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Assignment No 1

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.**
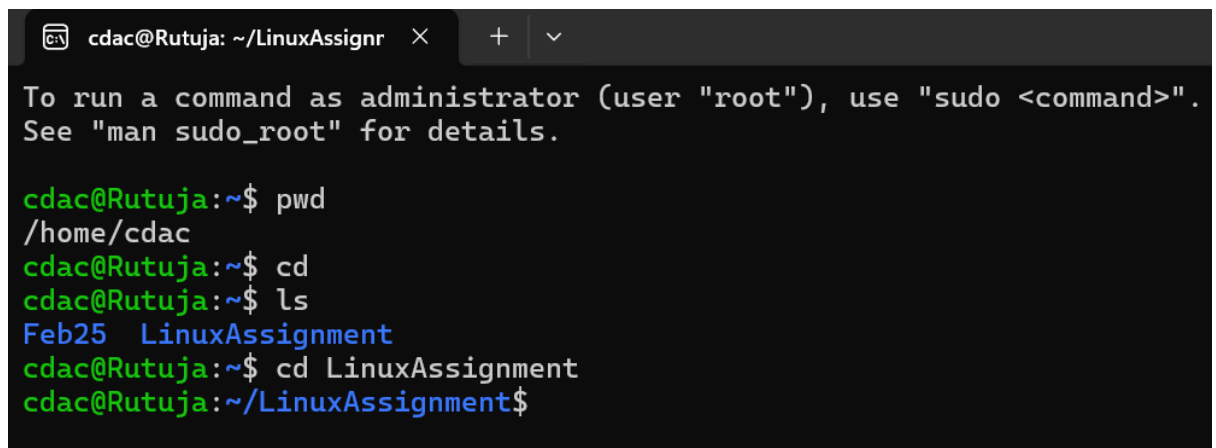
cdac@Rutuja:~$ pwd

/home/cdac

cdac@Rutuja:~$ cd

cdac@Rutuja:~$ ls

Feb25 LinuxAssignment

cdac@Rutuja:~$ cd LinuxAssignment

cdac@Rutuja:~/LinuxAssignment$

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

cdac@Rutuja:~$ cd LinuxAssignment

cdac@Rutuja:~/LinuxAssignment$ touch file1.text

cdac@Rutuja:~/LinuxAssignment$ cat file1.text

cdac@Rutuja:~/LinuxAssignment$ nano file1.text

cdac@Rutuja:~/LinuxAssignment$ cat file1.text

this is file1

Rutuja

Gaikwad

CDAC Mumbai

Feb 2025

```
cdac@Rutuja:~$ cd LinuxAssignment
cdac@Rutuja:~/LinuxAssignment$ touch file1.text
cdac@Rutuja:~/LinuxAssignment$ cat file1.text
cdac@Rutuja:~/LinuxAssignment$ nano file1.text
cdac@Rutuja:~/LinuxAssignment$ cat file1.text
this is file1
Rutuja
Gaikwad
CDAC Mumbai
Feb 2025
cdac@Rutuja:~/LinuxAssignment$ |
```

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

cdac@Rutuja:~/LinuxAssignment$ cd ..

cdac@Rutuja:~$ cd LinuxAssignment

cdac@Rutuja:~/LinuxAssignment$ mkdir docs

cdac@Rutuja:~/LinuxAssignment$ ls

docs file1.text

cdac@Rutuja:~/LinuxAssignment$

```
cdac@Rutuja:~/LinuxAssignment$ cd ..
cdac@Rutuja:~$ cd LinuxAssignment
cdac@Rutuja:~/LinuxAssignment$ mkdir docs
cdac@Rutuja:~/LinuxAssignment$ ls
docs   file1.text
cdac@Rutuja:~/LinuxAssignment$
```

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

cdac@Rutuja:~/LinuxAssignment$ date

Thu Feb 27 08:40:39 IST 2025

```
cdac@Rutuja:~/LinuxAssignment$ date
Thu Feb 27 08:40:39 IST 2025
cdac@Rutuja:~/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).

```
   Connection-specific DNS Suffix   . :
   Link-local IPv6 Address . . . . . : fe80::2ea5:15fd:3ee9:e753%43
   IPv4 Address. . . . . . . . . . . : 172.29.112.1
   Subnet Mask . . . . . . . . . . . : 255.255.240.0
   Default Gateway . . . . . . . . . :

Wireless LAN adapter Local Area Connection* 1:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix   . :

Wireless LAN adapter Local Area Connection* 2:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix   . :

Wireless LAN adapter WiFi:

   Connection-specific DNS Suffix   . :
   IPv6 Address. . . . . . . . . . . : 2409:40c2:5042:bd9e:5ba6:4a01:2368:e09c
   Temporary IPv6 Address. . . . . . : 2409:40c2:5042:bd9e:d4:af07:8eae:3a5d
   Link-local IPv6 Address . . . . . : fe80::59f4:5e4c:606b:cf6a%11
   IPv4 Address. . . . . . . . . . . : 192.168.149.163
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : fe80::6045:b3ff:feef:24af%11
                                       192.168.149.161
cdac@Rutuja:~$ |
```

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@Rutuja:~/LinuxAssignment$ cat file2.txt
cdac@Rutuja:~/LinuxAssignment$ chmod 744 file2.txt
cdac@Rutuja:~/LinuxAssignment$ |
```

f) Final Checklist: a. Finally, list the contents of the "LinuxAssignment" directory and the root directory to ensure that all operations wereperformance

correctly.

```
cdac@Rutuja:~/LinuxAssignment$ ls -l
total 4
-rw-r--r-- 1 cdac cdac 36 Feb 27 18:14 file1.txt
-rwxr--r-- 1 cdac cdac  0 Feb 27 18:32 file2.txt
cdac@Rutuja:~/LinuxAssignment$ ls -la /
total 804
drwxr-xr-x  19 root root    4096 Feb 27 18:11 .
drwxr-xr-x  19 root root    4096 Feb 27 18:11 ..
lrwxrwxrwx   1 root root       7 May 31  2023 bin -> usr/bin
drwxr-xr-x   2 root root    4096 May 31  2023 boot
drwxr-xr-x   8 root root    2940 Feb 27 17:22 dev
-rw-r--r--   1 cdac cdac      43 Feb 27 17:57 docs
drwxr-xr-x  98 root root    4096 Feb 27 17:22 etc
drwxr-xr-x   3 root root    4096 Feb 24 18:11 home
-rwxr-xr-x   2 root root 1440152 Feb 24 17:51 init
lrwxrwxrwx   1 root root       7 May 31  2023 lib -> usr/lib
lrwxrwxrwx   1 root root       9 May 31  2023 lib32 -> usr/lib32
lrwxrwxrwx   1 root root       9 May 31  2023 lib64 -> usr/lib64
lrwxrwxrwx   1 root root      10 May 31  2023 libx32 -> usr/libx32
drwx------   2 root root   16384 Apr 10  2019 lost+found
drwxr-xr-x   2 root root    4096 May 31  2023 media
drwxr-xr-x   5 root root    4096 Feb 24 18:10 mnt
drwxr-xr-x   2 root root    4096 May 31  2023 opt
dr-xr-xr-x 169 root root       0 Feb 27 17:22 proc
drwx------   2 root root    4096 May 31  2023 root
drwxr-xr-x   7 root root     140 Feb 27 18:07 run
lrwxrwxrwx   1 root root       8 May 31  2023 sbin -> usr/sbin
drwxr-xr-x   6 root root    4096 May 31  2023 snap
drwxr-xr-x   2 root root    4096 May 31  2023 srv
dr-xr-xr-x  11 root root       0 Feb 27 17:21 sys
drwxrwxrwt   2 root root    4096 Feb 27 17:22 tmp
drwxr-xr-x  14 root root    4096 May 31  2023 usr
drwxr-xr-x  13 root root    4096 May 31  2023 var
```

g) File Searching:

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

```
cdac@Rutuja:~$ find . -type f -name "*.txt"
./LinuxAssignment/file1.txt
./LinuxAssignment/file2.txt
```

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

```
cdac@Rutuja:~$ cd LinuxAssignment
cdac@Rutuja:~/LinuxAssignment$ grep "Rutuja" file1.txt
Rutuja
cdac@Rutuja:~/LinuxAssignment$ |
```

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@Rutuja:~$ zip -r docs.zip docs
  adding: docs/ (stored 0%)
cdac@Rutuja:~$ mkdir ext_docs
cdac@Rutuja:~$ unzip docs.zip -d ext_docs
Archive:  docs.zip
   creating: ext_docs/docs/
cdac@Rutuja:~$ |
```

k) File Editing:

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

```
cdac@Rutuja:~$ cd LinuxAssignment
cdac@Rutuja:~/LinuxAssignment$ ls
file1.txt   file2.txt
cdac@Rutuja:~/LinuxAssignment$ nano file1.txt
cdac@Rutuja:~/LinuxAssignment$ cat file1.txt
Rutuja
Dnanath
Gaikwad
CDAC
Mumbai
cdac@Rutuja:~/LinuxAssignment$ nano file1.txt
cdac@Rutuja:~/LinuxAssignment$ cat file1.txt
Rutuja
Dnanath
Gaikwad
CDAC
Mumbai
saloni
mrunali
sakshi
cdac@Rutuja:~/LinuxAssignment$ |
```

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@Rutuja:~/LinuxAssignment$ sed -i 's/Rutuja/Prachi/g' file1.txt
cdac@Rutuja:~/LinuxAssignment$ cat file1.txt
Prachi
Dnanath
Gaikwad
CDAC
Mumbai
saloni
mrunali
sakshi
cdac@Rutuja:~/LinuxAssignment$
```

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@Rutuja:~/LinuxAssignment$ touch data.txt
cdac@Rutuja:~/LinuxAssignment$ nano data.txt
cdac@Rutuja:~/LinuxAssignment$ cat data.txt
avs
gsyhdvyw
qiydbuu
bsuiC CK
QUIGSABDU
MSAKAKLK
ksdbdya
uw,xxgsya
saidgycv
msaklicvdbhv
kldfnklvbxc
ahvdsvc
eydvdyui
iwtydcsc
TFTYdsygv

cdac@Rutuja:~/LinuxAssignment$ head -10 data.txt
avs
gsyhdvyw
qiydbuu
bsuiC CK
QUIGSABDU
MSAKAKLK
ksdbdya
uw,xxgsya
saidgycv
msaklicvdbhv
cdac@Rutuja:~/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@Rutuja:~$ cd LinuxAssignment
cdac@Rutuja:~/LinuxAssignment$ cat data.txt
avs
gsyhdvyw
qiydbuu
bsuiC CK
QUIGSABDU
MSAKAKLK
ksdbdya
uw,xxgsya
saidgycv
msaklicvdbhv
kldfnklvbxc
ahvdsvc
eydvdyui
iwtydcsc
TFTYdsygv

cdac@Rutuja:~/LinuxAssignment$ tail -5 data.txt
ahvdsvc
eydvdyui
iwtydcsc
TFTYdsygv
```

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.

```
Try 'cat --help' for more information.
cdac@Rutuja:~/docs$ cat numbers.txt
3
35
64
74
60
5
25
37
100
54
67
77
82
8
1
4
73
44
39
cdac@Rutuja:~/docs$ head -15 numbers.txt
3
35
64
74
60
5
25
37
100
54
67
77
82
8
1
```

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

```
cdac@Rutuja:~/docs$ cat numbers.txt
3
35
64
74
60
5
25
37
100
54
67
77
82
8
1
4
73
44
39
cdac@Rutuja:~/docs$ tail -3 numbers.txt
73
44
39
cdac@Rutuja:~/docs$
```

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@Rutuja:~/docs$ touch input.txt
cdac@Rutuja:~/docs$ nano input.txt
cdac@Rutuja:~/docs$ cat input.txt
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@Rutuja:~/docs$ cat input.txt | tr [a-z] [A-Z]
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@Rutuja:~/docs$ cat output.txt
cdac@Rutuja:~/docs$ cat input.txt > output.txt
cdac@Rutuja:~/docs$ cat output.txt
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@Rutuja:~/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."

```
cdac@Rutuja:~/docs$ touch duplicate.txt
cdac@Rutuja:~/docs$ nano duplicate.txt
cdac@Rutuja:~/docs$ cat duplicate.txt
cdac@Rutuja:~/docs$ cat duplicatee.txt
rutuja
dinanath
gaikawd
pune
sangli
dongarsoni
mumbai
cdac
rutuja
sangli
satara
pune
```

```
cdac@Rutuja:~/docs$ cat duplicatee.txt
rutuja
dinanath
gaikawd
pune
sangli
dongarsoni
mumbai
cdac
rutuja
sangli
satara
pune

cdac@Rutuja:~/docs$ cat duplicatee.txt | sort | uniq

cdac
dinanath
dongarsoni
gaikawd
mumbai
pune
rutuja
rutuja
sangli
satara
```

```
cdac@Rutuja:~/docs$ cd ..
cdac@Rutuja:~$ cd LinuxAssignment
cdac@Rutuja:~/LinuxAssignment$ touch fruit.txt
cdac@Rutuja:~/LinuxAssignment$ nano fruit.txt
cdac@Rutuja:~/LinuxAssignment$ cat fruit.txt
mango
apple
banana
orange
grapes
strawberry
watermelon
blueberry
mango
apple
banana

cdac@Rutuja:~/LinuxAssignment$ cat fruit.txt | sort | uniq

apple
banana
blueberry
grapes
mango
orange
strawberry
watermelon
cdac@Rutuja:~/LinuxAssignment$ |
```

```
cdac@Rutuja:~/LinuxAssignment$ cat fruit.txt | sort | uniq > fruit1.txt
cdac@Rutuja:~/LinuxAssignment$ cat fruit1.txt

apple
banana
blueberry
grapes
mango
orange
strawberry
watermelon
cdac@Rutuja:~/LinuxAssignment$ cat -n fruit1.txt
     1
     2  apple
     3  banana
     4  blueberry
     5  grapes
     6  mango
     7  orange
     8  strawberry
     9  watermelon
```