

**CDAC MUMBAI**  
**Concepts of Operating System**  
**Assignment 1**

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**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.

b) File Management:

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

c) Directory Management:

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

d) Copy and Move Files:

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

```
cdac@DESKTOP-OLOQR0A:~$ cd ~
cdac@DESKTOP-OLOQR0A:~$ ls
CDAC
cdac@DESKTOP-OLOQR0A:~$ mkdir LinuxAssignment
cdac@DESKTOP-OLOQR0A:~$ cd LinuxAssignment
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment$ touch file1.txt
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment$ cat > file1.txt
This is the content of file1.
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment$ cat file1.txt
This is the content of file1.
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment$ mkdir docs
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment$ cp file1.txt docs
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment$ cat docs
cat: docs: Is a directory
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment$ cd docs
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment/docs$ ls
file1.txt
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment/docs$ mv file1.txt file2.txt
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment/docs$ cat file2.txt
This is the content of file1.
```

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.

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-OLOQR0A:~/LinuxAssignment/docs$ chmod u+rwx file2.txt
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment/docs$ ls -l
total 4
-rwxr--r-- 1 cdac cdac 30 Aug 20 17:13 file2.txt
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment/docs$ chmod g-r file2.txt
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment/docs$ ls -l
total 4
-rwx---r-- 1 cdac cdac 30 Aug 20 17:13 file2.txt
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment/docs$ sudo chown supriya file2.txt
[sudo] password for cdac:
chown: invalid user: 'supriya'
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment/docs$ chown supriya file2.txt
chown: invalid user: 'supriya'
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment/docs$ sudo chown $(whoami) file2.txt
[sudo] password for cdac:
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment/docs$ ls -l LinuxAssignment
ls: cannot access 'LinuxAssignment': No such file or directory
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment/docs$ ls -l
total 4
-rwx---r-- 1 cdac cdac 30 Aug 20 17:13 file2.txt
cdac@DESKTOP-OLOQR0A:~/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 3840 Aug 18 09:43 dev
drwxr-xr-x 88 root root 4096 Aug 18 13:09 etc
drwxr-xr-x 3 root root 4096 Aug 18 04:11 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 04:06 lost+found
drwxr-xr-x 2 root root 4096 Aug 5 16:55 media
drwxr-xr-x 8 root root 4096 Aug 18 04:07 mnt
drwxr-xr-x 2 root root 4096 Aug 5 16:55 opt
dr-xr-xr-x 188 root root 0 Aug 18 09:43 proc
drwx----- 3 root root 4096 Aug 5 16:57 root
drwxr-xr-x 20 root root 600 Aug 20 06:18 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 04:07 snap
drwxr-xr-x 2 root root 4096 Aug 5 16:55 srv
dr-xr-xr-x 13 root root 0 Aug 18 09:43 sys

```

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).

h) System Information:

- a. Display the current system date and time.

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-OLOQR0A:~/LinuxAssignment/docs$ cd ~
cdac@DESKTOP-OLOQR0A:~$ find . -type f -name "*.txt"
./CDAC/xyz.txt
./CDAC/myinfo.txt
./CDAC/colors.txt
./CDAC/g1.txt
./CDAC/file2.txt
./CDAC/file1.txt
./CDAC/numbers.txt
./LinuxAssignment/docs/file2.txt
./LinuxAssignment/file1.txt
cdac@DESKTOP-OLOQR0A:~$ grep "content" file2.txt
grep: file2.txt: No such file or directory
cdac@DESKTOP-OLOQR0A:~$ cd LinuxAssignment
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment$ cd docs
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment/docs$ grep "content" file2.txt
This is the content of file1.
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment/docs$ date
Wed Aug 20 18:40:22 UTC 2025
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment/docs$ ip a
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: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc mq state UP group default qlen 1000
    link/ether 00:15:5d:b0:8a:03 brd ff:ff:ff:ff:ff:ff
    inet 172.18.163.223/20 brd 172.18.175.255 scope global eth0
        valid_lft forever preferred_lft forever
    inet6 fe80::215:5dff:feb0:8a03/64 scope link
        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.

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-OLOQR0A:~/LinuxAssignment/docs$ ping google.com
PING google.com (142.250.70.78) 56(84) bytes of data.
64 bytes from pnbomb-ab-in-f14.1e100.net (142.250.70.78): icmp_seq=1 ttl=118 time=11.0 ms
64 bytes from pnbomb-ab-in-f14.1e100.net (142.250.70.78): icmp_seq=2 ttl=118 time=15.0 ms
^C
--- google.com ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1035ms
rtt min/avg/max/mdev = 10.991/13.017/15.043/2.026 ms
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment/docs$ zip -r docs.zip docs
zip warning: name not matched: docs

zip error: Nothing to do! (try: zip -r docs.zip . -i docs)
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment/docs$ zip -r docs.zip . -i docs
zip warning: zip file empty
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment/docs$ cd ..
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment$ zip -r docs.zip docs
  adding: docs/ (stored 0%)
  adding: docs/docs.zip (stored 0%)
  adding: docs/file2.txt (stored 0%)
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment$ unzip docs.zip -d docs1
Archive: docs.zip
  creating: docs1/docs/
 extracting: docs1/docs/docs.zip
 extracting: docs1/docs/file2.txt
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment$ cd docs1
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment/docs1$ nano file1.txt
cdac@DESKTOP-OLOQR0A:~/LinuxAssignment/docs1$
```