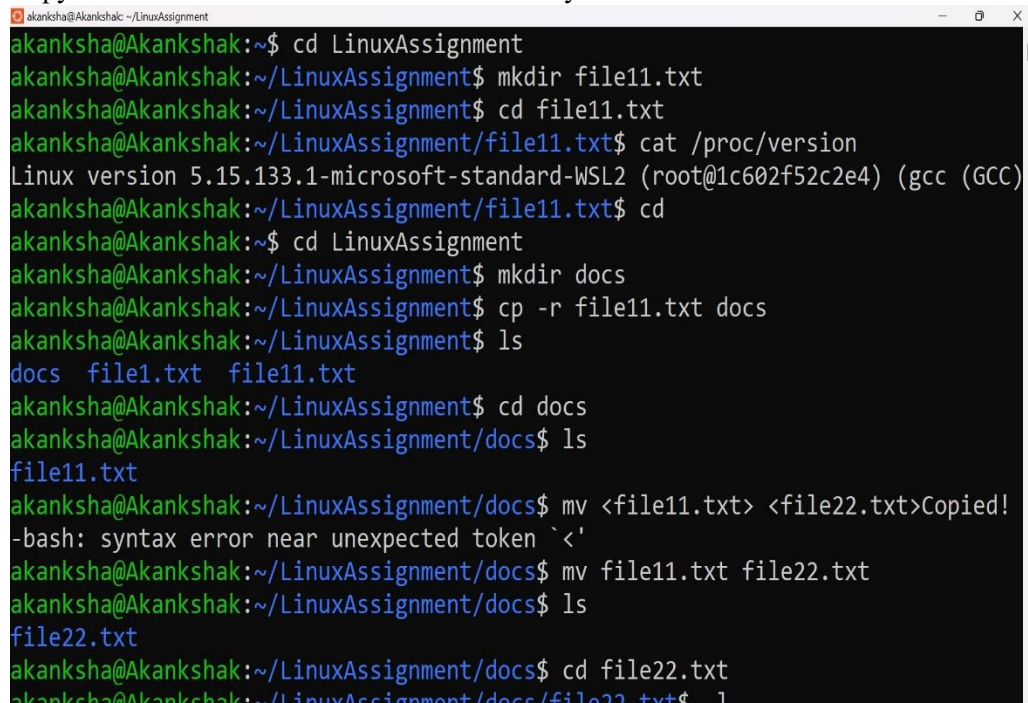


CDAC MUMBAI

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.
- 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".



```
akanksha@Akankshak:~$ cd LinuxAssignment
akanksha@Akankshak:~/LinuxAssignment$ mkdir file11.txt
akanksha@Akankshak:~/LinuxAssignment$ cd file11.txt
akanksha@Akankshak:~/LinuxAssignment/file11.txt$ cat /proc/version
Linux version 5.15.133.1-microsoft-standard-WSL2 (root@1c602f52c2e4) (gcc (GCC)
akanksha@Akankshak:~/LinuxAssignment/file11.txt$ cd
akanksha@Akankshak:~$ cd LinuxAssignment
akanksha@Akankshak:~/LinuxAssignment$ mkdir docs
akanksha@Akankshak:~/LinuxAssignment$ cp -r file11.txt docs
akanksha@Akankshak:~/LinuxAssignment$ ls
docs  file11.txt  file11.txt
akanksha@Akankshak:~/LinuxAssignment$ cd docs
akanksha@Akankshak:~/LinuxAssignment/docs$ ls
file11.txt
akanksha@Akankshak:~/LinuxAssignment/docs$ mv <file11.txt> <file22.txt>Copied!
-bash: syntax error near unexpected token `<'
akanksha@Akankshak:~/LinuxAssignment/docs$ mv file11.txt file22.txt
akanksha@Akankshak:~/LinuxAssignment/docs$ ls
file22.txt
akanksha@Akankshak:~/LinuxAssignment/docs$ cd file22.txt
akanksha@Akankshak:~/LinuxAssignment/docs/file22.txt$
```

- e)
- f) 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.

```
akanksha@Akankshak: ~/LinuxAssignment
akanksha@Akankshak:~/LinuxAssignment$ *.txt
file1.txt: command not found
akanksha@Akankshak:~/LinuxAssignment$ cd
akanksha@Akankshak:~$ *.txt
file1.txt: command not found
akanksha@Akankshak:~$ find . -type f -name *.txt
./LinuxAssignment/file1.txt/file1.txt
./file1.txt
akanksha@Akankshak:~$ pwd
/home/akanksha
akanksha@Akankshak:~$ find . -type f -name *.txt
./LinuxAssignment/file1.txt/file1.txt
./file1.txt
akanksha@Akankshak:~$ cd LinuxAssignment
akanksha@Akankshak:~/LinuxAssignment$ find . -type f -name *.txt
find: paths must precede expression: `file11.txt'
find: possible unquoted pattern after predicate `-name'?
akanksha@Akankshak:~/LinuxAssignment$
```

g)

- h) Final Checklist:
 - a. Finally, list the contents of the "LinuxAssignment" directory and the root directory to ensure that all operations were performed correctly.
- i) 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).
- j) System Information:
 - a. Display the current system date and time.
- k) Networking:
 - a. Display the IP address of the system.
 - b. Ping a remote server to check connectivity (provide a remote server address to ping).
- j) File Compression:

```
akanksha@Akankshak: ~  
akanksha@Akankshak:~$  
akanksha@Akankshak:~$ ping localhost  
PING localhost (127.0.0.1) 56(84) bytes of data:  
64 bytes from localhost (127.0.0.1): icmp_seq=1 ttl=64 time=0.038 ms  
64 bytes from localhost (127.0.0.1): icmp_seq=2 ttl=64 time=0.063 ms  
64 bytes from localhost (127.0.0.1): icmp_seq=3 ttl=64 time=0.046 ms  
64 bytes from localhost (127.0.0.1): icmp_seq=4 ttl=64 time=0.063 ms  
64 bytes from localhost (127.0.0.1): icmp_seq=5 ttl=64 time=0.036 ms  
64 bytes from localhost (127.0.0.1): icmp_seq=6 ttl=64 time=0.042 ms  
  
64 bytes from localhost (127.0.0.1): icmp_seq=7 ttl=64 time=0.115 ms  
64 bytes from localhost (127.0.0.1): icmp_seq=8 ttl=64 time=0.040 ms  
  
64 bytes from localhost (127.0.0.1): icmp_seq=9 ttl=64 time=0.026 ms  
64 bytes from localhost (127.0.0.1): icmp_seq=10 ttl=64 time=0.033 ms  
64 bytes from localhost (127.0.0.1): icmp_seq=11 ttl=64 time=0.062 ms  
64 bytes from localhost (127.0.0.1): icmp_seq=12 ttl=64 time=0.047 ms  
64 bytes from localhost (127.0.0.1): icmp_seq=13 ttl=64 time=0.063 ms  
64 bytes from localhost (127.0.0.1): icmp_seq=14 ttl=64 time=0.047 ms  
64 bytes from localhost (127.0.0.1): icmp_seq=15 ttl=64 time=0.034 ms  
64 bytes from localhost (127.0.0.1): icmp_seq=16 ttl=64 time=0.093 ms  
64 bytes from localhost (127.0.0.1): icmp_seq=17 ttl=64 time=0.068 ms
```

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

```
akanksha@Akankshak: ~/LinuxAssignment  
akanksha@Akankshak:~$ date  
Sat Mar 9 14:54:29 IST 2024  
akanksha@Akankshak:~$ hostname -I  
172.30.242.141  
akanksha@Akankshak:~$ zip -r docs.zip file22.txt  
zip warning: name not matched: file22.txt  
  
zip error: Nothing to do! (try: zip -r docs.zip . -i file22.txt)  
akanksha@Akankshak:~$ zip docs.zip  
  
zip error: Nothing to do! (docs.zip)  
akanksha@Akankshak:~$ zip docs.zip file22.txt  
zip warning: name not matched: file22.txt  
  
zip error: Nothing to do! (docs.zip)  
akanksha@Akankshak:~$ cd LinuxAssignment  
akanksha@Akankshak:~/LinuxAssignment$ cd docs  
akanksha@Akankshak:~/LinuxAssignment/docs$ ls  
docs.zip file22.txt  
akanksha@Akankshak:~/LinuxAssignment/docs$ cd  
akanksha@Akankshak:~$ cd LinuxAssignment  
akanksha@Akankshak:~/LinuxAssignment$ mkdir docs1  
akanksha@Akankshak:~/LinuxAssignment$ cd docs1  
akanksha@Akankshak:~/LinuxAssignment/docs1$ touch gayu.txt  
akanksha@Akankshak:~/LinuxAssignment/docs1$ ls  
gayu.txt  
akanksha@Akankshak:~/LinuxAssignment/docs1$ zip docs1.zip gayu.txt  
adding: gayu.txt (stored 0%)  
akanksha@Akankshak:~/LinuxAssignment/docs1$ ls  
docs1.zip gayu.txt  
akanksha@Akankshak:~/LinuxAssignment/docs1$ vim file11.txt  
akanksha@Akankshak:~/LinuxAssignment/docs1$ %s/welcome/hi/g  
-bash: fg: %s/welcome/hi/g: no such job  
akanksha@Akankshak:~/LinuxAssignment/docs1$ %s/Welcome/hi/g  
-bash: fg: %s/Welcome/hi/g: no such job  
akanksha@Akankshak:~/LinuxAssignment/docs1$ vim file11.txt  
akanksha@Akankshak:~/LinuxAssignment/docs1$ %s/Welcome/hi/g  
-bash: fg: %s/Welcome/hi/g: no such job  
akanksha@Akankshak:~/LinuxAssignment/docs1$ sed -i 's/welcome/hi/' file11.txt  
akanksha@Akankshak:~/LinuxAssignment/docs1$ vim file11.txt  
akanksha@Akankshak:~/LinuxAssignment/docs1$ cd  
akanksha@Akankshak:~$ ls -l  
total 48
```

3

```
akanksha@Akankshak: ~/LinuxAssignment/docs1
Sat Mar 9 14:54:29 IST 2024
akanksha@Akankshak:~$ hostname -I
172.30.242.141
akanksha@Akankshak:~$ zip -r docs.zip file22.txt
zip warning: name not matched: file22.txt

zip error: Nothing to do! (try: zip -r docs.zip . -i file22.txt)
akanksha@Akankshak:~$ zip docs.zip
zip error: Nothing to do! (docs.zip)
akanksha@Akankshak:~$ zip docs.zip file22.txt
zip warning: name not matched: file22.txt

zip error: Nothing to do! (docs.zip)
akanksha@Akankshak:~$ cd LinuxAssignment
akanksha@Akankshak:~/LinuxAssignment$ cd docs
akanksha@Akankshak:~/LinuxAssignment/docs$ ls
docs.zip  file22.txt
akanksha@Akankshak:~/LinuxAssignment/docs$ cd
akanksha@Akankshak:~$ cd LinuxAssignment
akanksha@Akankshak:~/LinuxAssignment$ mkdir docs1
akanksha@Akankshak:~/LinuxAssignment$ cd docs1
akanksha@Akankshak:~/LinuxAssignment/docs1$ touch gayu.txt
akanksha@Akankshak:~/LinuxAssignment/docs1$ ls
gayu.txt
akanksha@Akankshak:~/LinuxAssignment/docs1$ zip docs1.zip gayu.txt
adding: gayu.txt (stored 0%)
akanksha@Akankshak:~/LinuxAssignment/docs1$ ls
docs1.zip  gayu.txt
akanksha@Akankshak:~/LinuxAssignment/docs1$ _
```

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).

Problem 2: Read the instructions carefully and answer accordingly. If there is any need to insert some data then do that as well.

- 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.
- Now, to check the end of the file for any recent additions, display the last 5 lines of "data.txt" using another command.

```
akanksha@Akankshak: ~/LinuxAssignment
akanksha@Akankshak:~$ cd LinuxAssignment
akanksha@Akankshak:~/LinuxAssignment$ touch data.txt
akanksha@Akankshak:~/LinuxAssignment$ ls -l
total 16
-rw-r--r-- 1 akanksha akanksha 0 Mar 9 16:37 data.txt
drwxr-xr-x 3 akanksha akanksha 4096 Mar 9 14:51 docs
drwxr-xr-x 2 akanksha akanksha 4096 Mar 9 16:25 docs1
drwxr-xr-x 2 akanksha akanksha 4096 Mar 9 10:46 file1.txt
drwxr-xr-x 2 akanksha akanksha 4096 Mar 9 10:51 file11.txt
akanksha@Akankshak:~/LinuxAssignment$ cd data.txt
-bash: cd: data.txt: Not a directory
akanksha@Akankshak:~/LinuxAssignment$ vim data.txt
akanksha@Akankshak:~/LinuxAssignment$ head -n
head: option requires an argument -- 'n'
Try 'head --help' for more information.
akanksha@Akankshak:~/LinuxAssignment$ head -n data.txt
head: invalid number of lines: 'data.txt'
akanksha@Akankshak:~/LinuxAssignment$ head -10 data.txt
India is one of the strongest countries in the world
It is the seventh-largest country in the world area wise.
Second most populous country in the world.
India shares its borders with countries like Pakistan, Afghanistan.
It also shares its borders with Sri Lanka and The Maldives.
It is a secular and democratic country that respects all regions.
The people of India have the liberty to practise religion.
India believes in nonviolence and therefore, Mahatma Gandhi
Knows as the father of the nation because of his non-violent
contribution to the freedom movement of the country.
akanksha@Akankshak:~/LinuxAssignment$ tail -5 data.txt
It is a secular and democratic country that respects all regions.
The people of India have the liberty to practise religion.
India believes in nonviolence and therefore, Mahatma Gandhi
Knows as the father of the nation because of his non-violent
contribution to the freedom movement of the country.
akanksha@Akankshak:~/LinuxAssignment$ touch number.txt
akanksha@Akankshak:~/LinuxAssignment$ vim number.txt
akanksha@Akankshak:~/LinuxAssignment$ cut -c 5
akanksha@Akankshak:~/LinuxAssignment$ cut -c 5 number.txt
3
2
1
4
5
```

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

```
Assignment 1.pdf
File | C:/Users/DELL/Desktop/cdac/OS/Assignment%201.pdf
2 of 2
akanksha@Akankshak: ~/LinuxAssignment/docs$ head -n number.txt
head: invalid number of lines: 'number.txt'
akanksha@Akankshak:~/LinuxAssignment/docs$ man head
akanksha@Akankshak:~/LinuxAssignment/docs$ head -n 10 number.txt
123456789
123456789
123456789
098765432
098765432
098765432
135797531
135797531
135797531
246808642
akanksha@Akankshak:~/LinuxAssignment/docs$ man head
akanksha@Akankshak:~/LinuxAssignment/docs$ head -c head.txt
head: invalid number of bytes: 'head.txt'
akanksha@Akankshak:~/LinuxAssignment/docs$ head -c number.txt
head: invalid number of bytes: 'number.txt'
akanksha@Akankshak:~/LinuxAssignment/docs$ head -c 3 number.txt
123
akanksha@Akankshak:~/LinuxAssignment/docs$ head -n 3 | tail -n 1 number.txt
135724680
akanksha@Akankshak:~/LinuxAssignment/docs$ head -n 3 number.txt
123456789
123456789
123456789
akanksha@Akankshak:~/LinuxAssignment/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."

```
akanksha@akanksha: ~/LinuxAssignment$ cat input1.txt
gayatri kulkarn
sinhga academy of engineering pune
bachelour of engineering
computer engineering
akanksha@akanksha:~/LinuxAssignment$ sort input1.txt
bachelour of engineering
computer engineering
gayatri kulkarn
sinhga academy of engineering pune
akanksha@akanksha:~/LinuxAssignment$ cat input1.txt
gayatri kulkarn
sinhga academy of engineering pune
bachelour of engineering
computer engineering
akanksha@akanksha:~/LinuxAssignment$ tr a-z A-Z < input1.txt
GAYATRI KULKARN
SINHGA ACADEMY OF ENGINEERING PUNE
BACHELOUR OF ENGINEERING
COMPUTER ENGINEERING
akanksha@akanksha:~/LinuxAssignment$ cat duplicate.txt
gayatri kulkarn
sinhga academy of engineering pune
bachelour of engineering
computer engineering
gayatri kulkarn
sinhga academy of engineering pune
bachelour of engineering
computer engineering
gayatri kulkarn
sinhga academy of engineering pune
bachelour of engineering
computer engineering
gayatri kulkarn
sinhga academy of engineering pune
```

f.

- g. 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."

```
akanksha@akanksha:~/LinuxAssignment$ sort duplicate.txt
bachelour of engineering
bachelour of engineering
bachelour of engineering
bachelour of engineering
computer engineering
computer engineering
computer engineering
computer engineering
gayatri kulkarn
gayatri kulkarn
gayatri kulkarn
sinhga academy of engineering pune
sinhga academy of engineering pune
sinhga academy of engineering pune
sinhga academy of engineering pune
akanksha@akanksha:~/LinuxAssignment$ sort duplicate.txt | uniq
bachelour of engineering
computer engineering
gayatri kulkarn
sinhga academy of engineering pune
akanksha@akanksha:~/LinuxAssignment$ sort duplicate.txt | uniq -c
      4 bachelour of engineering
      4 computer engineering
      4 gayatri kulkarn
      4 sinhga academy of engineering pune
akanksha@akanksha:~/LinuxAssignment$ cat fruit.txt
cat: fruit.txt: No such file or directory
akanksha@akanksha:~/LinuxAssignment$ cat Fruit.txt
Orange
Apple
Graphe
Banana
Orange
```

- h. 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."

[illegible]