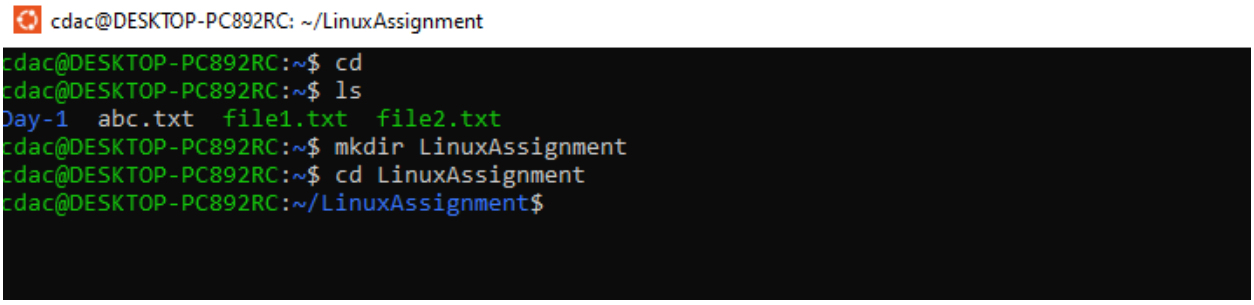
Concepts of Operating System

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.

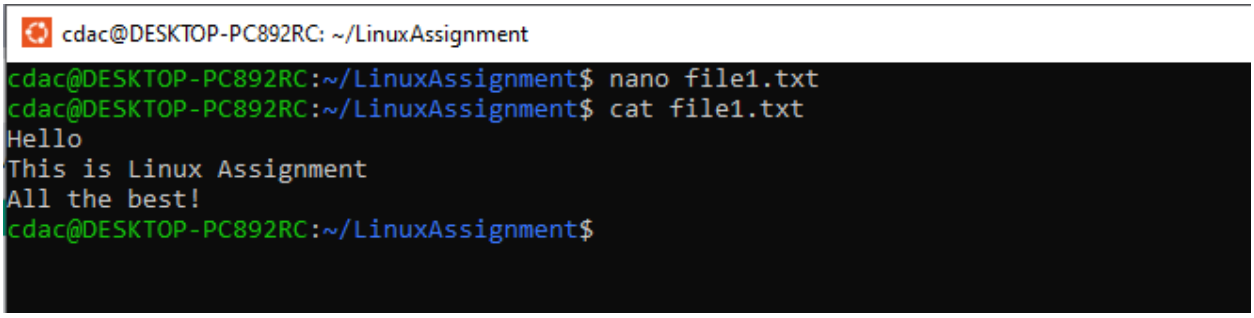
a) **Navigate and List:**

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

```
cdac@DESKTOP-PC892RC: ~/LinuxAssignment
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ mkdir docs
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ ls -l
total 8
drwxr-xr-x 2 cdac cdac 4096 Aug 28 18:47 docs
-rw-r--r-- 1 cdac cdac   45 Aug 28 18:43 file1.txt
cdac@DESKTOP-PC892RC:~/LinuxAssignment$
```

d) **Copy and Move Files:**

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

```
cdac@DESKTOP-PC892RC: ~/LinuxAssignment
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ cat file1.txt
Hello
This is Linux Assignment
All the best!
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ cat file1.txt > file2.txt
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ cat file2.txt
Hello
This is Linux Assignment
All the best!
cdac@DESKTOP-PC892RC:~/LinuxAssignment$
```

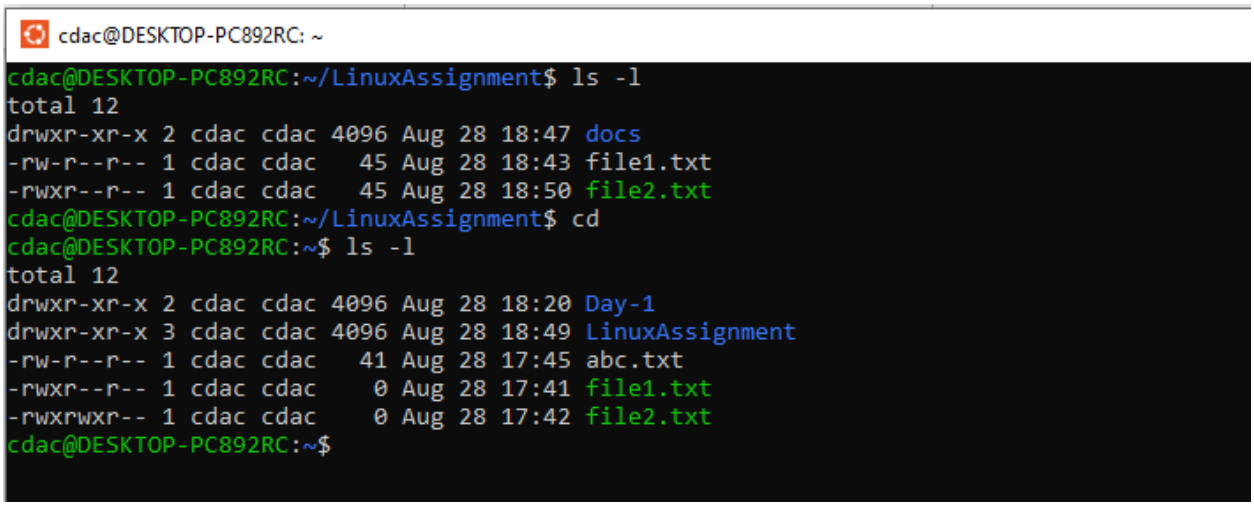
e) **Permissions and Ownership:**

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-PC892RC: ~/LinuxAssignment
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ ls -l
total 12
drwxr-xr-x 2 cdac cdac 4096 Aug 28 18:47 docs
-rw-r--r-- 1 cdac cdac   45 Aug 28 18:43 file1.txt
-rwxr--r-- 1 cdac cdac   45 Aug 28 18:50 file2.txt
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ chmod u+rwx file2.txt
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ chmod o+r  file2.txt
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ ls -l
total 12
drwxr-xr-x 2 cdac cdac 4096 Aug 28 18:47 docs
-rw-r--r-- 1 cdac cdac   45 Aug 28 18:43 file1.txt
-rwxr--r-- 1 cdac cdac   45 Aug 28 18:50 file2.txt
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ whoami
cdac
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ chown cdac file2.txt
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ ls -l file2.txt
-rwxr--r-- 1 cdac cdac 45 Aug 28 18:50 file2.txt
cdac@DESKTOP-PC892RC:~/LinuxAssignment$
```

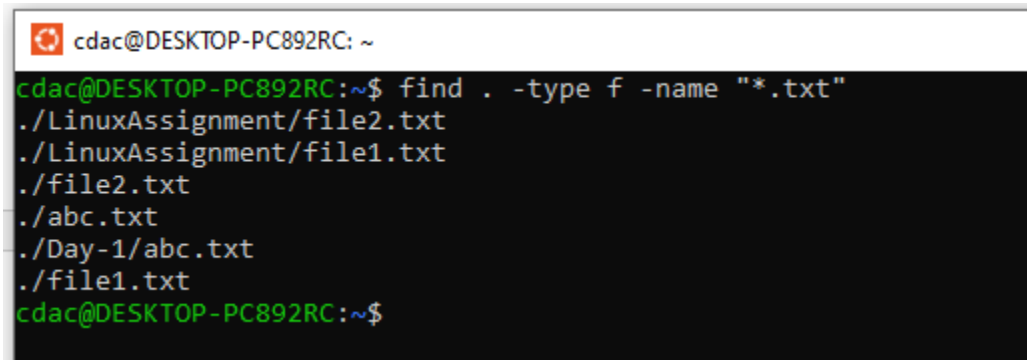
f) **Final Checklist:**

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

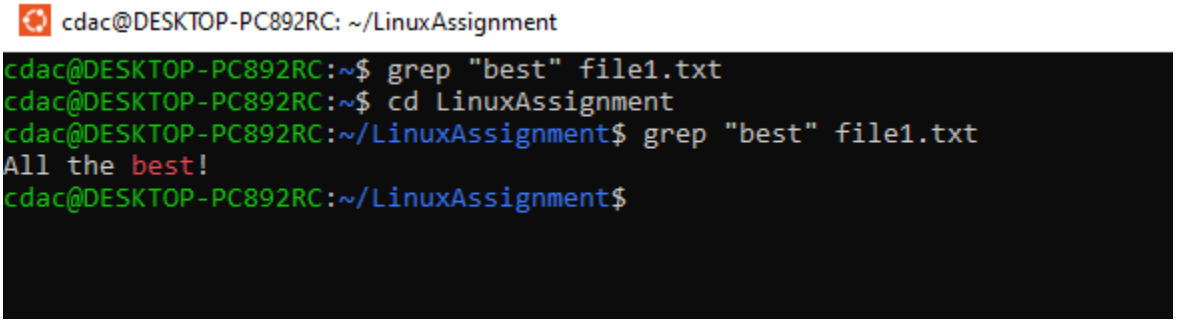


g) **File Searching:**

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)



System Information:

a. Display the current system date and time

```
cdac@DESKTOP-PC892RC: ~/LinuxAssignment
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ date
Wed Aug 28 19:24:42 IST 2024
cdac@DESKTOP-PC892RC:~/LinuxAssignment$
```

i) **Networking:**

a. Display the IP address of the system.

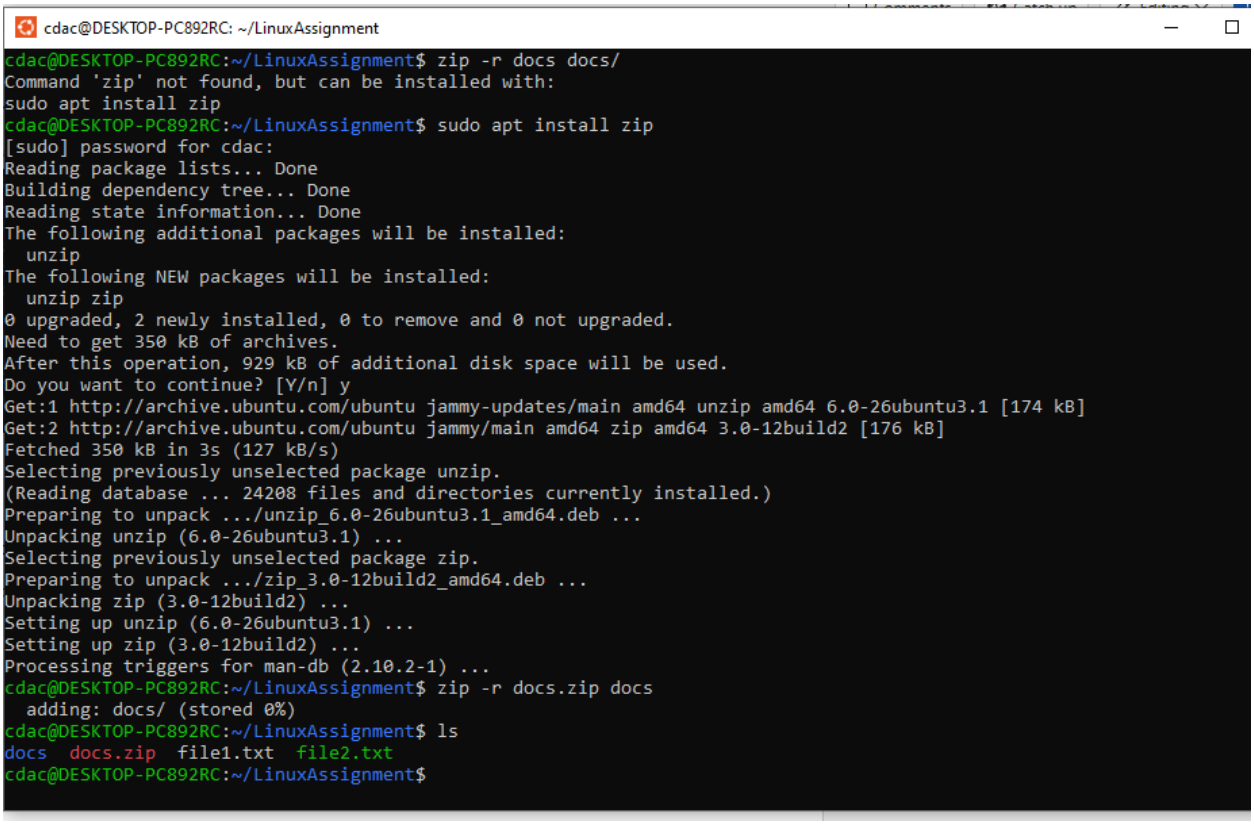
```
cdac@DESKTOP-PC892RC: ~/LinuxAssignment
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ hostname -i
127.0.1.1
cdac@DESKTOP-PC892RC:~/LinuxAssignment$
```

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

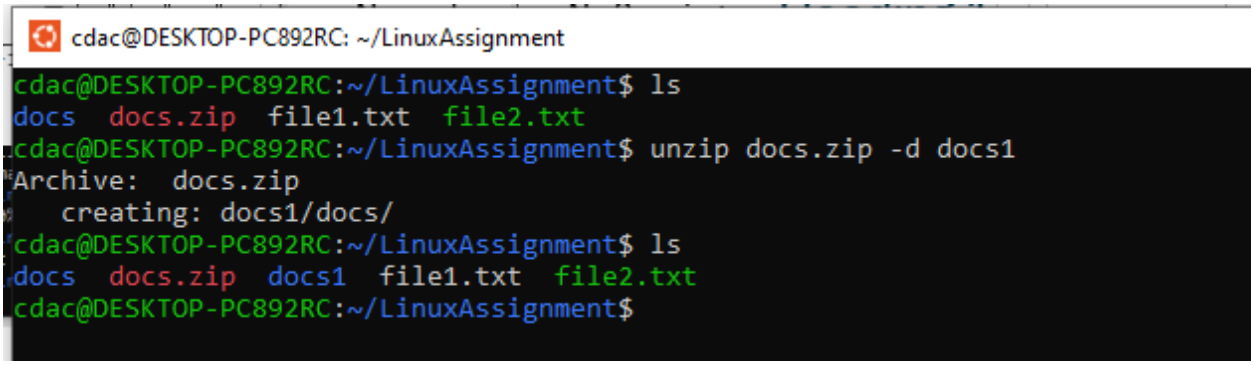
```
cdac@DESKTOP-PC892RC: ~/LinuxAssignment
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ hostname -i
127.0.1.1
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ hostname -a
DESKTOP-PC892RC
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=116 time=24.6 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=116 time=38.2 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=116 time=29.0 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=116 time=26.1 ms
64 bytes from 8.8.8.8: icmp_seq=5 ttl=116 time=25.4 ms
64 bytes from 8.8.8.8: icmp_seq=6 ttl=116 time=25.1 ms
64 bytes from 8.8.8.8: icmp_seq=7 ttl=116 time=31.8 ms
64 bytes from 8.8.8.8: icmp_seq=8 ttl=116 time=24.4 ms
^C
--- 8.8.8.8 ping statistics ---
8 packets transmitted, 8 received, 0% packet loss, time 7012ms
rtt min/avg/max/mdev = 24.391/28.063/38.170/4.503 ms
cdac@DESKTOP-PC892RC:~/LinuxAssignment$
```

File Compression:

a. Compress the "docs" directory into a zip file.

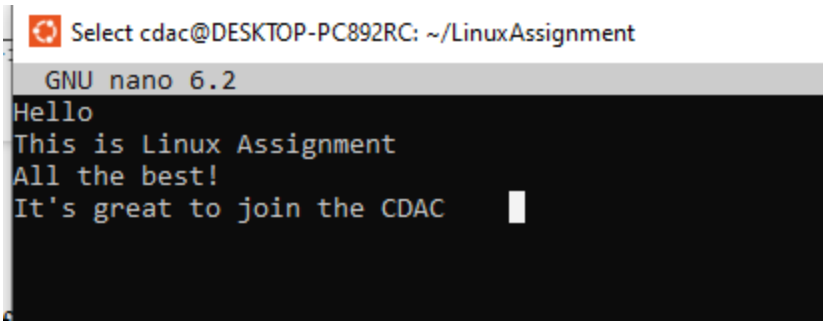


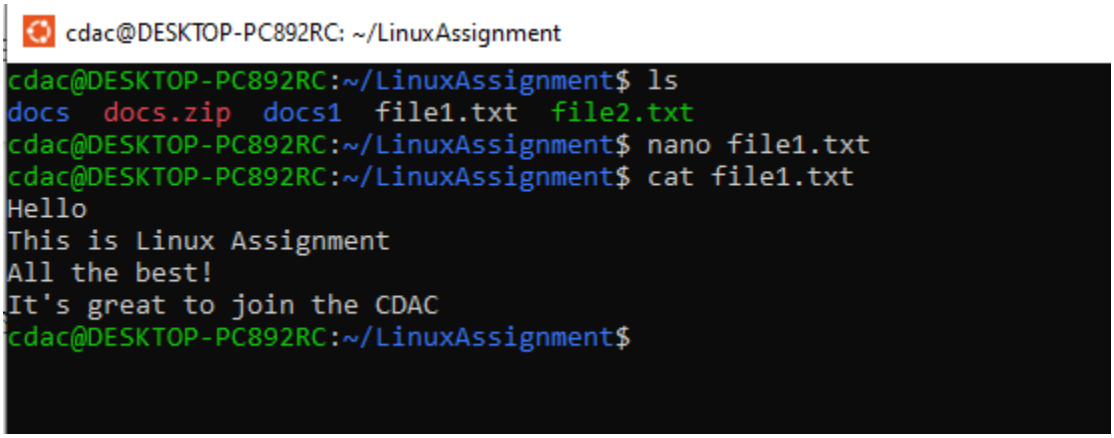
b. Extract the contents of the zip file into a new directory.



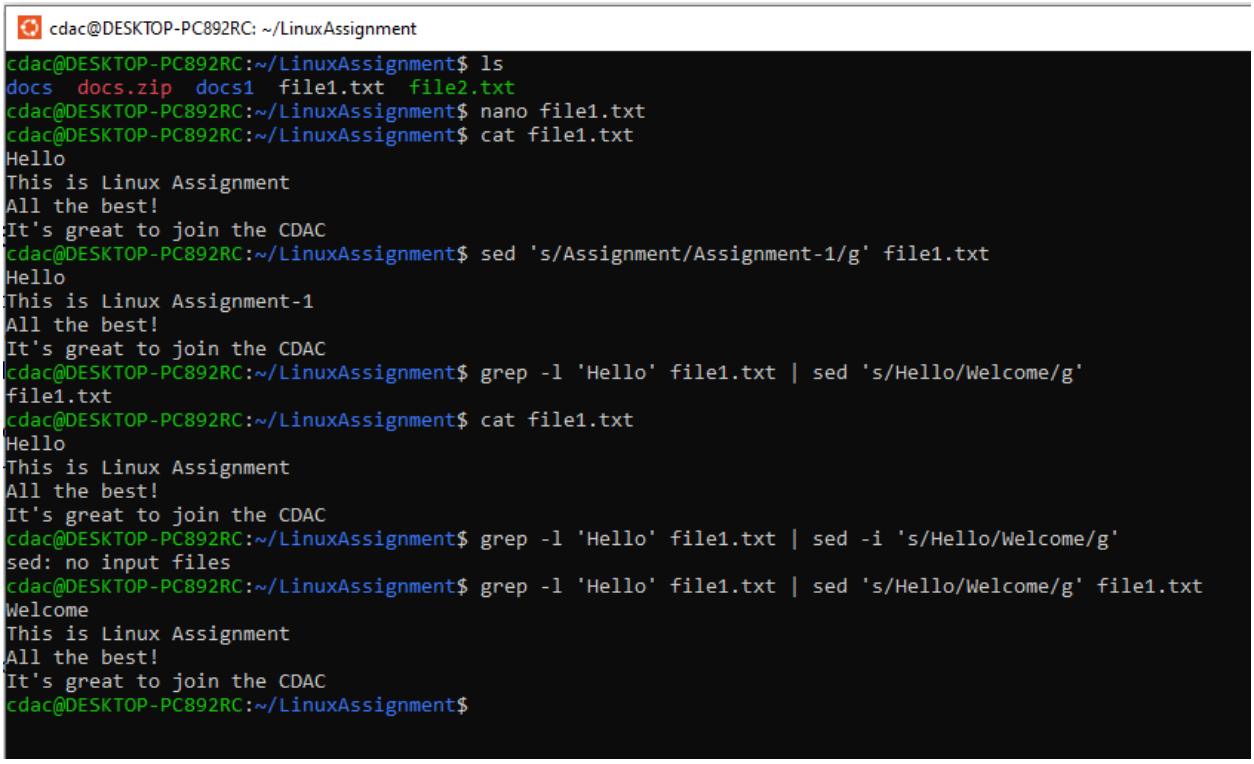
k) **File Editing:**

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


Select cdac@DESKTOP-PC892RC: ~/LinuxAssignment
GNU nano 6.2
Hello
This is Linux Assignment
All the best!
It's great to join the CDAC

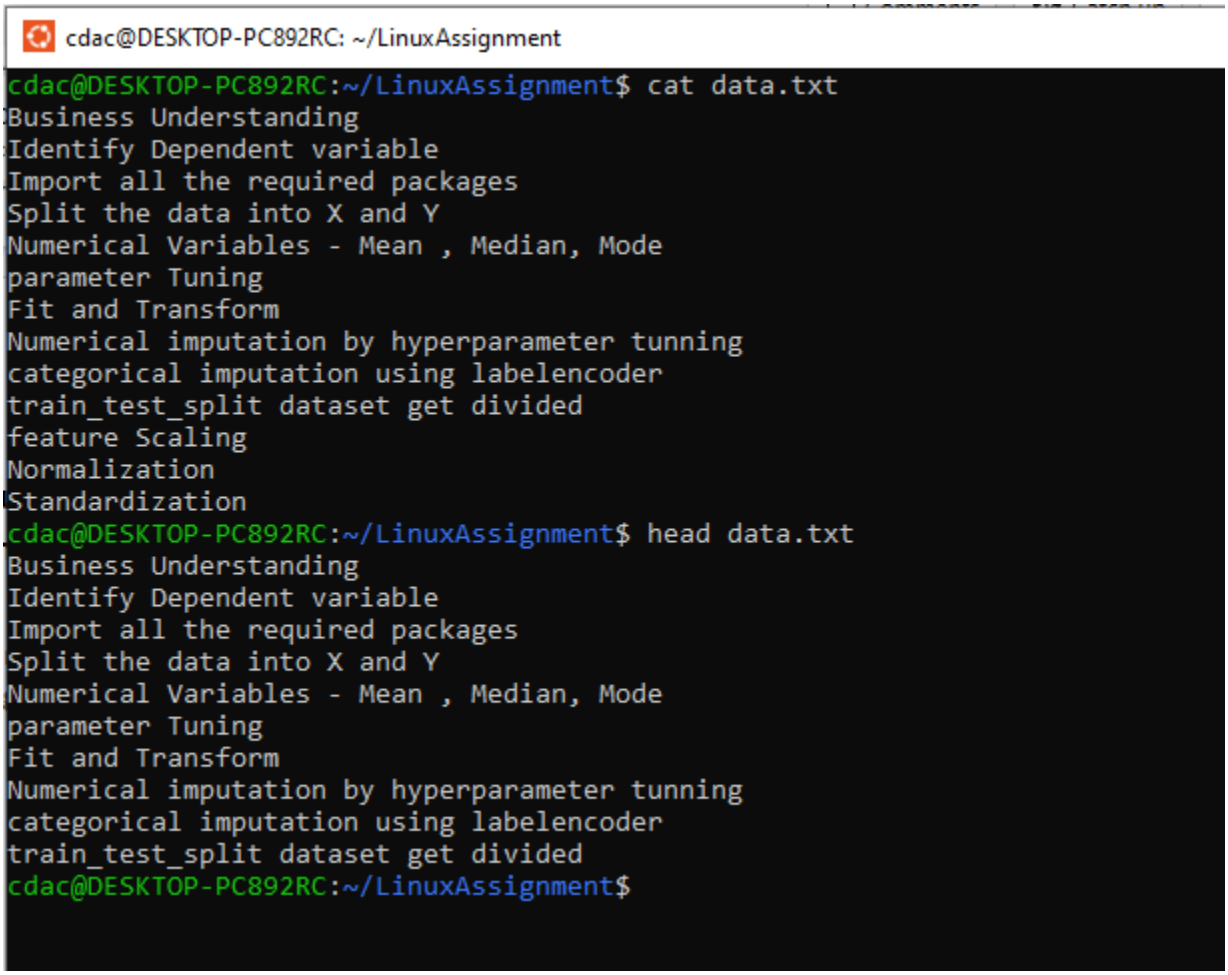

cdac@DESKTOP-PC892RC: ~/LinuxAssignment
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ ls
docs docs.zip docs1 file1.txt file2.txt
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ nano file1.txt
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ cat file1.txt
Hello
This is Linux Assignment
All the best!
It's great to join the CDAC
cdac@DESKTOP-PC892RC:~/LinuxAssignment$

b. Replace a specific word in the "file1.txt" file with another word (provide the originalword and the word to replace it with)

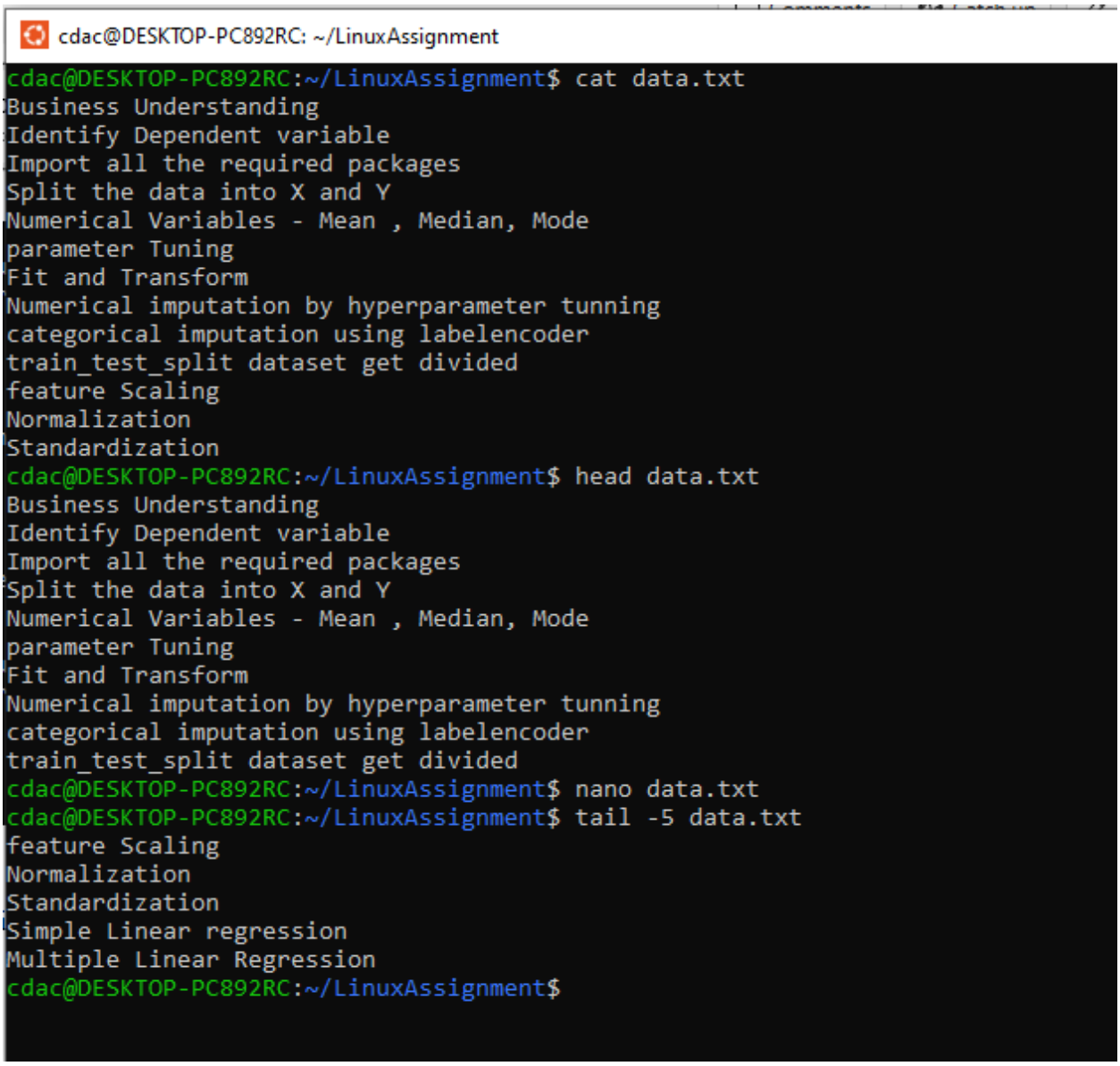


Problem 2: Read the instructions carefully and answer accordingly. If there is any need to insert some data then do that as well.

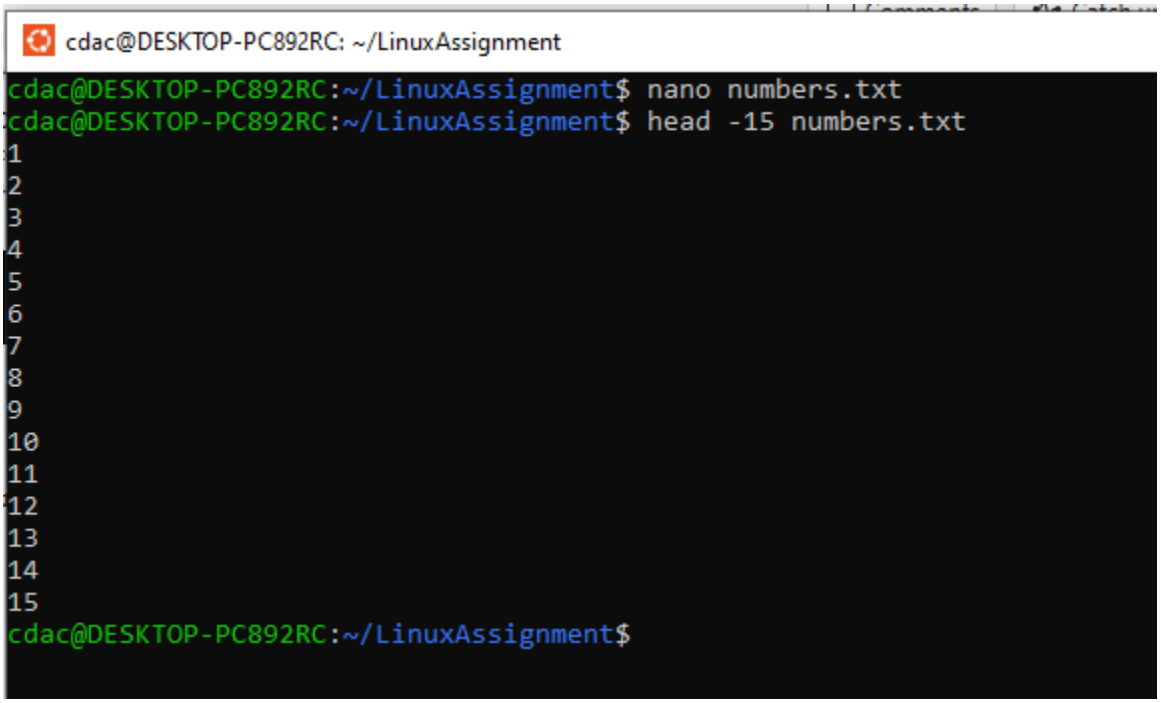
a. Suppose you have a file named "data.txt" containing important information. Display the first 10 lines of this file to quickly glance at its contents using a command



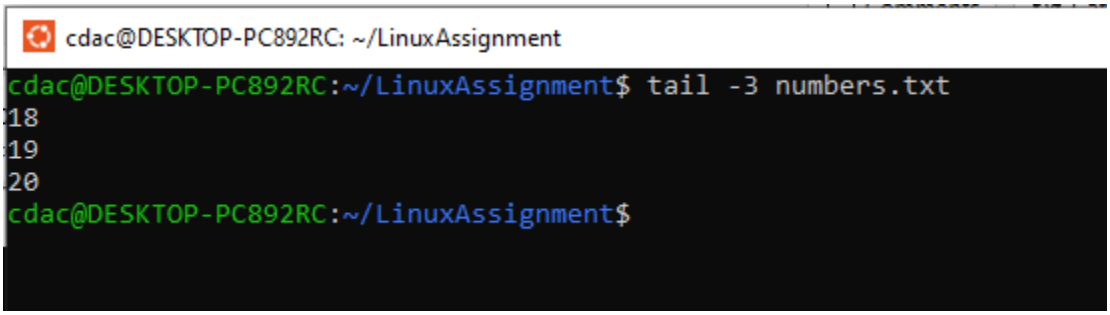
b. Now, to check the end of the file for any recent additions, display the last 5 lines of "data.txt" using another command


cdac@DESKTOP-PC892RC: ~/LinuxAssignment
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ cat data.txt
Business Understanding
Identify Dependent variable
Import all the required packages
Split the data into X and Y
Numerical Variables - Mean , Median, Mode
parameter Tuning
Fit and Transform
Numerical imputation by hyperparameter tunning
categorical imputation using labelencoder
train_test_split dataset get divided
feature Scaling
Normalization
Standardization
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ head data.txt
Business Understanding
Identify Dependent variable
Import all the required packages
Split the data into X and Y
Numerical Variables - Mean , Median, Mode
parameter Tuning
Fit and Transform
Numerical imputation by hyperparameter tunning
categorical imputation using labelencoder
train_test_split dataset get divided
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ nano data.txt
cdac@DESKTOP-PC892RC:~/LinuxAssignment$ tail -5 data.txt
feature Scaling
Normalization
Standardization
Simple Linear regression
Multiple Linear Regression
cdac@DESKTOP-PC892RC:~/LinuxAssignment$

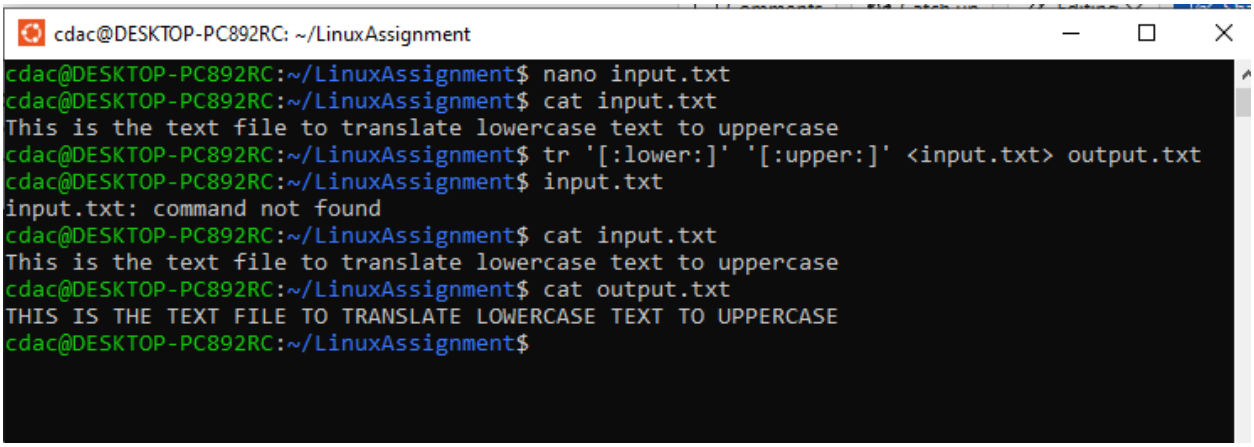
c. In a file named "numbers.txt," there are a series of numbers. Display the first 15 lines ofthis file to analyze the initial data set.



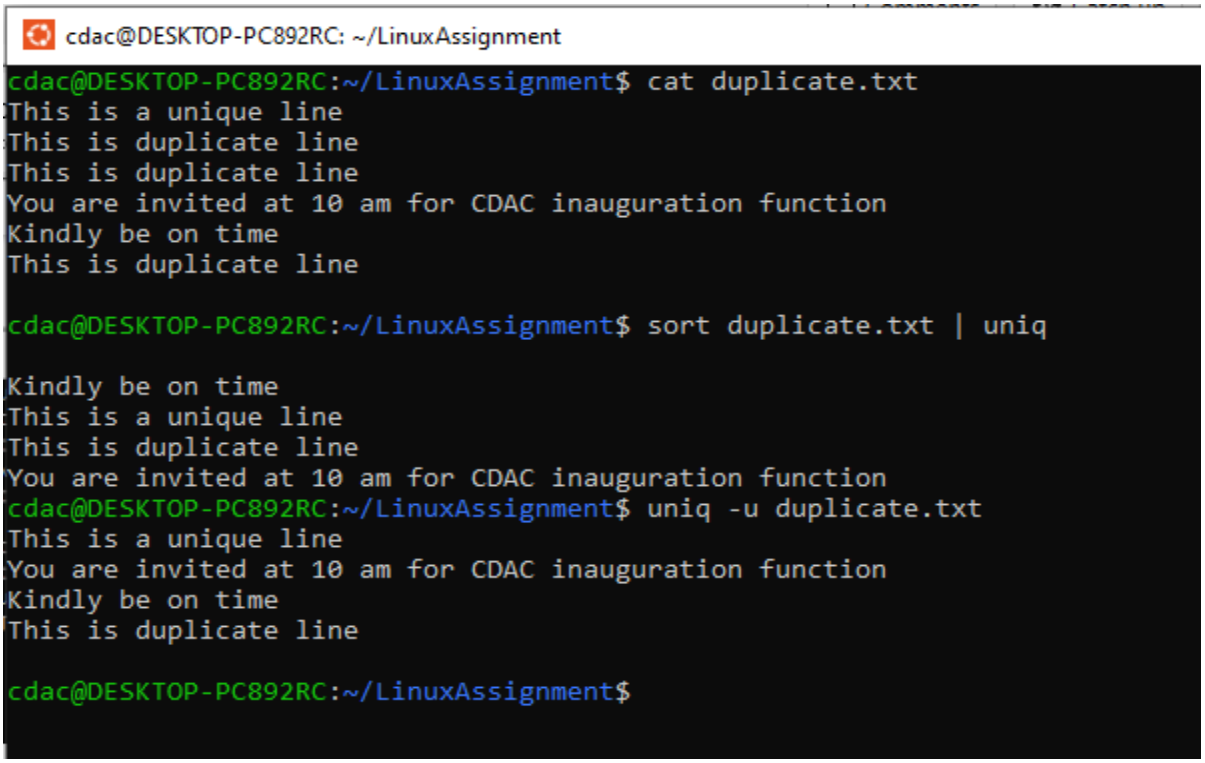
d. To focus on the last few numbers of the dataset, display the last 3 lines of "numbers.txt"



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."



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."



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."