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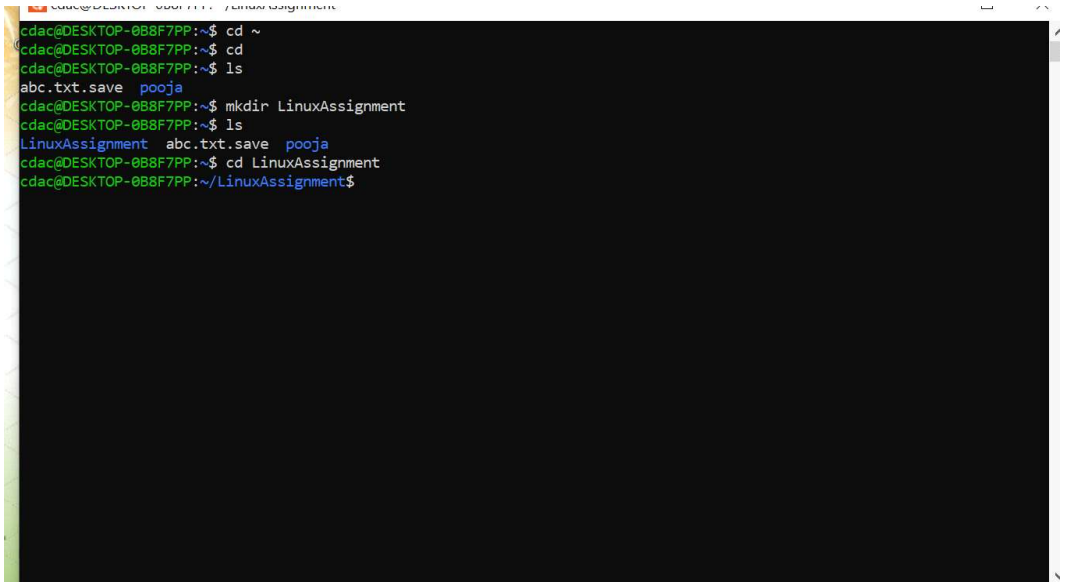
Concepts of Operating System
Assignment 1
a) Navigate and List:
a. Start by navigating to your home directory and list its contents. Then, move into a directory named "LinuxAssignment" if it exists; otherwise, create it.
Ans:
for navigating home directory we can use following command

cd or cd ~ : it used show back to home directory from anywhere in the directory.

for listing the content we can use following command:

ls : it list the content.

first create the directory by using following command:
mkdir LinuxAssignment
if already exitsts then directly move to this directory by using following command:
cd LinuxAssignment
Output:

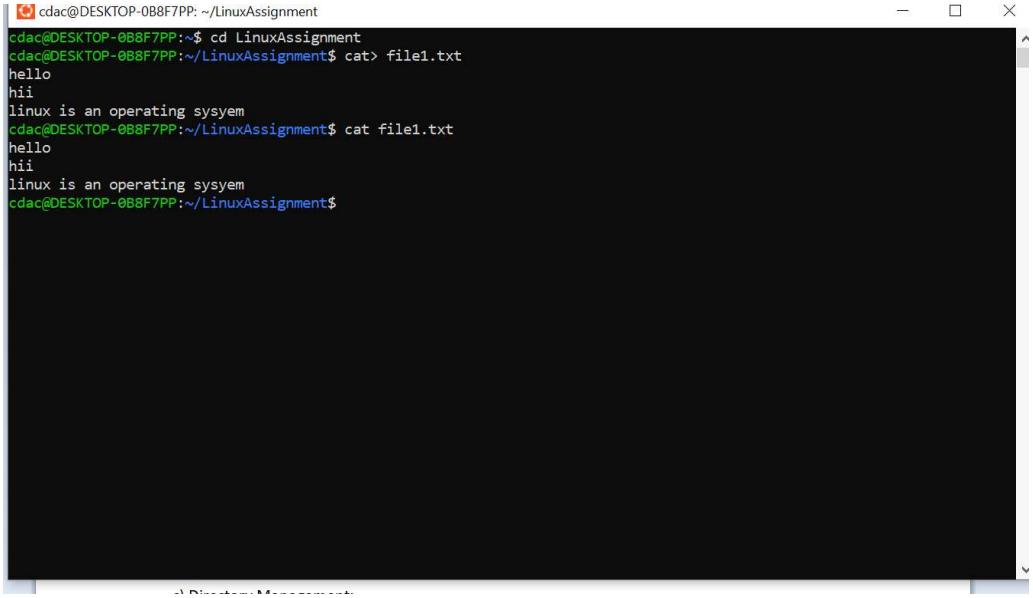


b) File Management:

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

Ans:
first we can check present working directory by using pwd command
after that if we are not in LinuxAssignment directory then we can directly write
cd LinuxAssignment command to move that directory.
for creating a new file there is so many options like touch,cat,nano,vi editor etc.
we can create file using any one comand which we want
Touch is create empty file.
cat is used to create file as well as contentof file but we cannot modify.
in nano & vi editor we can create as well as modify the data.

Output:



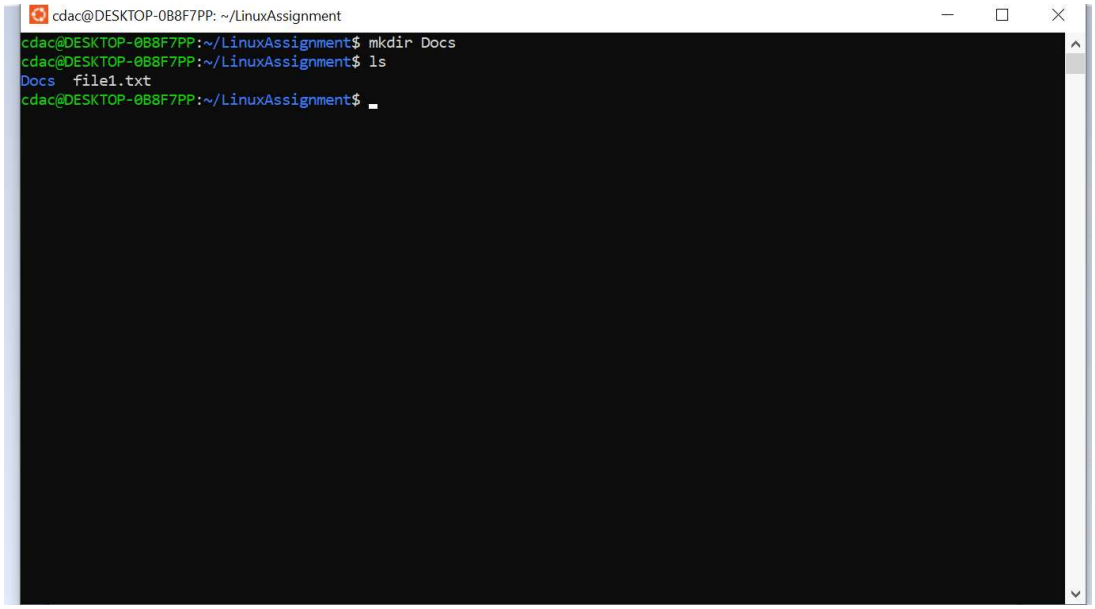
c) Directory Management:
a. Create a new directory named "docs" inside the "LinuxAssignment" directory

first we can check present working directory by using pwd command
after that if we are not in LinuxAssignment directory then we can directly write
cd LinuxAssignment command to move that directory.

create the directory by using following command:

mkdir Docs

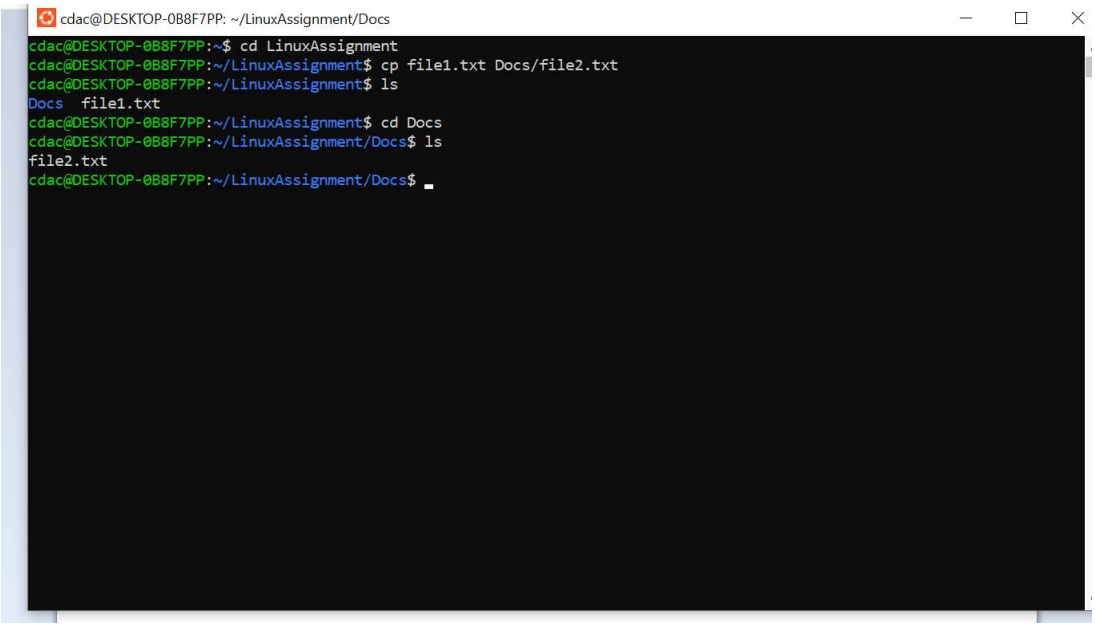
Output:



d) Copy and Move Files:
a. Copy the "file1.txt" file into the "docs" directory and rename it to "file2.txt".

Ans:
cp file1.txt Docs/file2.txt

Output:



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.

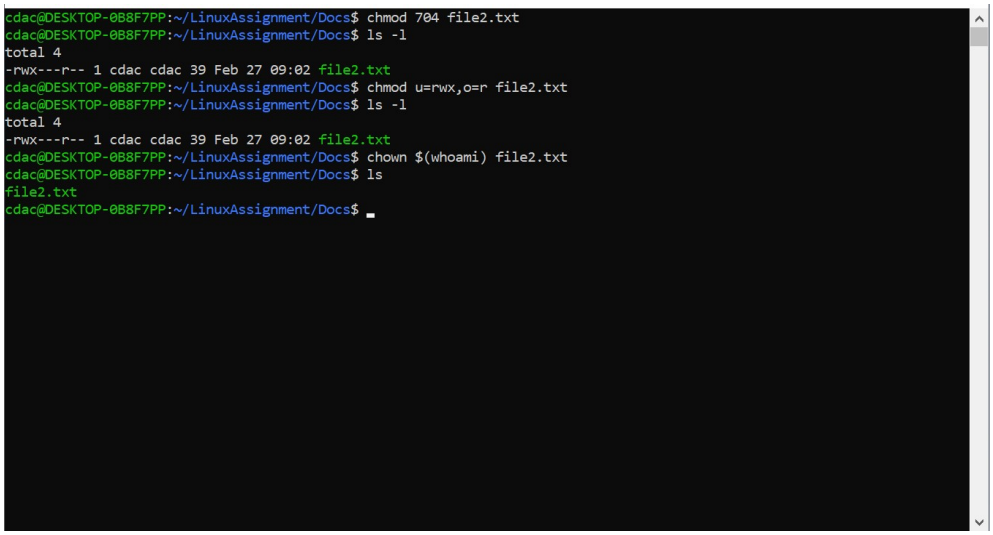
Ans:
for changing the permission of file we need to use the chmod command.
chmod command is used to change the file or directory access **permissions.**
standard permissions is 755
read - 4
write - 2
execute - 1
this are the permissins of files.
777 means all the permissions to that file
according to question we need all permisssions to user and only read permissin to others.

chmod 704 file2.txt

OR

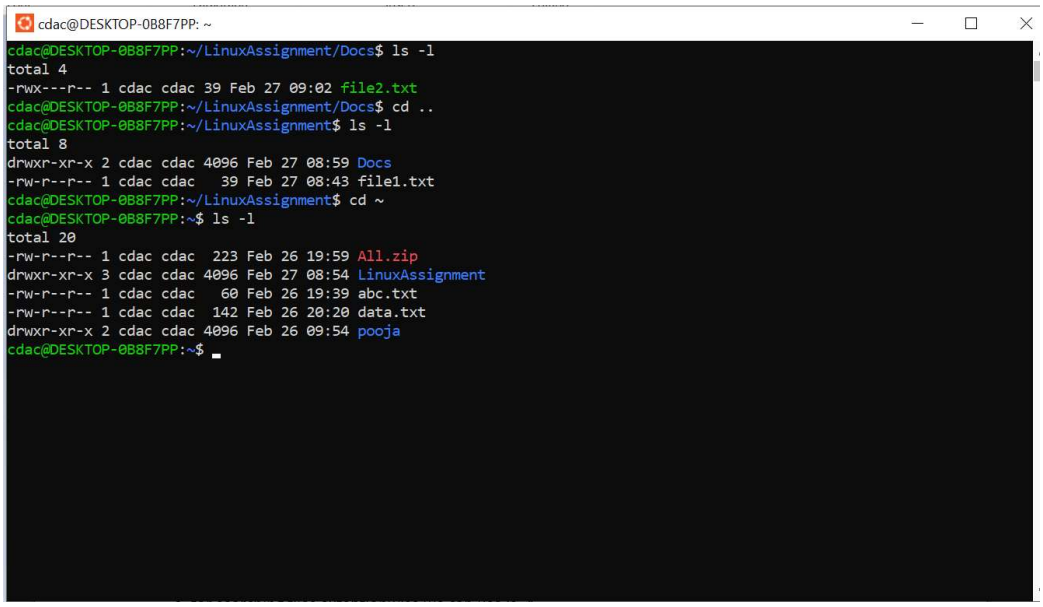
chmod u=rwx,o=r file2.txt
to change the user of file we can use chown command
chown $(whoami) file2.txt

output:



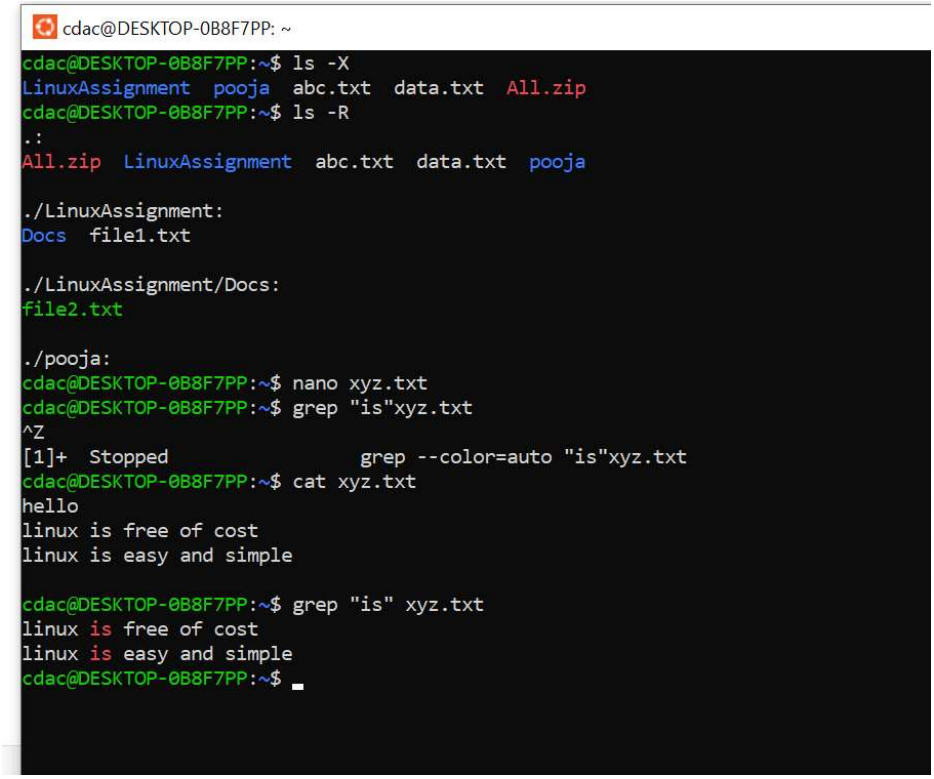
f) Final Checklist:
a. Finally, list the contents of the "LinuxAssignment" directory and the root directory to
ensure that all operations were performed correctly.

Ans:



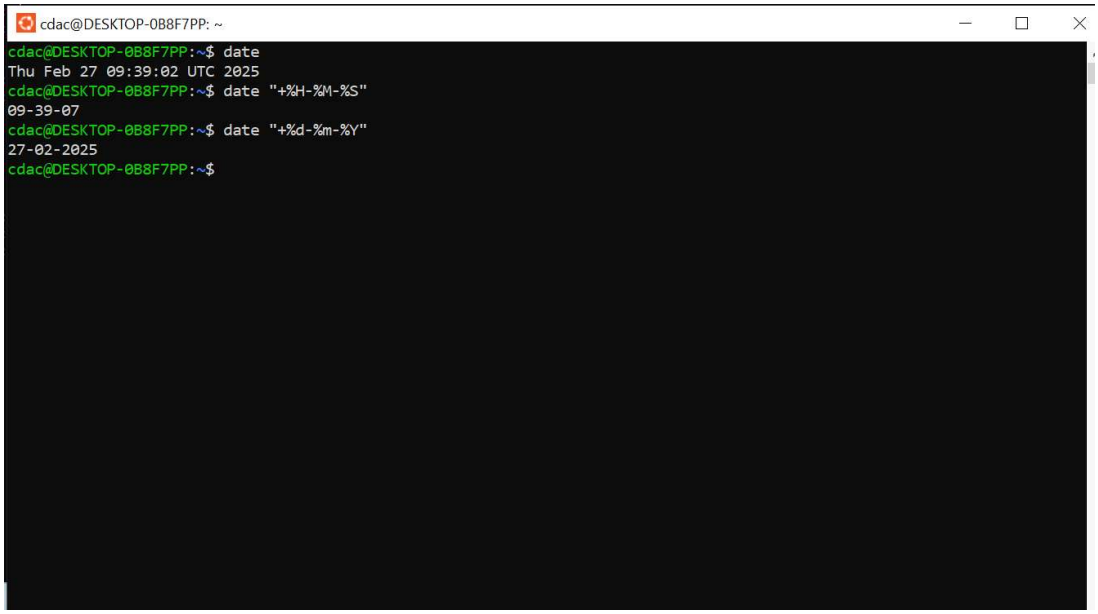
g) File Searching:
a. Search for all files with the extension ".txt" in the current directory and its subdirectories.
b. Display lines containing a specific word in a file (provide a file name and the specific
word to search)

Ans:
a. for searching files extentionwise we can use **ls -X**
for **ls -R**
is used to display content of subdirectory recursively.
b.
to print specific word in file we can use grep command
grep "is"(any word you want to search) abc.txt
Output:



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

Ans
we can use **date** command
Output:

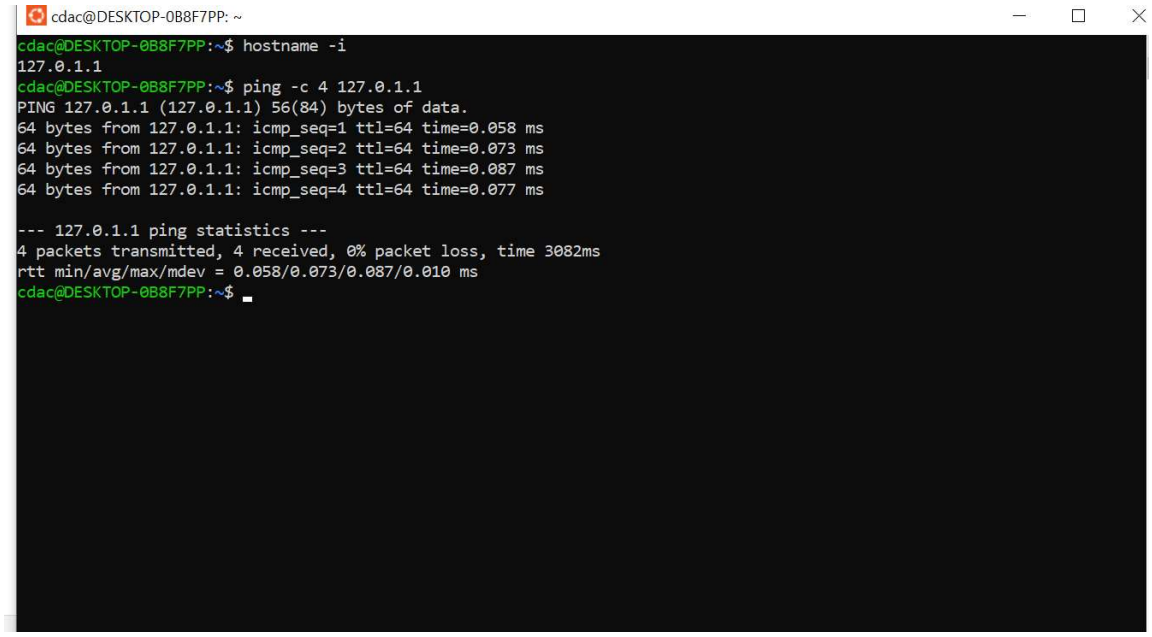


i) Networking:
a. Display the IP address of the system.
b. Ping a remote server to check connectivity (provide a remote server address to ping).

Ans:
a.
To display Ip address of system we can use **hostname -i** command

b.
ping command is used to check remote server is running or not

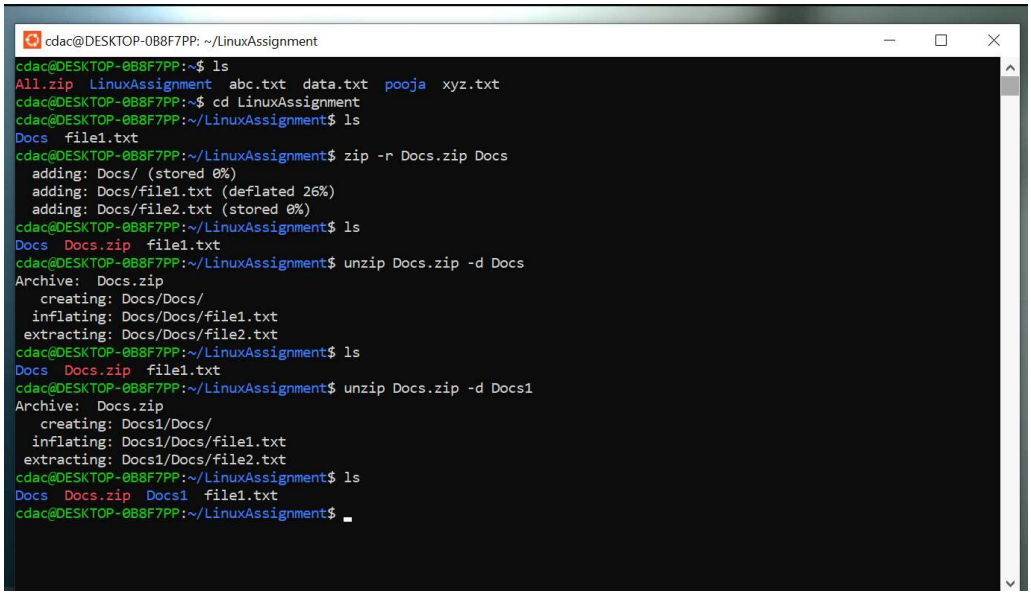
Output:



j) File Compression:
a. Compress the "docs" directory into a zip file.
b. Extract the contents of the zip file into a new directory.

Ans:
for compressing file we can use **zip** command.
for extract the content of zip file we can use **unzip** command.

Output:

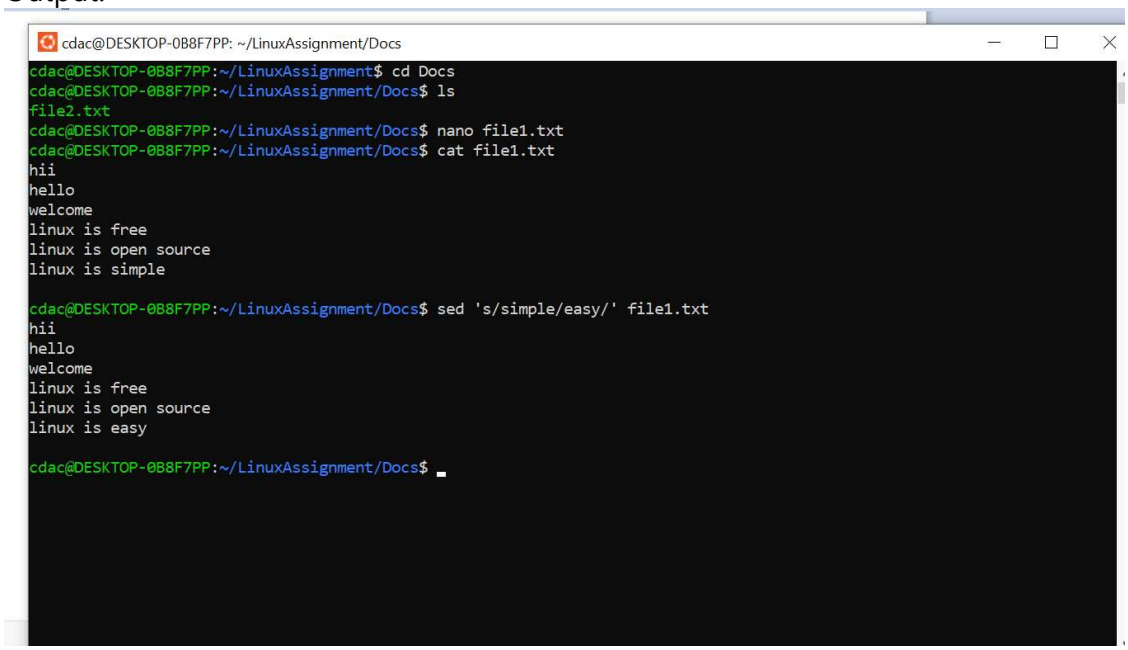


k) File Editing:

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).

Output:



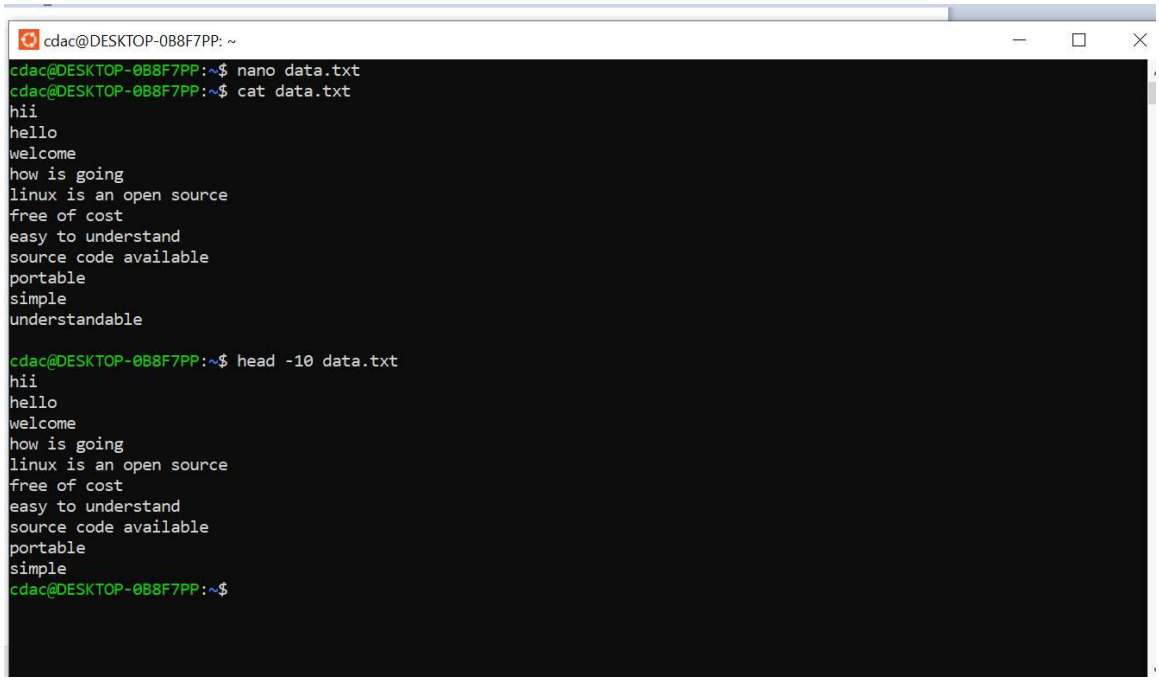
Problem 2:

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.

Ans:

by using **head** command we can print first 10 lines.

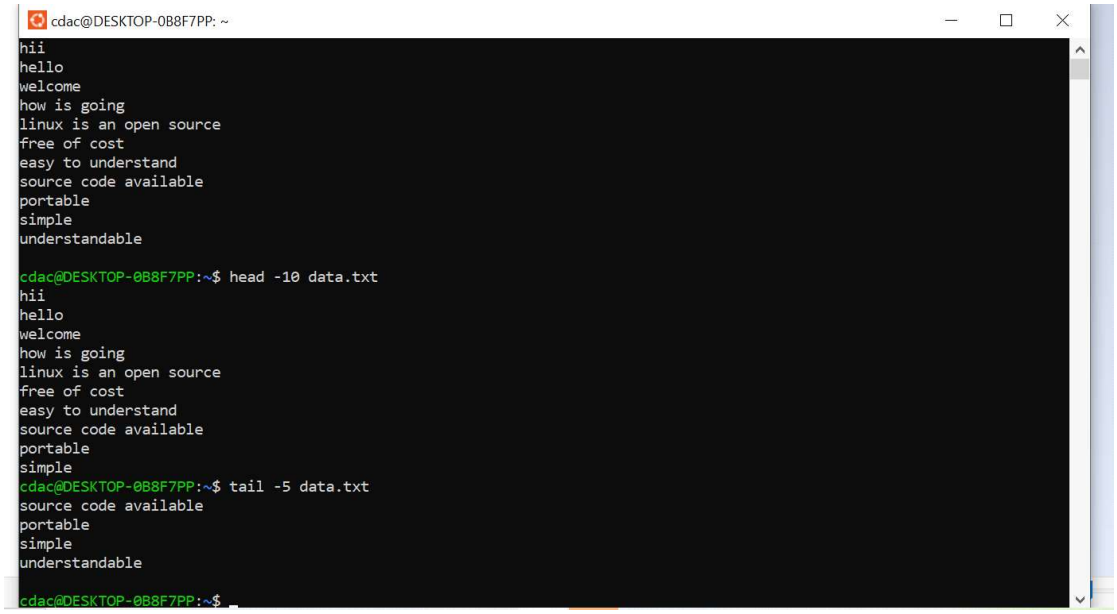
Output:



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

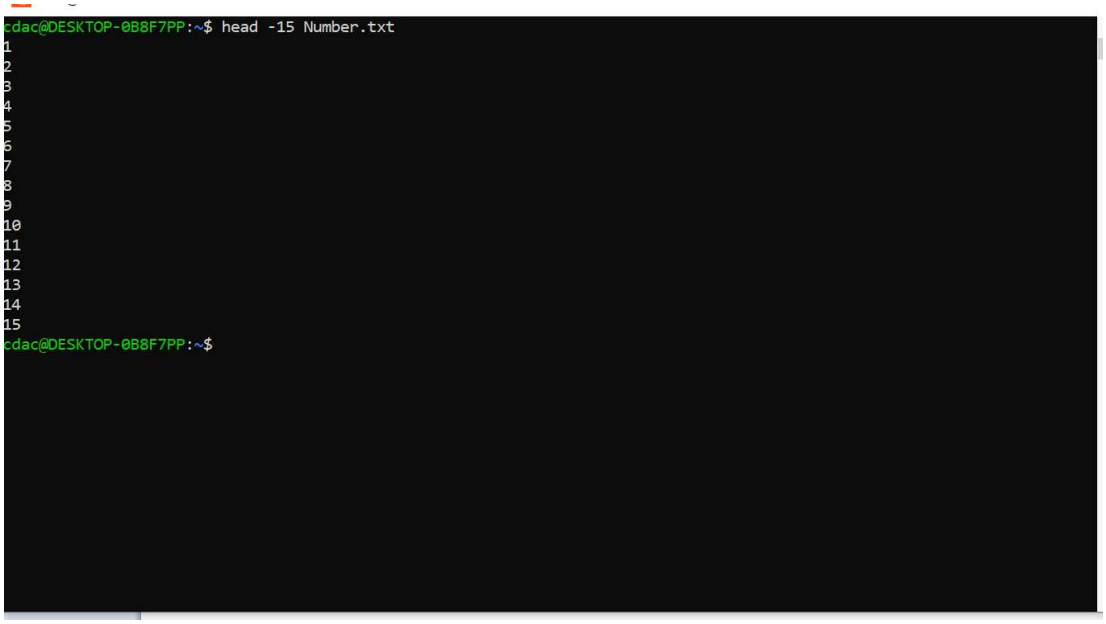
by using **tail** command we can print last n lines.(here we can print last 5 lines)

Output:



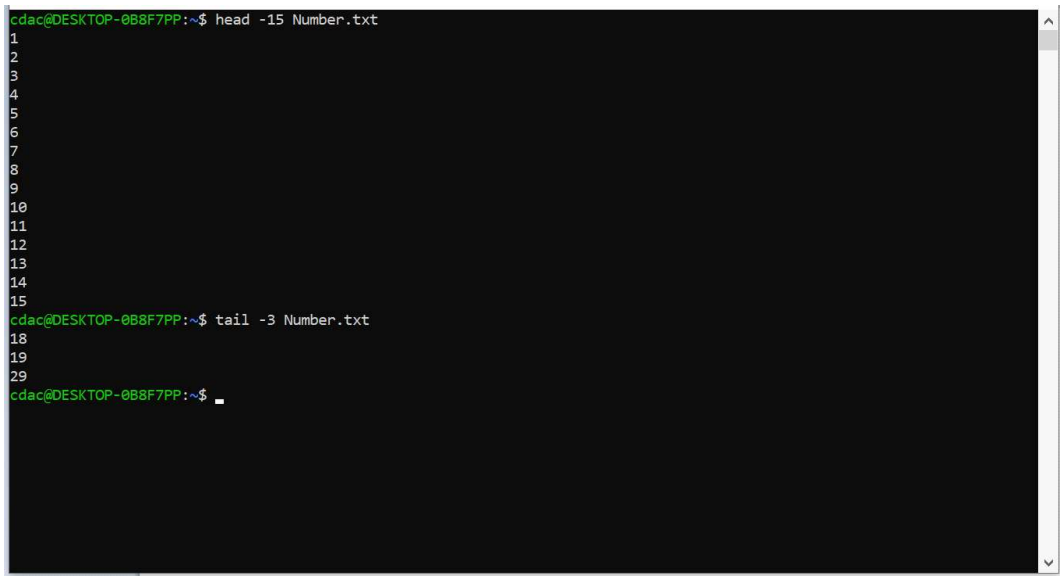
c. In a file named "numbers.txt," there are a series of numbers. Display the first 15 lines of
this file to analyze the initial data set.

Output:



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

Output:



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."

Output:

```
Linux is open source
free of Cost
cdac@DESKTOP-0B8F7PP:~$ sed 's/[A-Z] / \U & g/' image.txt
hii
hello
HEllo
BY
Linux is open source
free of Cost
cdac@DESKTOP-0B8F7PP:~$ cat image.txt | tr 'a-z' 'A-Z' > output.txt
cdac@DESKTOP-0B8F7PP:~$ cat output.txt
HII
HELLO
HELLO
BY
LINUX IS OPEN SOURCE
FREE OF COST
cdac@DESKTOP-0B8F7PP:~$ cat image.txt | tr 'a-z' > output.txt
tr: missing operand after ‘a-z’
Two strings must be given when translating.
Try 'tr --help' for more information.
cdac@DESKTOP-0B8F7PP:~$ cat image.txt | tr 'A-Z' 'a-z' > output.txt
cdac@DESKTOP-0B8F7PP:~$ cat output.txt
hii
hello
hello
by
linux is open source
free of cost
cdac@DESKTOP-0B8F7PP:~$
```

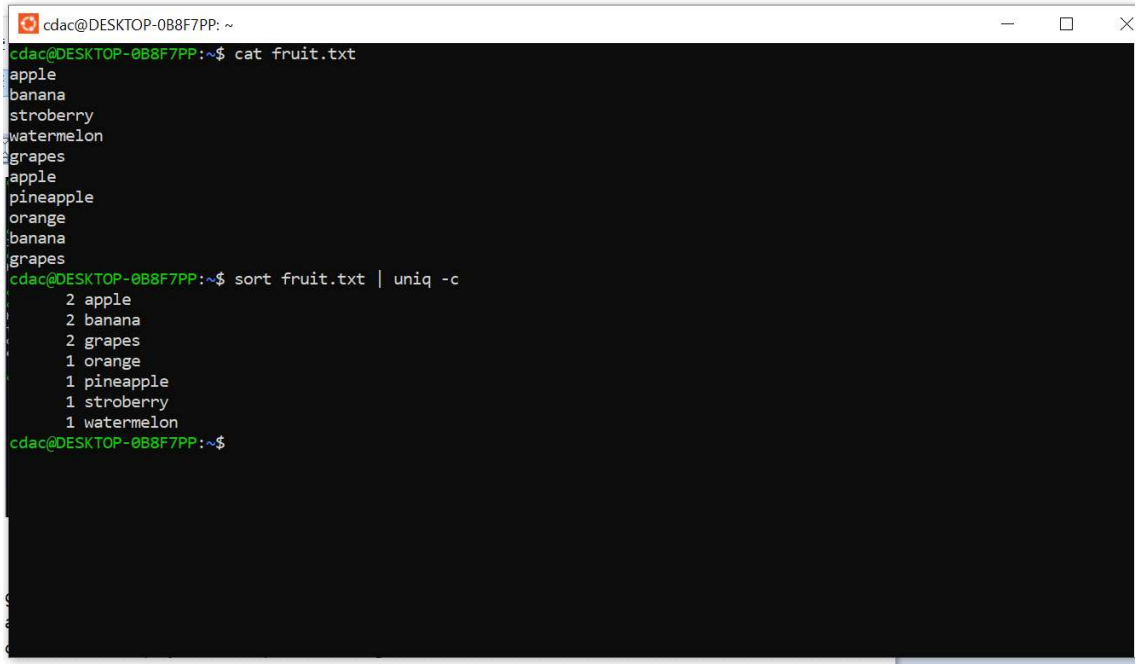
f. In a file named "duplicate.txt," there are several lines of text, some of which are duplicates. Use a command to display only the unique lines from "duplicate.txt."

Output:

```
linux is an oprating system

cdac@DESKTOP-0B8F7PP:~$ uniq -c duplicate.txt
      1 hello
      2 linux is an oprating system
      1
cdac@DESKTOP-0B8F7PP:~$ uniq -d duplicate.txt
linux is an oprating system
cdac@DESKTOP-0B8F7PP:~$ uniq -u duplicate.txt
hello

cdac@DESKTOP-0B8F7PP:~$ nano duplicate.txt
cdac@DESKTOP-0B8F7PP:~$ uniq -u duplicate.txt
hello
free
open source
easy

cdac@DESKTOP-0B8F7PP:~$
```

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."

Output:


cdac@DESKTOP-0B8F7PP: ~
cdac@DESKTOP-0B8F7PP:~$ cat fruit.txt
apple
banana
stroberry
watermelon
grapes
apple
pineapple
orange
banana
grapes
cdac@DESKTOP-0B8F7PP:~$ sort fruit.txt | uniq -c
2 apple
2 banana
2 grapes
1 orange
1 pineapple
1 stroberry
1 watermelon
cdac@DESKTOP-0B8F7PP:~$