apr  8  2024 lib.usr-is-merged
lrwxrwxrwx   1 root root       9 Apr 22  2024 lib64 -> usr/lib64
drwx------   2 root root   16384 Aug 18 03:20 lost+found
drwxr-xr-x   2 root root    4096 Aug  5 16:55 media
drwxr-xr-x   6 root root    4096 Aug 18 03:20 mnt
drwxr-xr-x   2 root root    4096 Aug  5 16:55 opt
dr-xr-xr-x 242 root root       0 Aug 19 11:49 proc
drwx------   3 root root    4096 Aug  5 16:57 root
drwxr-xr-x  19 root root     560 Aug 19 11:49 run
lrwxrwxrwx   1 root root       8 Apr 22  2024 sbin -> usr/sbin
drwxr-xr-x   2 root root    4096 Mar 31  2024 sbin.usr-is-merged
drwxr-xr-x   2 root root    4096 Aug 18 03:20 snap
drwxr-xr-x   2 root root    4096 Aug  5 16:55 srv
dr-xr-xr-x  13 root root       0 Aug 19 11:49 sys
drwxrwxrwt   8 root root    4096 Aug 19 11:50 tmp
drwxr-xr-x  12 root root    4096 Aug  5 16:55 usr
```

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@Nandini:~/linuxassignment/docs$ ls -l
total 4
-rwxr--r-- 1 cdac cdac 17 Aug 26 04:01 file2.txt
cdac@Nandini:~/linuxassignment/docs$ find . -type f -name "*.txt"
./file2.txt
cdac@Nandini:~/linuxassignment/docs$ grep "is" file2.txt
This is Nandini.
cdac@Nandini:~/linuxassignment/docs$
```

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

```
cdac@Nandini:~/linuxassignment/docs$ date
Tue Aug 26 04:12:27 UTC 2025
cdac@Nandini:~/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).

Assignment No 1

```
cdac@Nandini:~/linuxassignment/docs$ hostname -I
172.26.93.52
cdac@Nandini:~/linuxassignment/docs$ ping google.com
PING google.com (142.251.42.46) 56(84) bytes of data.
64 bytes from bom12s20-in-f14.1e100.net (142.251.42.46): icmp_seq=1 ttl=118 time=12.0 ms
64 bytes from bom12s20-in-f14.1e100.net (142.251.42.46): icmp_seq=2 ttl=118 time=11.2 ms
64 bytes from bom12s20-in-f14.1e100.net (142.251.42.46): icmp_seq=3 ttl=118 time=11.5 ms
64 bytes from bom12s20-in-f14.1e100.net (142.251.42.46): icmp_seq=4 ttl=118 time=13.7 ms
64 bytes from bom12s20-in-f14.1e100.net (142.251.42.46): icmp_seq=5 ttl=118 time=11.1 ms
64 bytes from bom12s20-in-f14.1e100.net (142.251.42.46): icmp_seq=6 ttl=118 time=12.6 ms
64 bytes from bom12s20-in-f14.1e100.net (142.251.42.46): icmp_seq=7 ttl=118 time=14.1 ms
64 bytes from bom12s20-in-f14.1e100.net (142.251.42.46): icmp_seq=8 ttl=118 time=13.8 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@Nandini:~/linuxassignment/docs$ cd ..
cdac@Nandini:~/linuxassignment$ zip -r docs.zip docs
  adding: docs/ (stored 0%)
  adding: docs/file2.txt (stored 0%)
cdac@Nandini:~/linuxassignment$ unzip docs.zip -d newdocs
Archive:  docs.zip
   creating: newdocs/docs/
 extracting: newdocs/docs/file2.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).

```
cdac@Nandini:~/LinuxAssignment$ nano file1.txt
cdac@Nandini:~/LinuxAssignment$ sed -i 's/oldword/newword/g' file1.txt
cdac@Nandini:~/LinuxAssignment$ sed -i 's/Linux/Ubuntu/g' file1.txt
```

Assignment No 1

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@Nandini:~$ cat >data.txt
pwd
ls
ls -la
mkdir
rmdir
cp
cat
touch
echo
mv
rm
clear
exit
chmod
zip
unzip
date
time
cal
cdac@Nandini:~$ head -10 data.txt
pwd
ls
ls -la
mkdir
rmdir
cp
cat
touch
echo
```

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@Nandini:~$ tail -5 data.txt
zip
unzip
date
time
cal
```

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@Nandini:~$ cat >numbers.txt
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
```

Assignment No 1

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

```
cdac@Nandini:~$ tail -3 numbers.txt
18
19
20
```

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@Nandini:~$ cat >input.txt
Nandini
Nitin
Rasal
NandiniNitinRasal
RasalNandini
cdac@Nandini:~$
cdac@Nandini:~$ tr 'a-z' 'A-Z' <input.txt> output.txt
cdac@Nandini:~$ cat >duplicate.txt
```

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."

```
gf
ccc
hi
hiii
hi
ho
hon
cdac@Nandini:~$
cdac@Nandini:~$ sort duplicate.txt | uniq
a
aa
bb
cc
ccc
gf
hi
hiii
ho
hon
```

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."

Assignment No 1

```
cdac@Nandini:~$ cat>fruit.txt
banana
mango
watermelon
gauva
strawberry
apple
pinapple
coconut
papaya
custard apple
cucumber
papaya
mango
banana
apple
cdac@Nandini:~$ sort fruit.txt |uniq
apple
banana
coconut
cucumber
custard apple
gauva
mango
papaya
pinapple
strawberry
watermelon
```