CDAC MUMBAI

Concepts of Operating System

Assignment 1

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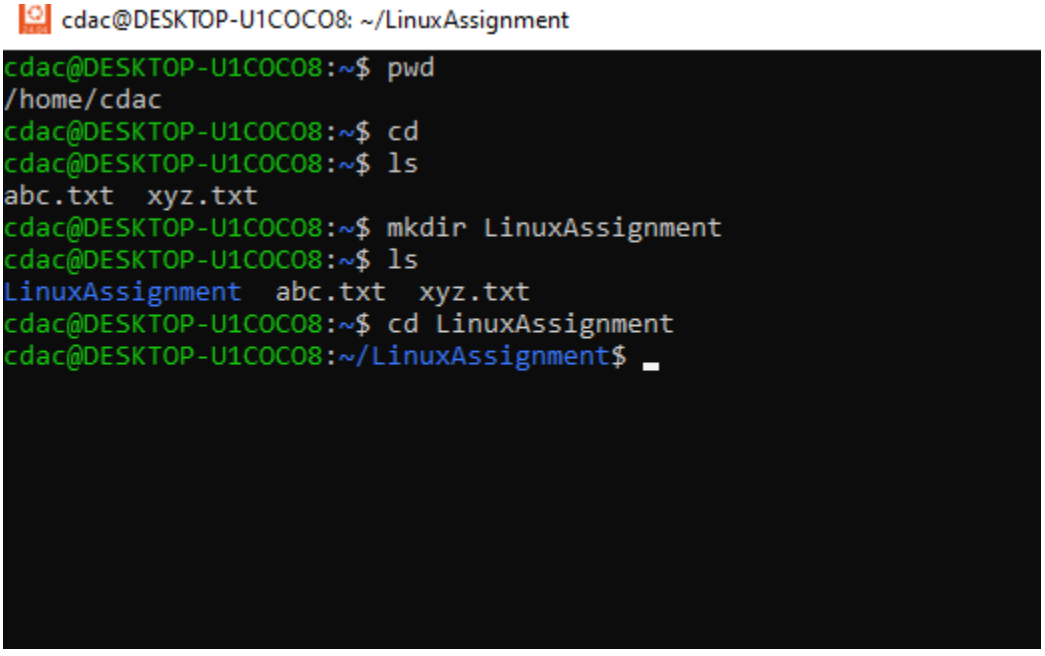
Problem 1: Read the instructions carefully and answer accordingly. If there is any need to insert some data then do that as well.

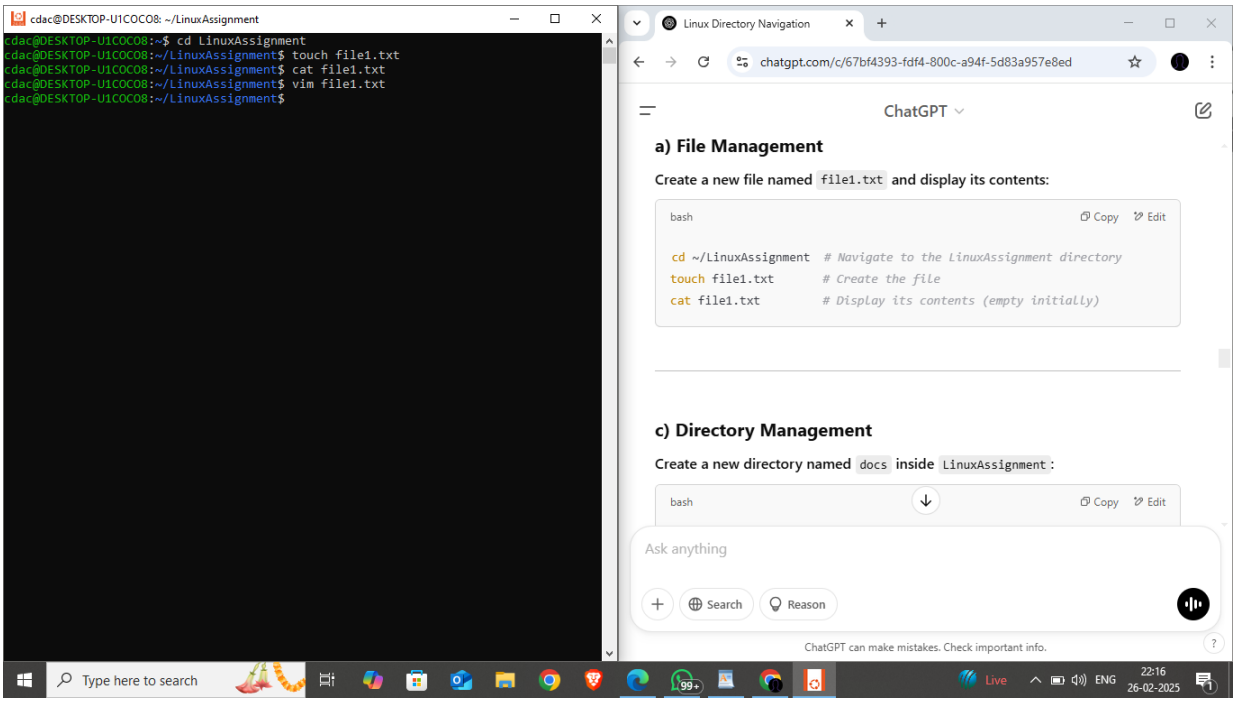
a) Navigate and List:

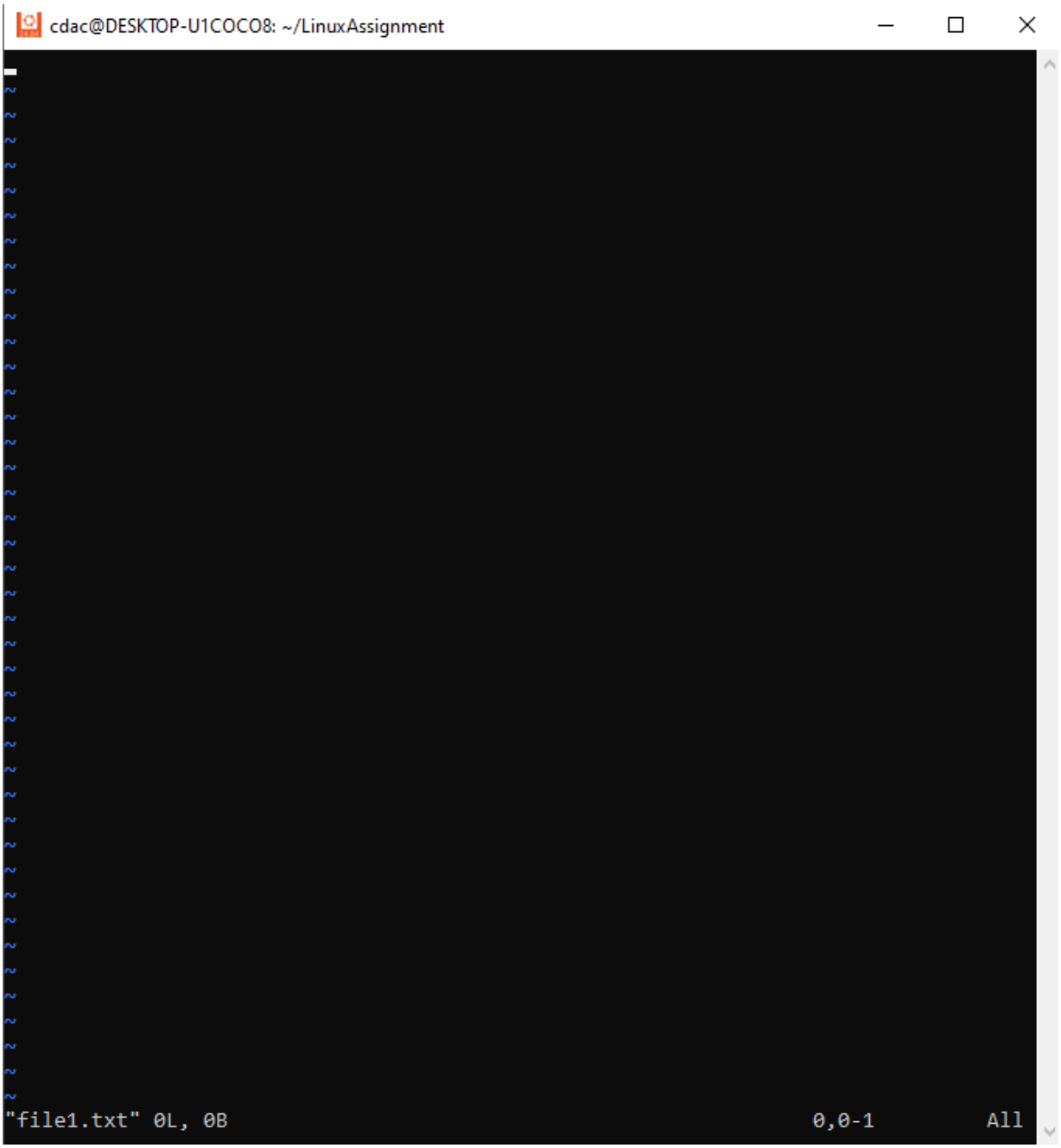
a. Start by navigating to your home directory and list its contents. Then, move into a directory named "LinuxAssignment" if it exists; otherwise, create it.



File Management:

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



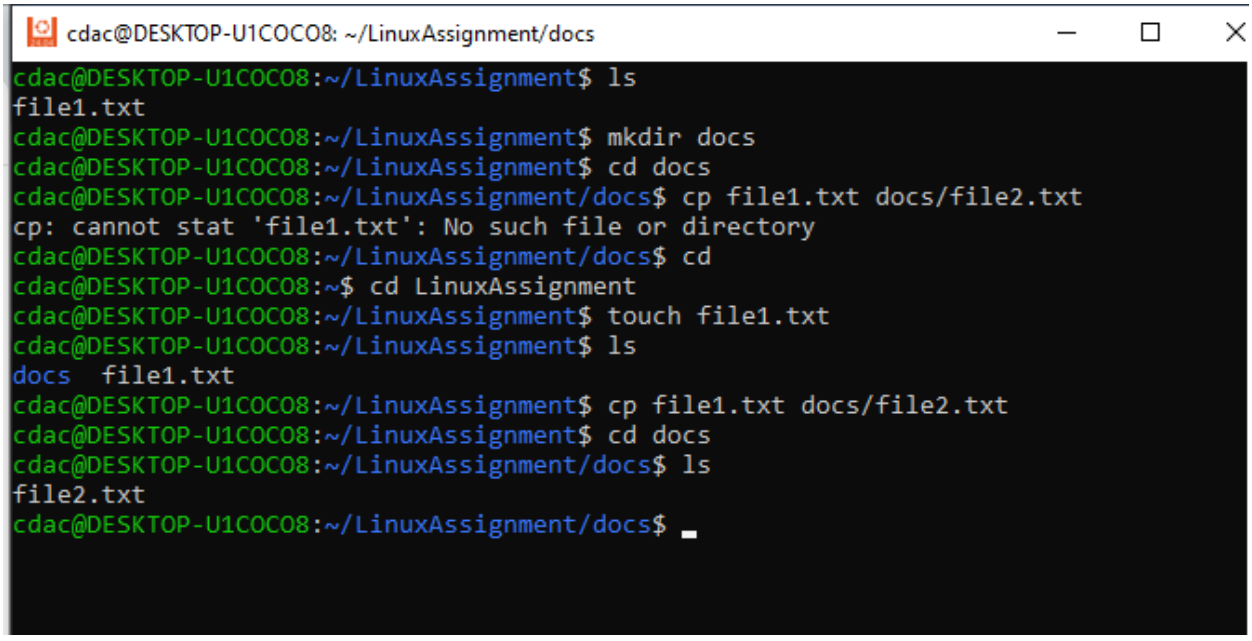

cdac@DESKTOP-U1COCO8: ~/LinuxAssignment
"file1.txt" 0L, 0B
0,0-1
All

c) Directory Management:

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

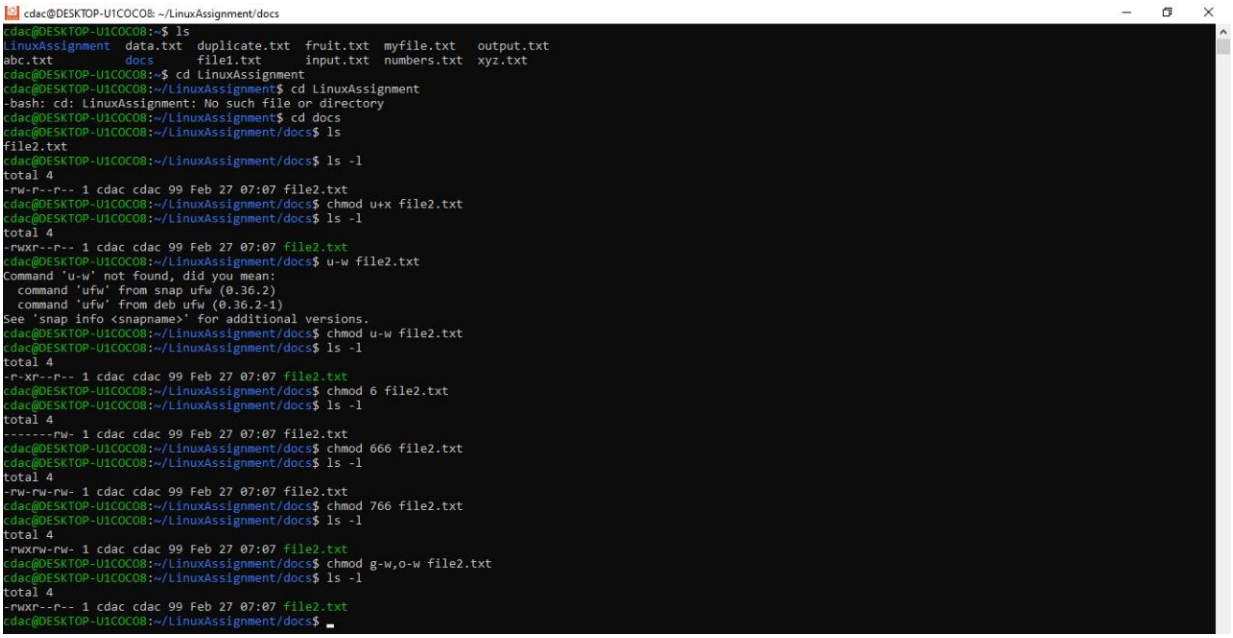
d) Copy and Move Files:

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



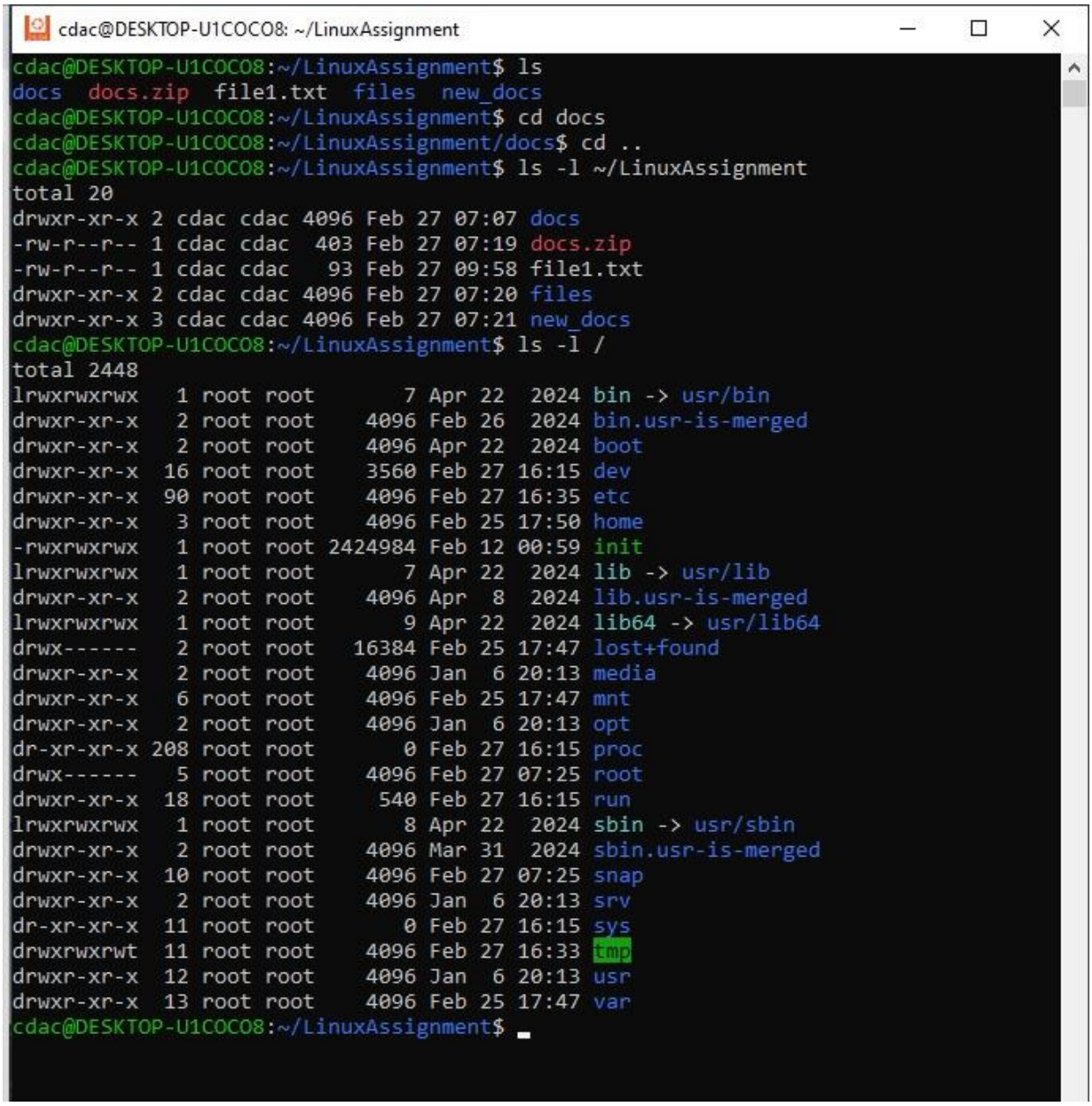
e) Permissions and Ownership:

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.



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.

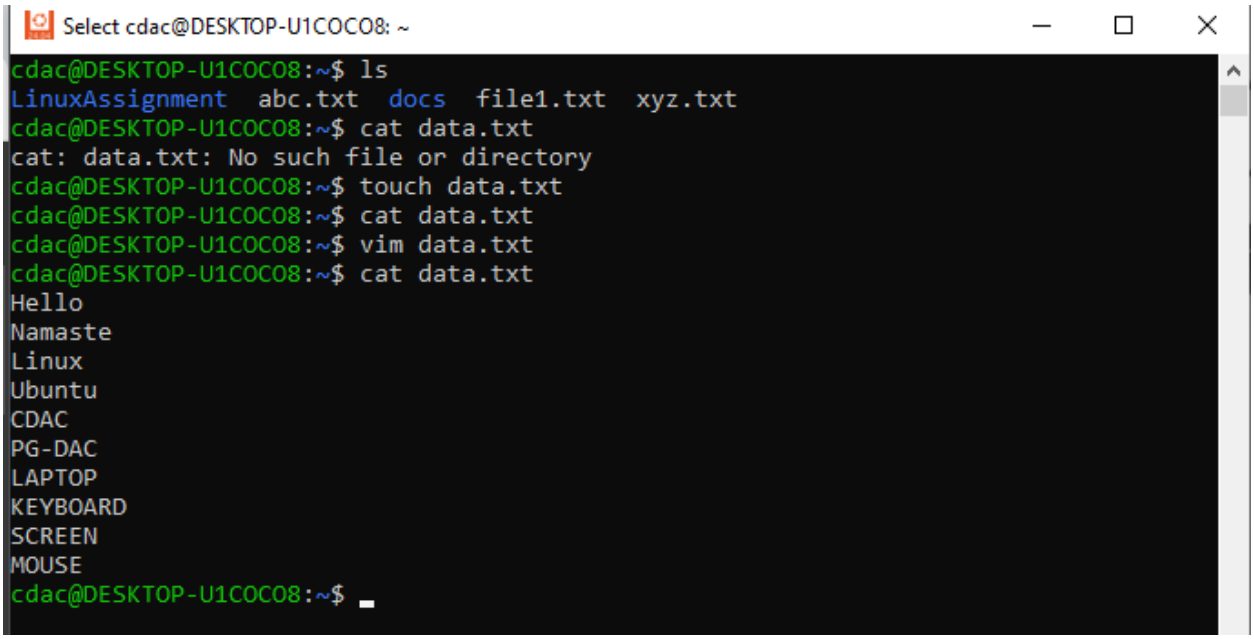
b. Display lines containing a specific word in a file (provide a file name and the specific word to search).

```
cdac@DESKTOP-U1COCO8:~/LinuxAssignment$ ls
docs  file1.txt
cdac@DESKTOP-U1COCO8:~/LinuxAssignment$ find . -type f -name "*.txt"
./file1.txt
./docs/file2.txt
```

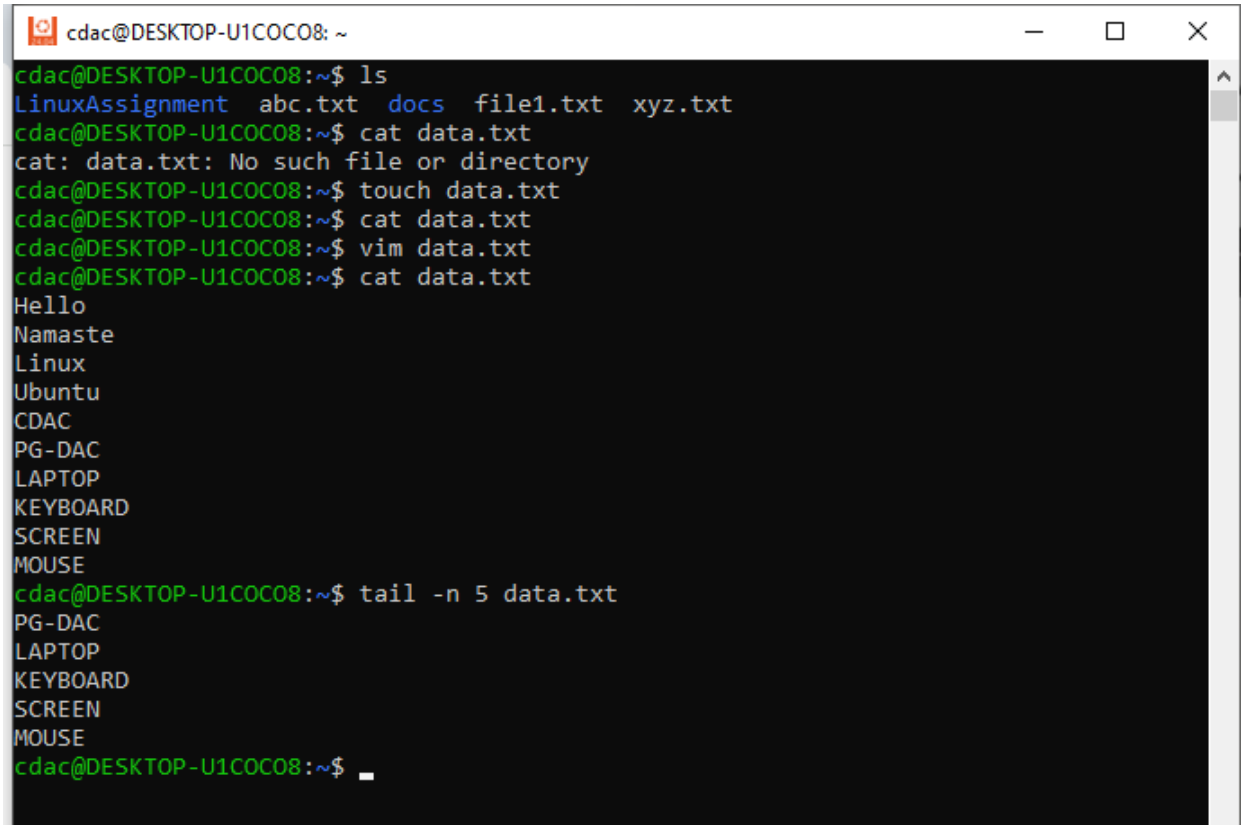
```
cdac@DESKTOP-U1COCO8:~/LinuxAssignment$ cat file1.txt
Operating System
Microprocessor
Data Structures
PG-DAC
Database Management System
Machine Learning
cdac@DESKTOP-U1COCO8:~/LinuxAssignment$ grep "Operating System" file1.txt
Operating System
cdac@DESKTOP-U1COCO8:~/LinuxAssignment$
```

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.**


Select cdac@DESKTOP-U1COCO8: ~
cdac@DESKTOP-U1COCO8:~$ ls
LinuxAssignment abc.txt docs file1.txt xyz.txt
cdac@DESKTOP-U1COCO8:~$ cat data.txt
cat: data.txt: No such file or directory
cdac@DESKTOP-U1COCO8:~$ touch data.txt
cdac@DESKTOP-U1COCO8:~$ cat data.txt
cdac@DESKTOP-U1COCO8:~$ vim data.txt
cdac@DESKTOP-U1COCO8:~$ cat data.txt
Hello
Namaste
Linux
Ubuntu
CDAC
PG-DAC
LAPTOP
KEYBOARD
SCREEN
MOUSE
cdac@DESKTOP-U1COCO8:~$

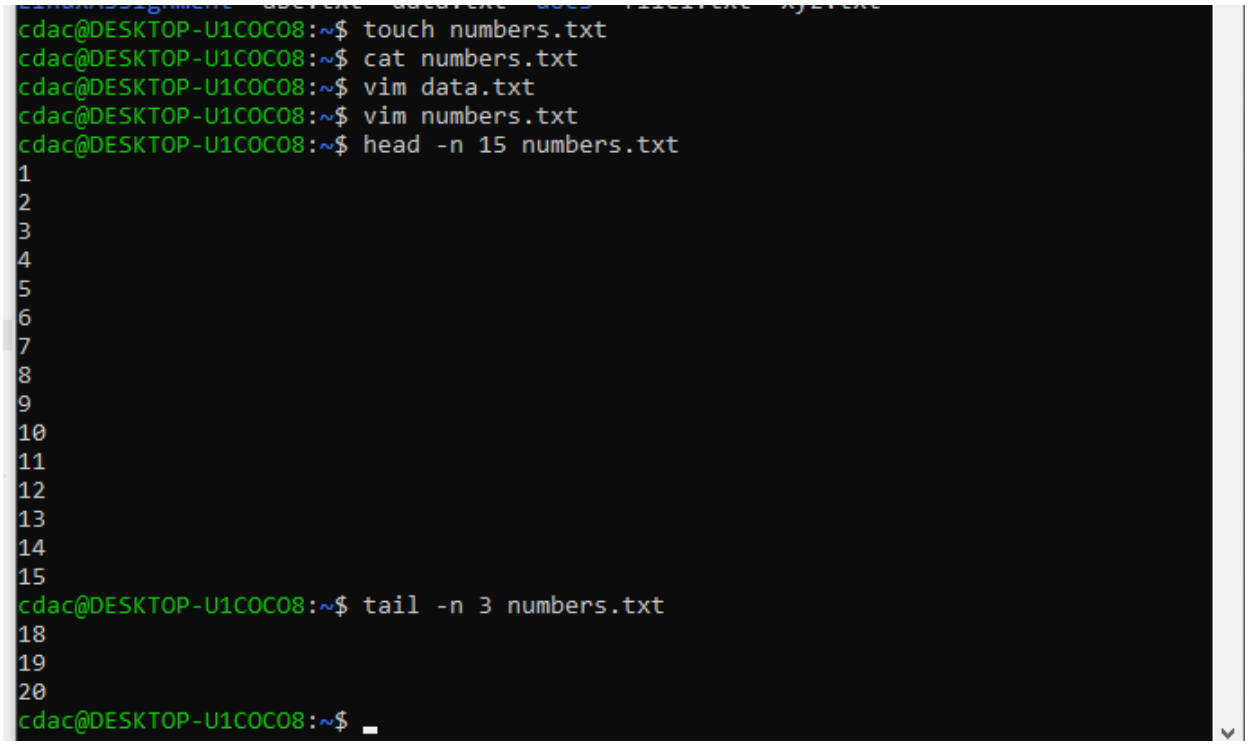
B) Now, to check the end of the file for any recent additions, display the last 5 lines of "data.txt" using another command.



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

```
cdac@DESKTOP-U1COCO8:~$ ls
LinuxAssignment  abc.txt  data.txt  docs  file1.txt  xyz.txt
cdac@DESKTOP-U1COCO8:~$ touch numbers.txt
cdac@DESKTOP-U1COCO8:~$ cat numbers.txt
cdac@DESKTOP-U1COCO8:~$ vim data.txt
cdac@DESKTOP-U1COCO8:~$ vim numbers.txt
cdac@DESKTOP-U1COCO8:~$ head -n 15 numbers.txt
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
```

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

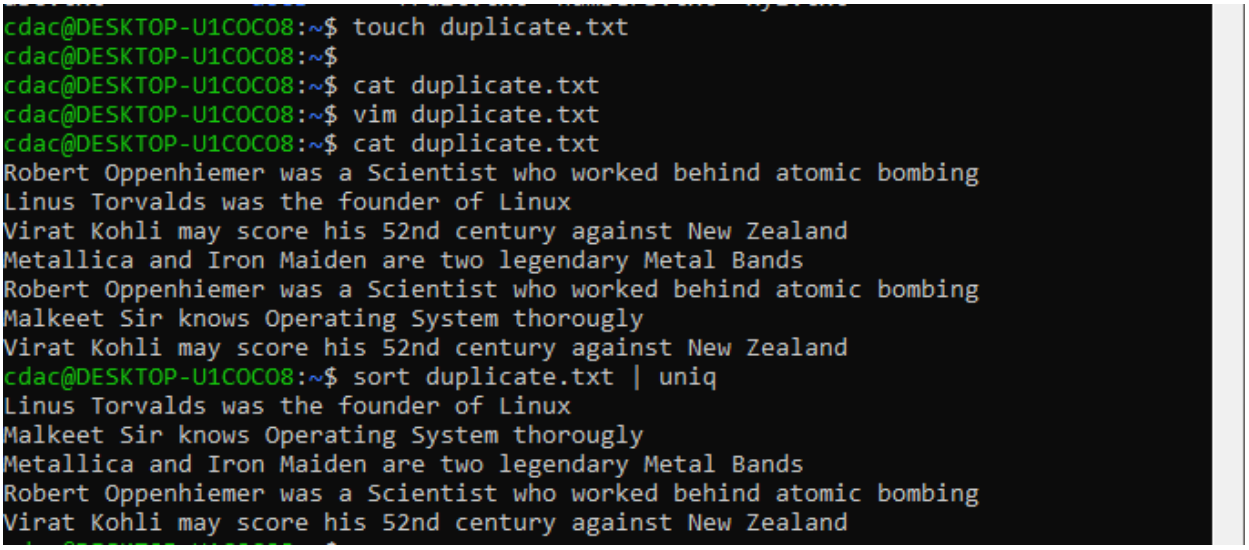
"output.txt."

```
cdac@DESKTOP-U1COCO8:~$ ls
LinuxAssignment  abc.txt  data.txt  docs  file1.txt  numbers.txt  xyz.txt
cdac@DESKTOP-U1COCO8:~$ touch input.txt
cdac@DESKTOP-U1COCO8:~$ cat input.txt
cdac@DESKTOP-U1COCO8:~$ vim input.txt
cdac@DESKTOP-U1COCO8:~$ cat input.txt
Algorithms
Data Structures
Operating Systems
Machine Learning
TensorFlow
cdac@DESKTOP-U1COCO8:~$ tr 'a-z' 'A-Z'


^C
cdac@DESKTOP-U1COCO8:~$ tr 'a-z''A-Z' <input.txt> output.txt
tr: missing operand after ‘a-zA-Z’
Two strings must be given when translating.
Try 'tr --help' for more information.
cdac@DESKTOP-U1COCO8:~$ tr 'a-z' 'A-Z' <input.txt> output.txt
cdac@DESKTOP-U1COCO8:~$ cat output.txt
ALGORITHMS
DATA STRUCTURES
OPERATING SYSTEMS
MACHINE LEARNING
TENSORFLOW
```

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."