Os Assignment 1

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Problem1.

a) **Navigate and List:**

Start by navigating to your home directory and list its contents. Then, move into a directory named "LinuxAssignment" if it exists; otherwise, create it.

```
user1@LAPTOP-APOUMR7Q:/home/cdac$ cd ..
user1@LAPTOP-APOUMR7Q:/home$ cd ..
user1@LAPTOP-APOUMR7Q:/$ cd ..
user1@LAPTOP-APOUMR7Q:/$ cd ~
user1@LAPTOP-APOUMR7Q:~$ pwd
/home/user1
user1@LAPTOP-APOUMR7Q:~$ su cdac
Password:
cdac@LAPTOP-APOUMR7Q:/home/user1$ cd ..
cdac@LAPTOP-APOUMR7Q:/home$ cd ..
cdac@LAPTOP-APOUMR7Q:/$ cd ~
cdac@LAPTOP-APOUMR7Q:~$ pwd
/home/cdac
cdac@LAPTOP-APOUMR7Q:~$ ls
demo1.txt  folder1
cdac@LAPTOP-APOUMR7Q:~$ mkdir linuxAssignment
cdac@LAPTOP-APOUMR7Q:~$ ls
demo1.txt  folder1  linuxAssignment
cdac@LAPTOP-APOUMR7Q:~$
```

b) **File Management:**

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

```
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ cd ..
cdac@LAPTOP-APOUMR7Q:~$ ls
demo1.txt  folder1  linuxAssignment
cdac@LAPTOP-APOUMR7Q:~$ cd linuxAssignment
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ touch file1.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ ls
file1.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ nano file1.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ cat file1.txt
You are in file1.txt
Hello
Good
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$
```

c) **Directory Management:**

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

```
cdac@LAPTOP-APOUMR7Q:~$ ls
demo1.txt  folder1  linuxAssignment
cdac@LAPTOP-APOUMR7Q:~$ cd linuxAssignment/
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ ls
file1.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ mkdir docs
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ ls
docs  file1.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$
```

d) **Copy and Move Files:**

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

```
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ ls
docs  file1.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ cp file1.txt docs
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ ls
docs  file1.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ cd docs
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment/docs$ ls
file1.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment/docs$ mv file1.txt file2.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment/docs$ ls
file2.txt
cdac@LAPTOP-APOUMR7Q:~/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-APOUMR7Q:~/linuxAssignment/docs$ ls -l
total 4
-rw-rw-r-- 1 cdac cdac 32 Aug 28 19:12 file2.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment/docs$ chmod u+x file2.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment/docs$ ls -l
total 4
-rwxrw-r-- 1 cdac cdac 32 Aug 28 19:12 file2.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment/docs$ chmod g-w file2.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment/docs$ ls -l
total 4
-rwxr--r-- 1 cdac cdac 32 Aug 28 19:12 file2.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment/docs$ chown cdac file2.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment/docs$ ls -l
total 4
-rwxr--r-- 1 cdac cdac 32 Aug 28 19:12 file2.txt
cdac@LAPTOP-APOUMR7Q:~/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@LAPTOP-APOUMR7Q:~$ ls
demo1.txt  folder1  linuxAssignment
cdac@LAPTOP-APOUMR7Q:~$ cd linuxAssignment/
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ ls
docs  file1.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ ls -l
total 8
drwxrwxr-x 2 cdac cdac 4096 Aug 28 19:15 docs
-rw-rw-r-- 1 cdac cdac   32 Aug 28 19:04 file1.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ cd ..
cdac@LAPTOP-APOUMR7Q:~$ cd .
cdac@LAPTOP-APOUMR7Q:~$ cd ..
cdac@LAPTOP-APOUMR7Q:/home$ cd ..
cdac@LAPTOP-APOUMR7Q:/$ cd ~
cdac@LAPTOP-APOUMR7Q:~$ pwd
/home/cdac
cdac@LAPTOP-APOUMR7Q:~$ ls -l
total 8
-rw-r--r-- 1 cdac cdac    0 Aug 28 10:27 demo1.txt
drwxr-xr-x 2 cdac cdac 4096 Aug 28 10:25 folder1
drwxrwxr-x 3 cdac cdac 4096 Aug 28 19:06 linuxAssignment
cdac@LAPTOP-APOUMR7Q:~$
```

g) **File Searching:**

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

```
cdac@LAPTOP-APOUMR7Q:~$ pwd
/home/cdac
cdac@LAPTOP-APOUMR7Q:~$ find . -name '*.txt'
./demo1.txt
./linuxAssignment/file1.txt
./linuxAssignment/docs/file2.txt
cdac@LAPTOP-APOUMR7Q:~$
```

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

```
cdac@LAPTOP-APOUMR7Q:~$ pwd
/home/cdac
cdac@LAPTOP-APOUMR7Q:~$ find . -name '*.txt'
./demo1.txt
./linuxAssignment/file1.txt
./linuxAssignment/docs/file2.txt
cdac@LAPTOP-APOUMR7Q:~$ ls
demo1.txt  folder1  linuxAssignment
cdac@LAPTOP-APOUMR7Q:~$ cd linuxAssignment/
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ ls
docs  file1.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ nano searchText.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ echo searchText.txt
searchText.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ cat searchText.txt
This is the day
Cat have four legs
Mouse have four legs
Good Morning
Humans have two legs
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ grep four searchText.txt
Cat have four legs
Mouse have four legs
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ grep -n four searchText.txt
2:Cat have four legs
3:Mouse have four legs
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$
```

h) System Information:

a. Display the current system date and time

```
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ date
Wed Aug 28 20:18:56 IST 2024
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$
```

i) Networking:

a. Display the IP address of the system.

```
cdac@LAPTOP-APOUMR7Q:~$ ifconfig
Command 'ifconfig' not found, but can be installed with:
sudo apt install net-tools
cdac@LAPTOP-APOUMR7Q:~$ sudo apt install net-tools
[sudo] password for cdac:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  net-tools
0 upgraded, 1 newly installed, 0 to remove and 57 not upgraded.
Need to get 204 kB of archives.
After this operation, 819 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu jammy/main amd64 net-tools amd64 1.60+git20181103.0eebece-1ubuntu5 [204 kB]
Fetched 204 kB in 3s (70.9 kB/s)
Selecting previously unselected package net-tools.
(Reading database ... 24206 files and directories currently installed.)
Preparing to unpack .../net-tools_1.60+git20181103.0eebece-1ubuntu5_amd64.deb ...
Unpacking net-tools (1.60+git20181103.0eebece-1ubuntu5) ...
Setting up net-tools (1.60+git20181103.0eebece-1ubuntu5) ...
Processing triggers for man-db (2.10.2-1) ...
cdac@LAPTOP-APOUMR7Q:~$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 172.29.59.15  netmask 255.255.240.0  broadcast 172.29.63.255
        inet6 fe80::215:5dff:fea3:5f5f  prefixlen 64  scopeid 0x20<link>
        ether 00:15:5d:a3:5f:5f  txqueuelen 1000  (Ethernet)
        RX packets 97992  bytes 225846651 (225.8 MB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 41793  bytes 3794043 (3.7 MB)
        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
```

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

```
Try: sudo apt install <deb name>
cdac@LAPTOP-APOUMR7Q:~$ ping www.youtube.com
PING youtube-ui.l.google.com (142.250.183.110) 56(84) bytes of data.
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=1 ttl=116 time=184 ms
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=2 ttl=116 time=3.58 ms
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=3 ttl=116 time=4.01 ms
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=4 ttl=116 time=4.34 ms
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=5 ttl=116 time=5.86 ms
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=6 ttl=116 time=4.24 ms
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=7 ttl=116 time=3.75 ms
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=8 ttl=116 time=3.96 ms
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=9 ttl=116 time=4.57 ms
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=10 ttl=116 time=4.60 ms
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=11 ttl=116 time=4.59 ms
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=12 ttl=116 time=3.98 ms
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=13 ttl=116 time=5.85 ms
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=14 ttl=116 time=6.15 ms
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=15 ttl=116 time=6.58 ms
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=16 ttl=116 time=7.61 ms
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=17 ttl=116 time=8.64 ms
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=18 ttl=116 time=3.53 ms
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=19 ttl=116 time=3.78 ms
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=20 ttl=116 time=4.11 ms
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=21 ttl=116 time=4.21 ms
64 bytes from bom12s13-in-f14.1e100.net (142.250.183.110): icmp_seq=22 ttl=116 time=4.48 ms
^C
--- youtube-ui.l.google.com ping statistics ---
22 packets transmitted, 22 received, 0% packet loss, time 21035ms
rtt min/avg/max/mdev = 3.525/13.016/183.955/37.325 ms
cdac@LAPTOP-APOUMR7Q:~$
```

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@LAPTOP-APOUMR7Q:~/linuxAssignment$ zip docsZip docs
  adding: docs/ (stored 0%)
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ ls
docs  docsZip.zip  file1.txt  searchText.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ mkdir zipContent
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ ls
docs  docsZip.zip  file1.txt  searchText.txt  zipContent
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ unzip docsZip.zip -d zipContent/
Archive:  docsZip.zip
   creating: zipContent/docs/
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ ls
docs  docsZip.zip  file1.txt  searchText.txt  zipContent
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ cd zipContent
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment/zipContent$ ls
docs
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment/zipContent$
```

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@LAPTOP-APOUMR7Q:~/linuxAssignment/zipContent$ cd ..
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ ls
docs  docsZip.zip  file1.txt  searchText.txt  zipContent
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ nano file1.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ cat file1.txt
You are in file1.txt
Hello
Good Morning

cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ sed -i 's/Morning/Night/' file1.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ cat file1.txt
You are in file1.txt
Hello
Good Night

cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$
```

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-APOUMR7Q:~$ ls
demo1.txt  folder1  linuxAssignment
cdac@LAPTOP-APOUMR7Q:~$ cd linuxAssignment
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ ls
docs  docsZip.zip  file1.txt  searchText.txt  zipContent
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ touch data.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ ls
data.txt  docs  docsZip.zip  file1.txt  searchText.txt  zipContent
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ nano data.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ head data.txt
This if first line
second line
Third line
fourth line
fifth line
sixth line
seventh line
eigth line
nine line
tenth line
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$
```

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-APOUMR7Q:~/linuxAssignment$ ls
data.txt  docs  docsZip.zip  file1.txt  searchText.txt  zipContent
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ tail -5 data.txt
seventh line
eigth line
nine line
tenth line
eleventh line
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$
```

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-APOUMR7Q:~/linuxAssignment$ ls
data.txt  docs  docsZip.zip  file1.txt  searchText.txt  zipContent
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ touch numbers.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ nano numbers.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ head -15 numbers.txt
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$
```

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

```
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ ls
data.txt  docs  docsZip.zip  file1.txt  numbers.txt  searchText.txt  zipContent
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ tail -3 numbers.txt
18
19
20
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$
```

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-APOUMR7Q:~/linuxAssignment$ ls
data.txt  docs  docsZip.zip  file1.txt  numbers.txt  searchText.txt  zipContent
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ touch input.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ nano input.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ tr '[:lower:]' '[:upper:]' < input.txt > output.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ ls
data.txt  docs  docsZip.zip  file1.txt  input.txt  numbers.txt  output.txt  searchText.txt  zipContent
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ cat input.txt
you are inside the input.txt file
good Morning
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ cat output.txt
YOU ARE INSIDE THE INPUT.TXT FILE
GOOD MORNING
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$
```

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@LAPTOP-APOUMR7Q:~/linuxAssignment$ ls
data.txt  docs  docsZip.zip  file1.txt  happy.txt  input.txt  numbers.txt  output.txt  searchText.txt  zipContent
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ touch duplicate.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ nano duplicate.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ cat duplicate.txt | sort | uniq
Happy birthday to you
Happy birthday, dear person
cdac@LAPTOP-APOUMR7Q:~/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-APOUMR7Q:~/linuxAssignment$ ls
data.txt  docs  docsZip.zip  duplicate.txt  file1.txt  happy.txt  input.txt  numbers.txt  output.txt  searchText.txt  zipContent
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ touch fruit.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ nano fruit.txt
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$ cat fruit.txt | sort | uniq -c
      3 apple
      2 banana
      2 kiwi
      2 orange
      2 pineapple
      1 pomogranate
cdac@LAPTOP-APOUMR7Q:~/linuxAssignment$
```