

CDAC MUMBAI

Concepts of Operating System 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@LAPTOP-R8MVQ2NN: ~$ pwd
/home/cdac
cdac@LAPTOP-R8MVQ2NN:~$ cd ~
cdac@LAPTOP-R8MVQ2NN:~$ ls
Program adi.txt cpp.txt file3.txt file4.txt hello.sh input.txt input.txt. output.txt
cdac@LAPTOP-R8MVQ2NN:~$ mkdir LinuxAssignment
cdac@LAPTOP-R8MVQ2NN:~$ ls
LinuxAssignment adi.txt file3.txt hello.sh input.txt.
Program          cpp.txt file4.txt input.txt output.txt
cdac@LAPTOP-R8MVQ2NN:~$
```

b) File Management:

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

c) Directory Management:

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

```
cdac@LAPTOP-R8MVQ2NN: ~$ cd LinuxAssignment
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment$ ls -all
total 12
drwxr-xr-x 2 cdac cdac 4096 Aug 30 18:46 .
drwxr-x--- 8 cdac cdac 4096 Aug 30 18:33 ..
-rw-r--r-- 1 cdac cdac 22 Aug 30 18:46 file1.txt
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment$ mkdir docs
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment$ ls
docs file1.txt
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment$
```

d) **Copy and Move Files:**

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

```
cdac@LAPTOP-R8MVQ2NN: ~$ cd LinuxAssignment
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment$ ls -all
total 12
drwxr-xr-x 2 cdac cdac 4096 Aug 30 18:46 .
drwxr-x--- 8 cdac cdac 4096 Aug 30 18:33 ..
-rw-r--r-- 1 cdac cdac 22 Aug 30 18:46 file1.txt
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment$ mkdir docs
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment$ ls
docs file1.txt
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment$ cp file1.txt docs/
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment$ ls
docs file1.txt
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment$ cd docs
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment/docs$ ls -all
total 12
drwxr-xr-x 2 cdac cdac 4096 Aug 30 18:53 .
drwxr-xr-x 3 cdac cdac 4096 Aug 30 18:50 ..
-rw-r--r-- 1 cdac cdac 22 Aug 30 18:53 file1.txt
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment/docs$ mv file1.txt file2.txt
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment/docs$ ls -all
total 12
drwxr-xr-x 2 cdac cdac 4096 Aug 30 18:54 .
drwxr-xr-x 3 cdac cdac 4096 Aug 30 18:50 ..
-rw-r--r-- 1 cdac cdac 22 Aug 30 18:53 file2.txt
cdac@LAPTOP-R8MVQ2NN: ~/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@LAPTOP-R8MVQ2NN: ~ - X + v
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment/docs$ ls -all
```

f) Final Checklist:

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

```
chmod: changing permissions of 'file2.txt': Operation not permitted
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment/docs$ sudo chmod 744 file2.txt
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment/docs$ ls -all
total 12
drwxr-xr-x 2 cdac cdac 4096 Aug 30 18:54 .
drwxr-xr-x 3 cdac cdac 4096 Aug 30 18:50 ..
-rwxr-xr-x 1 cdac cdac 4096 Aug 30 18:54 file2.txt

cdac@LAPTOP-R8MVQ2NN:/$ cd home
cdac@LAPTOP-R8MVQ2NN:/home$ ls -all
total 16
drwxr-xr-x 4 root root 4096 Aug 28 12:55 .
drwxr-xr-x 22 root root 4096 Aug 30 07:20 ..
drwxr-xr-x 8 cdac cdac 4096 Aug 30 18:33 cdac
drwxrwxr-x 3 root root 4096 Aug 30 08:03 LinuxAssignment
cdac@LAPTOP-R8MVQ2NN:/home$ cd cdac
cdac@LAPTOP-R8MVQ2NN:~/cdac$ ls -all
total 104
drwxr-xr-x 8 cdac cdac 4096 Aug 30 18:33 .
drwxr-xr-x 4 root root 4096 Aug 28 12:55 ..
-rw-r--r-- 1 cdac cdac 3161 Aug 30 18:49 .bash_history
-rw-r--r-- 1 cdac cdac 220 Aug 27 12:45 .bash_logout
-rw-r--r-- 1 cdac cdac 3771 Aug 27 12:45 .bashrc
drwxr-xr-x 3 cdac cdac 4096 Aug 30 09:45 .cache
drwxr-xr-x 3 cdac cdac 4096 Aug 29 14:10 .config
drwxr-xr-x 2 cdac cdac 4096 Aug 27 12:46 .landscape
-rw-r--r-- 1 cdac cdac 20 Aug 29 14:00 .lessht
drwxr-xr-x 3 cdac cdac 4096 Aug 27 17:38 .local
-rw-r--r-- 1 cdac cdac 0 Aug 30 07:20 .motd_shown
-rw-r--r-- 1 cdac cdac 807 Aug 27 12:45 .profile
-rw-r--r-- 1 cdac cdac 0 Aug 28 12:55 .sudo_as_admin_successful
drwxr-xr-x 5 cdac cdac 4096 Aug 30 09:45 .vscode-server
-rw-r--r-- 1 cdac cdac 183 Aug 30 09:45 .wget-hsts
drwxr-xr-x 3 cdac cdac 4096 Aug 30 18:50 LinuxAssignment
-rwxr-xr-x 1 cdac cdac 15992 Aug 29 08:50 Program
-rw-r--r-- 1 cdac cdac 18 Aug 27 17:47 adi.txt
-rw-r--r-- 1 cdac cdac 46 Aug 27 18:46 cpp.txt
-rw-r--r-- 1 cdac cdac 9 Aug 28 05:14 file3.txt
-rw-r--r-- 1 cdac cdac 9 Aug 28 05:16 file4.txt
-rw-r--r-- 1 root root 36 Aug 30 10:03 hello.sh
-rw-r--r-- 1 root root 215 Aug 30 10:57 input.txt
-rw-r--r-- 1 root root 157 Aug 30 10:39 input.txt.
-rw-r--r-- 1 root root 135 Aug 30 10:24 output.txt
cdac@LAPTOP-R8MVQ2NN:~/cdac$ cd LinuxAssignment
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ ls -all
ls-all: command not found
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ ls -all
total 16
drwxr-xr-x 3 cdac cdac 4096 Aug 30 18:50 .
drwxr-xr-x 8 cdac cdac 4096 Aug 30 18:33 ..
drwxr-xr-x 2 cdac cdac 4096 Aug 30 18:54 docs
-rw-r--r-- 1 cdac cdac 22 Aug 30 18:46 file1.txt
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$
```

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@LAPTOP-R8MVQ2NN: ~  
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment$ find . -type f -name "*.txt"  
./ArthematicOperators.txt  
./SumeoddDigit.txt  
./ReverseString.txt  
./CommandSubsitution.txt  
./sumodddigit.txt  
./PalindromeString.txt  
./RealationalOperators.txt  
./docs/old7.txt  
./docs/file2.txt  
./docs/old10.txt  
./baseexpo.txt  
./Factorial.txt  
./noddnos.txt  
./SumofDigit.txt  
./ReverseDigit.txt  
./Exercise.txt  
./Leapyear.txt  
./Arguments.txt  
./Untilloop.txt  
./file1.txt  
./Forloops.txt  
./Ifelse.txt  
./hello.txt  
./Whileloop.txt  
./read.txt  
./variables.txt  
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment$
```

```

cdac@LAPTOP-R8MVQ2NN: ~ - X
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ find . -type f -name "*.txt"
./ArithmeticOperators.txt
./SumeoddDigit.txt
./ReverseString.txt
./CommandSubstitution.txt
./sumodddigit.txt
./PalindromeString.txt
./RealationalOperators.txt
./docs/old7.txt
./docs/file2.txt
./docs/old10.txt
./baseexpo.txt
./Factorial.txt
./noddnos.txt
./SumofDigit.txt
./ReverseDigit.txt
./Exercise.txt
./Leapyear.txt
./Arguments.txt
./Untilloop.txt
./file1.txt
./Forloops.txt
./Ifelse.txt
./hello.txt
./Whileloop.txt
./read.txt
./variables.txt
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ grep "bash" ReverseString.txt
#!/<bin<bash
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ nano ReverseString.txt
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ grep "echo" ReverseString.txt
echo "enter a string"
reverse=$(echo $str | rev)
echo "reverse string" $reverse
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ |

```

h) System Information:

- a. Display the current system date and time.

```
cdac@LAPTOP-R8MVQ2NN: ~ - X + v
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ find . -type f -name "*.txt"
./ArithmeticOperators.txt
./SumoddDigit.txt
./ReverseString.txt
./CommandSubstitution.txt
./sumoddigit.txt
./PalindromeString.txt
./RelationalOperators.txt
./docs/old7.txt
./docs/file2.txt
./docs/old10.txt
./baseexpo.txt
./Factorial.txt
./noddnos.txt
./SumofDigit.txt
./ReverseDigit.txt
./Exercise.txt
./Leapyear.txt
./Arguments.txt
./Untilloop.txt
./file1.txt
./Forloops.txt
./Ifelse.txt
./hello.txt
./Whileloop.txt
./read.txt
./variables.txt
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ grep "bash" ReverseString.txt
#!/bin<bash
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ nano ReverseString.txt
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ grep "echo" ReverseString.txt
echo "enter a string"
reverse=$(echo $str | rev)
echo "reverse string" $reverse
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ date
Tue Sep  3 15:56:31 UTC 2024
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ |
```

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@LAPTOP-R8MVQ2NN: - X + v

Need to get 204 kB of archives.

After this operation, 811 kB of additional disk space will be used.

Get:1 http://archive.ubuntu.com/ubuntu noble/main amd64 net-tools amd64 2.10-0.1ubuntu4 [204 kB]

Fetches 204 kB in 1s (187 kB/s)

Selecting previously unselected package net-tools.

(Reading database ... 45006 files and directories currently installed.)

Preparing to unpack .../net-tools_2.10-0.1ubuntu4_amd64.deb ...

Unpacking net-tools (2.10-0.1ubuntu4) ...

Setting up net-tools (2.10-0.1ubuntu4) ...

Processing triggers for man-db (2.12.0-4build2) ...

cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment\$ ifconfig

```
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 172.31.123.64 netmask 255.255.240.0 broadcast 172.31.127.255
    inet6 fe80::215:5dff:fe2f:575f prefixlen 64 scopeid 0x20<link>
    ether 00:15:5d:2f:57:5f txqueuelen 1000 (Ethernet)
    RX packets 516 bytes 279318 (279.3 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 135 bytes 9631 (9.6 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

```
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment\$ ip address

```
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
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: bond0: <BROADCAST,MULTICAST,MASTER> mtu 1500 qdisc noop state DOWN group default qlen 1000
    link/ether d6:c3:ad:ea:91:7a brd ff:ff:ff:ff:ff:ff
3: dummy0: <BROADCAST,NOARP> mtu 1500 qdisc noop state DOWN group default qlen 1000
    link/ether 12:50:d8:47:e2:28 brd ff:ff:ff:ff:ff:ff
4: tunl0@NONE: <NOARP> mtu 1480 qdisc noop state DOWN group default qlen 1000
    link/ipip 0.0.0.0 brd 0.0.0.0
5: sit0@NONE: <NOARP> mtu 1480 qdisc noop state DOWN group default qlen 1000
    link/sit 0.0.0.0 brd 0.0.0.0
6: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
    link/ether 00:15:5d:2f:57:5f brd ff:ff:ff:ff:ff:ff
    inet 172.31.123.64/20 brd 172.31.127.255 scope global eth0
        valid_lft forever preferred_lft forever
    inet6 fe80::215:5dff:fe2f:575f/64 scope link
        valid_lft forever preferred_lft forever
```

cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment\$


```
cdac@LAPTOP-R8MVQ2NN: ~ - X + v
TX packets 0 bytes 0 (0.0 B)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ ip address
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
```

j) File Compression:

- Compress the "docs" directory into a zip file.
- Extract the contents of the zip file into a new directory.

```
link/ether d6:c3:ad:ea:91:7a brd ff:ff:ff:ff:ff:ff
3: dummy0: <BROADCAST,NOARP> mtu 1500 qdisc noop state DOWN group default qlen 1000
link/ether 12:50:d8:47:e2:28 brd ff:ff:ff:ff:ff:ff
4: tunl0@NONE: <NOARP> mtu 1480 qdisc noop state DOWN group default qlen 1000
link/ipip 0.0.0.0 brd 0.0.0.0
5: sit0@NONE: <NOARP> mtu 1480 qdisc noop state DOWN group default qlen 1000
link/sit 0.0.0.0 brd 0.0.0.0
6: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
link/ether 08:15:5d:3c:5f:56 brd ff:ff:ff:ff:ff:ff
```

```
cdac@LAPTOP-R8MVQ2NN: ~ - X + v
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ zip -r docs.zip docs
Command 'zip' not found, but can be installed with:
sudo apt install zip
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ sudo apt install zip
[sudo] password for cdac:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  unzip
The following NEW packages will be installed:
  unzip zip
0 upgraded, 2 newly installed, 0 to remove and 0 not upgraded.
Need to get 350 kB of archives.
After this operation, 933 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://archive.ubuntu.com/ubuntu noble/main amd64 unzip amd64 6.0-28ubuntu4 [175 kB]
Get:2 http://archive.ubuntu.com/ubuntu noble/main amd64 zip amd64 3.0-13build1 [175 kB]
Fetched 350 kB in 2s (159 kB/s)
Selecting previously unselected package unzip.
(Reading database ... 45054 files and directories currently installed.)
Preparing to unpack .../unzip_6.0-28ubuntu4_amd64.deb ...
Unpacking unzip (6.0-28ubuntu4) ...
Selecting previously unselected package zip.
Preparing to unpack .../zip_3.0-13build1_amd64.deb ...
Unpacking zip (3.0-13build1) ...
Setting up unzip (6.0-28ubuntu4) ...
Setting up zip (3.0-13build1) ...
Processing triggers for man-db (2.12.0-4build2) ...
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ ls
0
ArithmeticOperators.txt  Factorial.txt  Leapyear.txt  ReverseDigit.txt  SumofDigit.txt  baseexpo.txt  hello.txt  sumodddigit.txt
Arguments.txt            CommandSubstitution.txt  Forloops.txt  PalindromeString.txt  ReverseString.txt  Untillloop.txt  docs      noddnos.txt  variables.txt
ArithmeticOperators      Exercise.txt      Ifelse.txt      RealationalOperators.txt  SumeoddDigit.txt  Whileloop.txt  file1.txt  read.txt
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ zip -r docs.zip docs
adding: docs/ (stored 0%)
adding: docs/old7.txt (deflated 5%)
adding: docs/file2.txt (stored 0%)
adding: docs/old10.txt (deflated 5%)
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ ls
0
ArithmeticOperators.txt  Factorial.txt  Leapyear.txt  ReverseDigit.txt  SumofDigit.txt  baseexpo.txt  file1.txt  read.txt
Arguments.txt            CommandSubstitution.txt  Forloops.txt  PalindromeString.txt  ReverseString.txt  Untillloop.txt  docs      hello.txt  sumodddigit.txt
ArithmeticOperators      Exercise.txt      Ifelse.txt      RealationalOperators.txt  SumeoddDigit.txt  Whileloop.txt  docs.zip  noddnos.txt  variables.txt
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$
```



```

cdac@LAPTOP-R8MVQ2NN: ~$ sudo apt-get install unzip
Unpacking unzip (6.0-28ubuntu4) ...
Selecting previously unselected package zip.
Preparing to unpack .../zip_3.0-13build1_amd64.deb ...
Unpacking zip (3.0-13build1) ...
Setting up unzip (6.0-28ubuntu4) ...
Setting up zip (3.0-13build1) ...
Processing triggers for man-db (2.12.0-4build2) ...
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment$ ls
0 Arguments.txt ArithmeticOperators.txt Factorial.txt Leapyear.txt ReverseDigit.txt SumofDigit.txt baseexpo.txt hello.txt sumodddigit.txt
ArithmeticOperators CommandSubstitution.txt Forloops.txt PalindromeString.txt ReverseString.txt Untillloop.txt docs noddnos.txt variables.txt
ArithmeticOperators Exercise.txt Ifelse.txt RealationalOperators.txt SumeoddDigit.txt Whileloop.txt file1.txt read.txt
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment$ zip -r docs.zip docs
adding: docs/ (stored 0%)
adding: docs/old7.txt (deflated 5%)
adding: docs/file2.txt (stored 0%)
adding: docs/old10.txt (deflated 5%)
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment$ ls
0 Arguments.txt ArithmeticOperators.txt Factorial.txt Leapyear.txt ReverseDigit.txt SumofDigit.txt baseexpo.txt file1.txt read.txt
ArithmeticOperators CommandSubstitution.txt Forloops.txt PalindromeString.txt ReverseString.txt Untillloop.txt docs hello.txt sumodddigit.txt
ArithmeticOperators Exercise.txt Ifelse.txt RealationalOperators.txt SumeoddDigit.txt Whileloop.txt docs.zip noddnos.txt variables.txt
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment$ mkdir unzip
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment$ ls
0 Arguments.txt ArithmeticOperators.txt Factorial.txt Leapyear.txt ReverseDigit.txt SumofDigit.txt baseexpo.txt file1.txt read.txt variables.txt
ArithmeticOperators CommandSubstitution.txt Forloops.txt PalindromeString.txt ReverseString.txt Untillloop.txt docs hello.txt sumodddigit.txt
ArithmeticOperators Exercise.txt Ifelse.txt RealationalOperators.txt SumeoddDigit.txt Whileloop.txt docs.zip noddnos.txt unzip
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment$ unzip docs.zip -d unzip
Archive: docs.zip
  creating: unzip/docs/
  inflating: unzip/docs/old7.txt
  extracting: unzip/docs/file2.txt
  inflating: unzip/docs/old10.txt
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment$ ls
0 Arguments.txt ArithmeticOperators.txt Factorial.txt Leapyear.txt ReverseDigit.txt SumofDigit.txt baseexpo.txt file1.txt read.txt variables.txt
ArithmeticOperators CommandSubstitution.txt Forloops.txt PalindromeString.txt ReverseString.txt Untillloop.txt docs hello.txt sumodddigit.txt
ArithmeticOperators Exercise.txt Ifelse.txt RealationalOperators.txt SumeoddDigit.txt Whileloop.txt docs.zip noddnos.txt unzip
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment$ ls unzip
docs
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment$ cd unzip
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment/unzip$ ls
docs
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment/unzip$ ls -all
ls-all: command not found
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment/unzip$ ls -all
total 12
drwxr-xr-x 3 cdac cdac 4096 Sep  3 16:40 .
drwxr-xr-x 4 cdac cdac 4096 Sep  3 16:40 ..
drwxr-xr-x 2 cdac cdac 4096 Sep  2 00:52 docs
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment/unzip$ cd docs
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment/unzip/docs$ ls
file2.txt old10.txt old7.txt
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment/unzip/docs$

```

k) File Editing:

- Open the "file1.txt" file in a text editor and add some text to it.
- Replace a specific word in the "file1.txt" file with another word (provide the original word and the word to replace it with).

```

cdac@LAPTOP-R8MVQ2NN: ~$ nano file1.txt
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment/unzip/docs$ cat file1.txt
Hello world
CDAC has logged in !!!!!
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment/unzip/docs$ sed -i 's/Hello/Hii/g' file1.txt
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment/unzip/docs$ cat file1.txt
Hii world
CDAC has logged in !!!!!
cdac@LAPTOP-R8MVQ2NN: ~/LinuxAssignment/unzip/docs$

```

```
cdac@LAPTOP-R8MVQ2NN: ~ - X + v
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment/unzip/docs$ nano file1.txt
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment/unzip/docs$ cat file1.txt
Hello world
CDAC has logged in !!!!!
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment/unzip/docs$ sed -i 's/Hello/Hii/g' file1.txt
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment/unzip/docs$ cat file1.txt
Hii world
CDAC has logged in !!!!!
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment/unzip/docs$ nano file1.txt
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment/unzip/docs$ cat file1.txt
Hii world
CDAC has logged in !!!!!
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment/unzip/docs$ |
```

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@LAPTOP-R8MVQ2NN: - X + v
Andhra Pradesh (Amaravati)
Arunachal Pradesh (Itanagar)
Assam (Dispur)
Bihar (Patna)
Chhattisgarh (Raipur)
Goa (Panaji)
Gujarat (Gandhinagar)
Haryana (Chandigarh)
Himachal Pradesh (Shimla)
Jharkhand (Ranchi)
Karnataka (Bangalore)
Kerala (Thiruvananthapuram)
Madhya Pradesh (Bhopal)
Maharashtra (Mumbai)
Manipur (Imphal)
Meghalaya (Shillong)
Mizoram (Aizawl)
Nagaland (Kohima)
Odisha (Bhubaneswar)
Punjab (Chandigarh)
Rajasthan (Jaipur)
Sikkim (Gangtok)
Tamil Nadu (Chennai)
Telangana (Hyderabad)
Tripura (Agartala)
Uttarakhand (Dehradun)
Uttar Pradesh (Lucknow)
West Bengal (Kolkata)
Union Territories

Andaman and Nicobar Islands (Port Blair)
Chandigarh (Chandigarh)
Dadra and Nagar Haveli and
Daman & Diu (Daman)
The Government of NCT of Delhi (Delhi)
Jammu & Kashmir (Srinagar-S*, Jammu-W*)
Ladakh (Leh)
Lakshadweep (Kavaratti)
Puducherry (Puducherry)
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment/unzip/docs$ head data.txt
Andhra Pradesh (Amaravati)
Arunachal Pradesh (Itanagar)
Assam (Dispur)
Bihar (Patna)
Chhattisgarh (Raipur)
Goa (Panaji)
Gujarat (Gandhinagar)
Haryana (Chandigarh)
Himachal Pradesh (Shimla)
Jharkhand (Ranchi)
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment/unzip/docs$ |
```

- 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@LAPTOP-R8MVQ2NN:~/LinuxAssignment/unzip/docs$ cat data.txt
Andhra Pradesh (Amaravati)
Arunachal Pradesh (Itanagar)
Assam (Dispur)
Bihar (Patna)
Chhattisgarh (Raipur)
Goa (Panaji)
Gujarat (Gandhinagar)
Haryana (Chandigarh)
Himachal Pradesh (Shimla)
Jharkhand (Ranchi)
Karnataka (Bangalore)
Kerala (Thiruvananthapuram)
Madhya Pradesh (Bhopal)
Maharashtra (Mumbai)
Manipur (Imphal)
Meghalaya (Shillong)
Mizoram (Aizawl)
Nagaland (Kohima)
Odisha (Bhubaneswar)
Punjab (Chandigarh)
Rajasthan (Jaipur)
Sikkim (Gangtok)
Tamil Nadu (Chennai)
Telangana (Hyderabad)
Tripura (Agartala)
Uttarakhand (Dehradun)
Uttar Pradesh (Lucknow)
West Bengal (Kolkata)
Union Territories

Andaman and Nicobar Islands (Port Blair)
Chandigarh (Chandigarh)
Dadra and Nagar Haveli and
Daman & Diu (Daman)
The Government of NCT of Delhi (Delhi)
Jammu & Kashmir (Srinagar-S*, Jammu-W*)
Ladakh (Leh)
Lakshadweep (Kavaratti)
Puducherry (Puducherry)
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment/unzip/docs$ tail -5 data.txt
The Government of NCT of Delhi (Delhi)
Jammu & Kashmir (Srinagar-S*, Jammu-W*)
Ladakh (Leh)
Lakshadweep (Kavaratti)
Puducherry (Puducherry)
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment/unzip/docs$

```

- 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@LAPTOP-R8MVQ2NN: ~ - X + v
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment/unzip/docs$ nano numbers.txt
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment/unzip/docs$ cat numbers.txt
n : F(n)=factorisation
0 : 0
1 : 1
2 : 1
3 : 2
4 : 3
5 : 5
6 : 8 = 23
7 : 13
8 : 21 = 3 x 7
9 : 34 = 2 x 17
10 : 55 = 5 x 11
11 : 89
12 : 144 = 24 x 32
13 : 233
14 : 377 = 13 x 29
15 : 610 = 2 x 5 x 61
16 : 987 = 3 x 7 x 47
17 : 1597
18 : 2584 = 23 x 17 x 19
19 : 4181 = 37 x 113
20 : 6765 = 3 x 5 x 11 x 41
21 : 10946 = 2 x 13 x 421
22 : 17711 = 89 x 199
23 : 28657
24 : 46368 = 25 x 32 x 7 x 23
25 : 75025 = 52 x 3001
26 : 121393 = 233 x 521
27 : 196418 = 2 x 17 x 53 x 109
28 : 317811 = 3 x 13 x 29 x 281
29 : 514229
30 : 832040 = 23 x 5 x 11 x 31 x 61
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment/unzip/docs$ head -15 numbers.txt
n : F(n)=factorisation
0 : 0
1 : 1
2 : 1
3 : 2
4 : 3
5 : 5
6 : 8 = 23
7 : 13
8 : 21 = 3 x 7
9 : 34 = 2 x 17
10 : 55 = 5 x 11
11 : 89
12 : 144 = 24 x 32
13 : 233
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment/unzip/docs$ |
```

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

```
n : F(n)=factorisation
0 : 0
1 : 1
```

cdac@LAPTOP-R8MVQ2NN: ~

```
cdac@LAPTOP-R8MVQ2NN:~$ sudo awk ' { print toupper($0) }' input.txt > output.txt
```

```
cdac@LAPTOP-R8MVQ2NN:~$ ls
```

```
LinuxAssignment Program adi.txt cpp.txt file3.txt file4.txt hello.sh input.txt input.txt output.txt pl.txt
```

```
cdac@LAPTOP-R8MVQ2NN:~$ cat output.txt
```

```
WORK MUST BE DONE AS A YAJNA TO THE SUPREME LORD; OTHERWISE, WORK CAUSES BONDAGE IN THIS MATERIAL WORLD
```

```
THIS SLOKA IS FROM CHAPTER 3 OF THE BHAGAVAD GITA, AND IT MEANS THAT YOU SHOULD PERFORM YOUR PRESCRIBED DUTIES FOR THE SATISFACTION OF GOD, WITHOUT BEING ATTACHED TO THE RESULTS.
```

```
cdac@LAPTOP-R8MVQ2NN:~$
```

```
30 : 832040 = 23 x 5 x 11 x 31 x 61
```

```
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment/unzip/docs$
```

- 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."

Haze

- 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@LAPTOP-R8MVQ2NN: ~ - X + v
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ nano duplicates.txt
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ cat duplicates.txt

This is a test file for the uniq command.
It contains some repeated lines.
It contains some repeated lines.
And some are different.
It contains some repeated lines.
It contains some repeated lines.
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ sort duplicates | duplicatesot.txt
^[[A duplicatesot.txt: command not found
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ sort duplicates | tee duplicatesot.txt

And some are different.
It contains some repeated lines.
It contains some repeated lines.
It contains some repeated lines.
It contains some repeated lines.
this is a test file for the uniq command.
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ unix duplicatesot.txt
Command 'unix' not found, did you mean:
  command 'uniq' from deb coreutils (9.4-2ubuntu2)
Try: sudo apt install <deb name>
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ uniq duplicatesot.txt

And some are different.
It contains some repeated lines.
this is a test file for the uniq command.
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ |

```

- 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@LAPTOP-R8MVQ2NN: ~ X + v

```
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ nano fruit.txt
```

```
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ cat fruit.txt
```

mango

mango

banana

apple

kiwi

banana

blueberry

orange

apple

```
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ sort fruit.txt | uniq -c
```

1

2 apple

2 banana

1 blueberry

1 kiwi

2 mango

1 orange

```
cdac@LAPTOP-R8MVQ2NN:~/LinuxAssignment$ |
```