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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@DESKTOP-OC51QE3:~$ ls -l
total 28
-rw------- 1 cdac cdac    2 Aug 27 19:58 File1.txt.save
drwxr-xr-x 2 cdac cdac 4096 Aug 27 21:24 Java
drwxr-xr-x 2 cdac cdac 4096 Aug 27 20:22 OS
-rw-r--r-- 1 cdac cdac   42 Aug 27 23:29 combined.txt
-rw------- 1 cdac cdac    1 Aug 27 19:57 file1.txt.save
-rw-r--r-- 1 cdac cdac   14 Aug 27 23:26 file1.txt.txt
-rwx---r-- 1 cdac cdac   27 Aug 27 23:07 file2.txt
cdac@DESKTOP-OC51QE3:~$ pwd
/home/cdac
cdac@DESKTOP-OC51QE3:~$ mkdir LinuxAssignments
cdac@DESKTOP-OC51QE3:~$ pwd
/home/cdac
cdac@DESKTOP-OC51QE3:~$ ls
File1.txt.save  Java  LinuxAssignments  OS  combined.txt  file1.txt.save  file1.txt.txt  file2.txt
```

b)**File Management:**

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

```
cdac@DESKTOP-OC51QE3:~$ cd LinuxAssignments
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ ls -l
total 0
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ ls > file8.txt
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ ls -l
total 4
-rw-r--r-- 1 cdac cdac 10 Aug 28 19:03 file8.txt
```

c)**Directory Management:**

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

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ mkdir Docs
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ pwd
/home/cdac/LinuxAssignments
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ cd Docs
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ pwd
/home/cdac/LinuxAssignments/Docs
```

d)**Copy and Move Files:**

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

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ cd Docs
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ pwd
/home/cdac/LinuxAssignments/Docs
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ cd ..
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ cd ..
cdac@DESKTOP-OC51QE3:~$ nano file1.txt
cdac@DESKTOP-OC51QE3:~$ mv file1.txt /LinuxAssignments/Docs
mv: cannot move 'file1.txt' to '/LinuxAssignments/Docs': No such file or directory
cdac@DESKTOP-OC51QE3:~$ cp file1.txt home/cdac/LinuxAssignments/Docs
cp: cannot create regular file 'home/cdac/LinuxAssignments/Docs': No such file or directory
cdac@DESKTOP-OC51QE3:~$ cp file1.txt /home/cdac/LinuxAssignments/Docs
cdac@DESKTOP-OC51QE3:~$ cd Docs
-bash: cd: Docs: No such file or directory
cdac@DESKTOP-OC51QE3:~$ cd LinuxAssignments
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ cd Docs
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ ls -l
total 4
-rw-r--r-- 1 cdac cdac 15 Aug 28 19:24 file1.txt
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$
```

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ cd Docs
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ ls -l
total 4
-rw-r--r-- 1 cdac cdac 15 Aug 28 19:24 file1.txt
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ mv file1.txt file2.txt
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ ls
file2.txt
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/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@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ chmod u+rwx file2.txt
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ chmod o+r file2.txt
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ ls -l
total 4
-rwxr--r-- 1 cdac cdac 15 Aug 28 19:24 file2.txt
```

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ whoami
cdac
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ chown cdac file2.txt
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ ls -l
total 4
-rwxr--r-- 1 cdac cdac 15 Aug 28 19:24 file2.txt
```

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-OC51QE3:~/LinuxAssignments/Docs$ whoami
cdac
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ chown cdac file2.txt
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ ls -l
total 4
-rwxr--r-- 1 cdac cdac 15 Aug 28 19:24 file2.txt
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ cd ..
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ ls -ls
total 8
4 drwxr-xr-x 2 cdac cdac 4096 Aug 28 19:27 Docs
4 -rw-r--r-- 1 cdac cdac   10 Aug 28 19:03 file8.txt
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ ls -l
total 8
drwxr-xr-x 2 cdac cdac 4096 Aug 28 19:27 Docs
-rw-r--r-- 1 cdac cdac   10 Aug 28 19:03 file8.txt
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ cd ..
cdac@DESKTOP-OC51QE3:~$ pwd
/home/cdac
cdac@DESKTOP-OC51QE3:~$ ls -l
total 36
-rw------- 1 cdac cdac    2 Aug 27 19:58 File1.txt.save
drwxr-xr-x 2 cdac cdac 4096 Aug 27 21:24 Java
drwxr-xr-x 3 cdac cdac 4096 Aug 28 19:15 LinuxAssignments
drwxr-xr-x 2 cdac cdac 4096 Aug 27 20:22 OS
-rw-r--r-- 1 cdac cdac   42 Aug 27 23:29 combined.txt
-rw-r--r-- 1 cdac cdac   15 Aug 28 19:21 file1.txt
-rw------- 1 cdac cdac    1 Aug 27 19:57 file1.txt.save
-rw-r--r-- 1 cdac cdac   14 Aug 27 23:26 file1.txt.txt
-rwx---r-- 1 cdac cdac   27 Aug 27 23:07 file2.txt
```

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@DESKTOP-OC51QE3:~$ pwd
/home/cdac
cdac@DESKTOP-OC51QE3:~$ find . -type f -name "*.txt"
./file1.txt.txt
./file2.txt
./LinuxAssignments/Docs/file2.txt
./LinuxAssignments/file8.txt
./combined.txt
./file1.txt
cdac@DESKTOP-OC51QE3:~$ cd LinuxAssignments
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ find . -type f -name "*.txt"
./Docs/file2.txt
./file8.txt
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ cd Docs
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ find . -type f -name "*.txt"
./file2.txt
```

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ grep is file2.txt
This is file1.
This will be saved.
```

h)**System Information:**

a.Display the current system date and time.

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ date
Wed Aug 28 20:02:24 IST 2024
```

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-OC51QE3:~/LinuxAssignments/Docs$ ip addr
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
    inet 10.255.255.254/32 brd 10.255.255.254 scope global 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:cc:9d:44 brd ff:ff:ff:ff:ff:ff
    inet 172.21.200.180/20 brd 172.21.207.255 scope global eth0
       valid_lft forever preferred_lft forever
    inet6 fe80::215:5dff:fecc:9d44/64 scope link
       valid_lft forever preferred_lft forever
```

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=60 time=9.17 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=60 time=3.78 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=60 time=3.90 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=60 time=5.97 ms
64 bytes from 8.8.8.8: icmp_seq=5 ttl=60 time=3.42 ms
64 bytes from 8.8.8.8: icmp_seq=6 ttl=60 time=3.49 ms
64 bytes from 8.8.8.8: icmp_seq=7 ttl=60 time=3.48 ms
64 bytes from 8.8.8.8: icmp_seq=8 ttl=60 time=3.67 ms
64 bytes from 8.8.8.8: icmp_seq=9 ttl=60 time=3.83 ms
64 bytes from 8.8.8.8: icmp_seq=10 ttl=60 time=2.98 ms
64 bytes from 8.8.8.8: icmp_seq=11 ttl=60 time=3.50 ms
64 bytes from 8.8.8.8: icmp_seq=12 ttl=60 time=3.69 ms
64 bytes from 8.8.8.8: icmp_seq=13 ttl=60 time=3.43 ms
64 bytes from 8.8.8.8: icmp_seq=14 ttl=60 time=3.92 ms
64 bytes from 8.8.8.8: icmp_seq=15 ttl=60 time=3.89 ms
64 bytes from 8.8.8.8: icmp_seq=16 ttl=60 time=3.24 ms
64 bytes from 8.8.8.8: icmp_seq=17 ttl=60 time=3.56 ms
64 bytes from 8.8.8.8: icmp_seq=18 ttl=60 time=3.02 ms
64 bytes from 8.8.8.8: icmp_seq=19 ttl=60 time=3.20 ms
64 bytes from 8.8.8.8: icmp_seq=20 ttl=60 time=3.36 ms
64 bytes from 8.8.8.8: icmp_seq=21 ttl=60 time=4.32 ms
64 bytes from 8.8.8.8: icmp_seq=22 ttl=60 time=3.83 ms
```

ping).

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@DESKTOP-OC51QE3:~$ sudo apt install zip unzip
[sudo] password for cdac:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
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, 929 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 unzip amd64 6.0-26ubuntu3.1 [174 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy/main amd64 zip amd64 3.0-12build2 [176 kB]
Fetched 350 kB in 1s (265 kB/s)
Selecting previously unselected package unzip.
(Reading database ... 24208 files and directories currently installed.)
Preparing to unpack .../unzip_6.0-26ubuntu3.1_amd64.deb ...
Unpacking unzip (6.0-26ubuntu3.1) ...
Selecting previously unselected package zip.
Preparing to unpack .../zip_3.0-12build2_amd64.deb ...
Unpacking zip (3.0-12build2) ...
Setting up unzip (6.0-26ubuntu3.1) ...
Setting up zip (3.0-12build2) ...
Processing triggers for man-db (2.10.2-1) ...
```

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ zip -r docs.zip Docs
  adding: Docs/ (stored 0%)
  adding: Docs/file2.txt (deflated 6%)
```

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ unzip docs.zip
Archive:  docs.zip
replace Docs/file2.txt? [y]es, [n]o, [A]ll, [N]one, [r]ename: no
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ unzip docs.zip
Archive:  docs.zip
replace Docs/file2.txt? [y]es, [n]o, [A]ll, [N]one, [r]ename: y
  inflating: 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@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ sed -i 's/This/There/g' file2.txt
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ cat file2.txt
There is file1.

There will be saved.
```

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@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ head -10 file2.txt
This is file1.
This will be saved.
Everyone says they love nature until they realize how dangerous she can be.
This book is sure to liquefy your brain.
The Great Dane looked more like a horse than a dog.
Everyone was curious about the large white blimp that appeared overnight.
The blue parrot drove by the hitchhiking mongoose.
She did her best to help him.
At that moment I was the most fearsome weasel in the entire swamp.
I was fishing for compliments and accidentally caught a trout.
```

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@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ tail -10 file2.txt
This book is sure to liquefy your brain.
The Great Dane looked more like a horse than a dog.
Everyone was curious about the large white blimp that appeared overnight.
The blue parrot drove by the hitchhiking mongoose.
She did her best to help him.
At that moment I was the most fearsome weasel in the entire swamp.
I was fishing for compliments and accidentally caught a trout.
He watched the dancing piglets with panda bear tummies in the swimming pool.
I used to practice weaving with spaghetti three hours a day but stopped because I didn't want to die alone.
```

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@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ sed -n '1,15p' file2.txt
This is file1.
This will be saved.
Everyone says they love nature until they realize how dangerous she can be.
This book is sure to liquefy your brain.
The Great Dane looked more like a horse than a dog.
Everyone was curious about the large white blimp that appeared overnight.
The blue parrot drove by the hitchhiking mongoose.
She did her best to help him.
At that moment I was the most fearsome weasel in the entire swamp.
I was fishing for compliments and accidentally caught a trout.
He watched the dancing piglets with panda bear tummies in the swimming pool.
I used to practice weaving with spaghetti three hours a day but stopped beca
use I didn't want to die alone.
ABC
XYZ
PQR
```

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

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ tail -n 5 file2.txt
He watched the dancing piglets with panda bear tummies in the swimming pool.
I used to practice weaving with spaghetti three hours a day but stopped beca
use I didn't want to die alone.
ABC
XYZ
PQR
```

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@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ <file2.txt tr '[:lower:]' '[:upper:]' >output.txt
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ cat output.txt
THIS IS FILE1.
THIS WILL BE SAVED.
EVERYONE SAYS THEY LOVE NATURE UNTIL THEY REALIZE HOW DANGEROUS SHE CAN BE.
THIS BOOK IS SURE TO LIQUEFY YOUR BRAIN.
THE GREAT DANE LOOKED MORE LIKE A HORSE THAN A DOG.
EVERYONE WAS CURIOUS ABOUT THE LARGE WHITE BLIMP THAT APPEARED OVERNIGHT.
THE BLUE PARROT DROVE BY THE HITCHHIKING MONGOOSE.
SHE DID HER BEST TO HELP HIM.
AT THAT MOMENT I WAS THE MOST FEARSOME WEASEL IN THE ENTIRE SWAMP.
I WAS FISHING FOR COMPLIMENTS AND ACCIDENTALLY CAUGHT A TROUT.
HE WATCHED THE DANCING PIGLETS WITH PANDA BEAR TUMMIES IN THE SWIMMING POOL.
I USED TO PRACTICE WEAVING WITH SPAGHETTI THREE HOURS A DAY BUT STOPPED BECAUSE I DIDN'T WANT TO DIE ALONE.
ABC
XYZ
PQR
```

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@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ sort Duplicate1.txt | uniq
ABC
At that moment I was the most fearsome weasel in the entire swamp.
Duplicate file consists repeated letters.
Everyone says they love nature until they realize how dangerous she can be.
Everyone was curious about the large white blimp that appeared overnight.
He watched the dancing piglets with panda bear tummies in the swimming pool.
I used to practice weaving with spaghetti three hours a day but stopped because I didn't want to die alone.
I was fishing for compliments and accidentally caught a trout.
PQR
She did her best to help him.
The Great Dane looked more like a horse than a dog.
The blue parrot drove by the hitchhiking mongoose.
This book is sure to liquefy your brain.
This is a duplicate file.
This is file1.
This will be saved.
XYZ
```

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@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ sort Fruits.txt | uniq --count
      4 Apple
      1 Jackfruit
      2 Orange
```