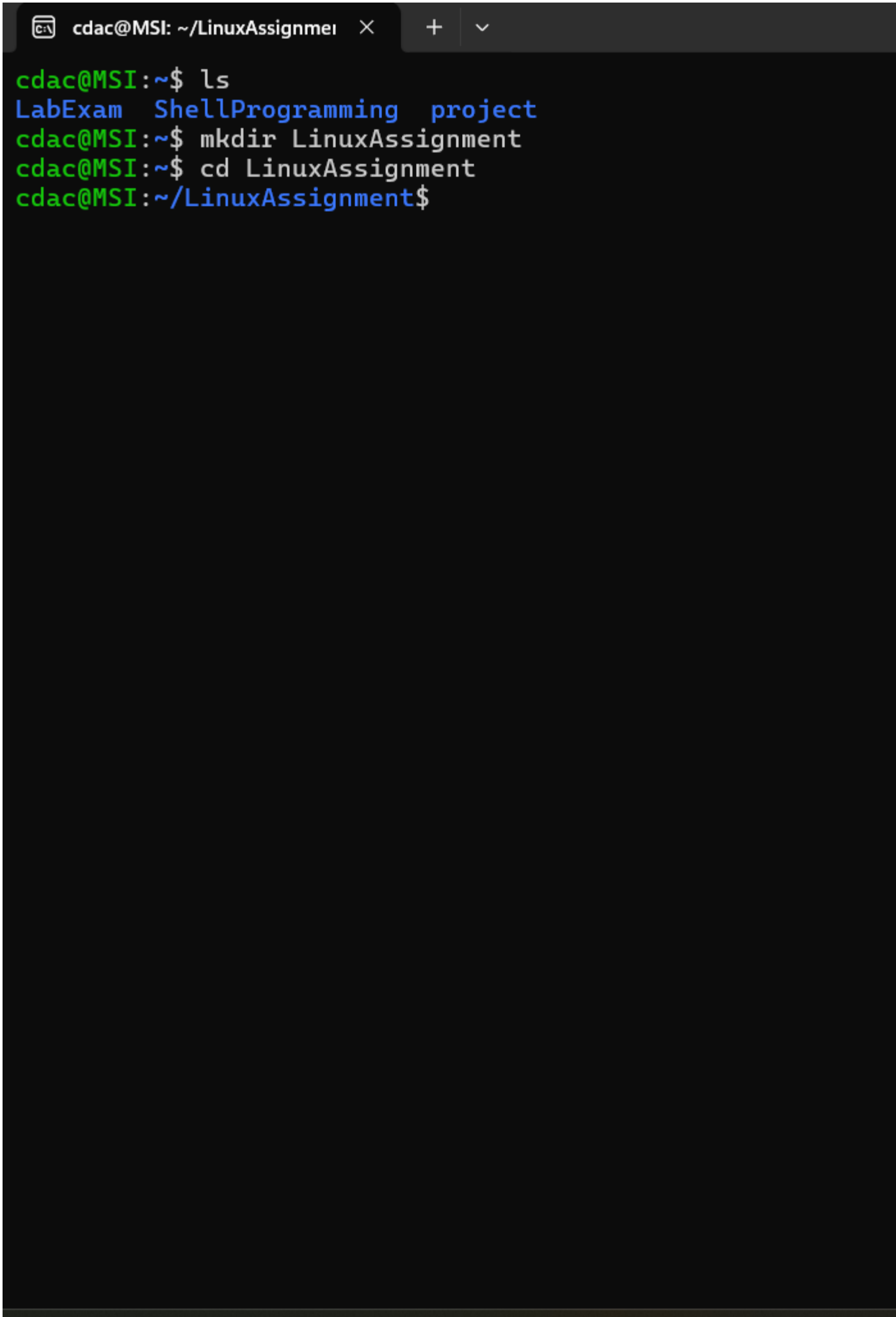
Problem 1:

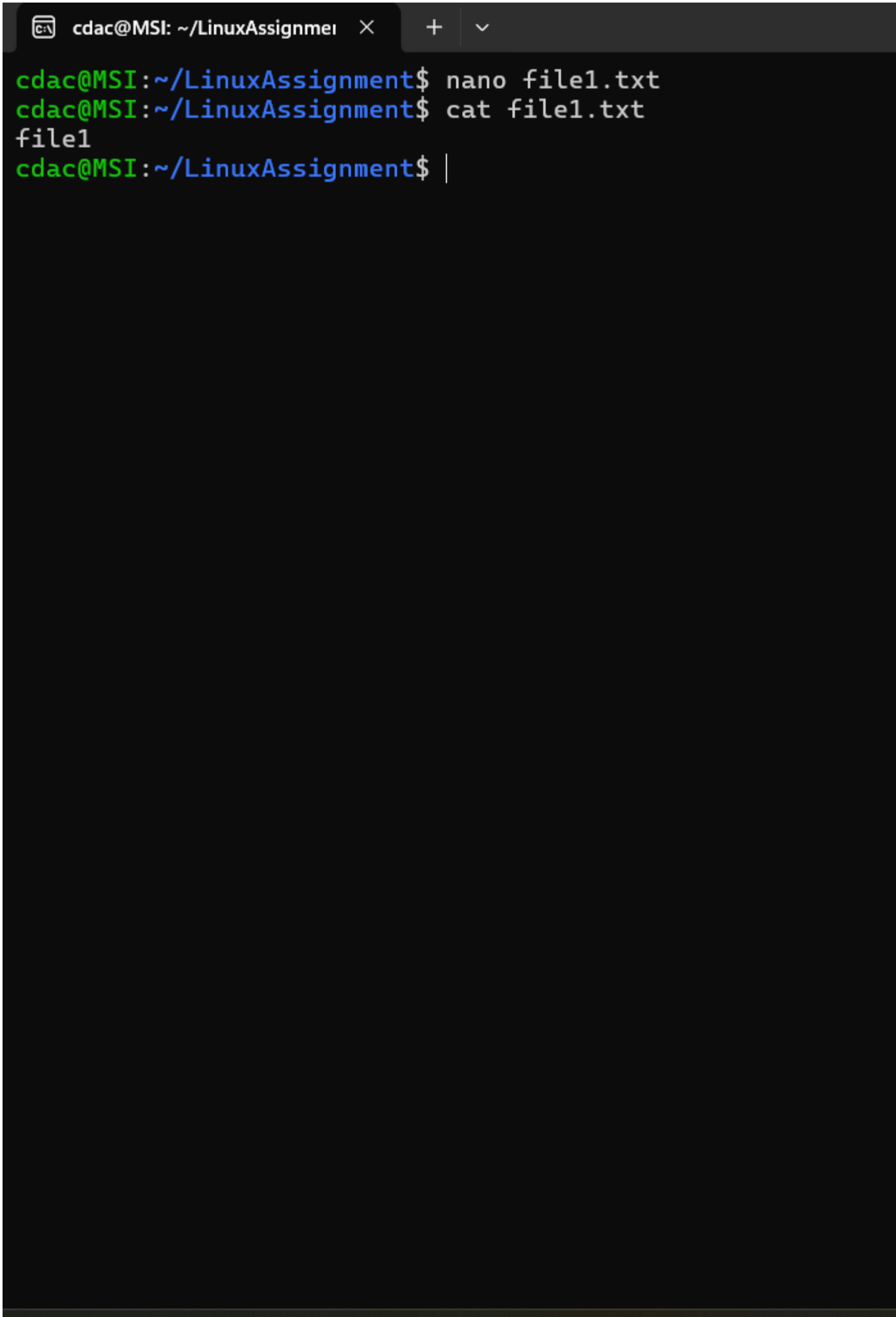
a) Navigate and List:

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.


cdac@MSI: ~/LinuxAssignmer
cdac@MSI:~$ ls
LabExam ShellProgramming project
cdac@MSI:~$ mkdir LinuxAssignment
cdac@MSI:~$ cd LinuxAssignment
cdac@MSI:~/LinuxAssignment$

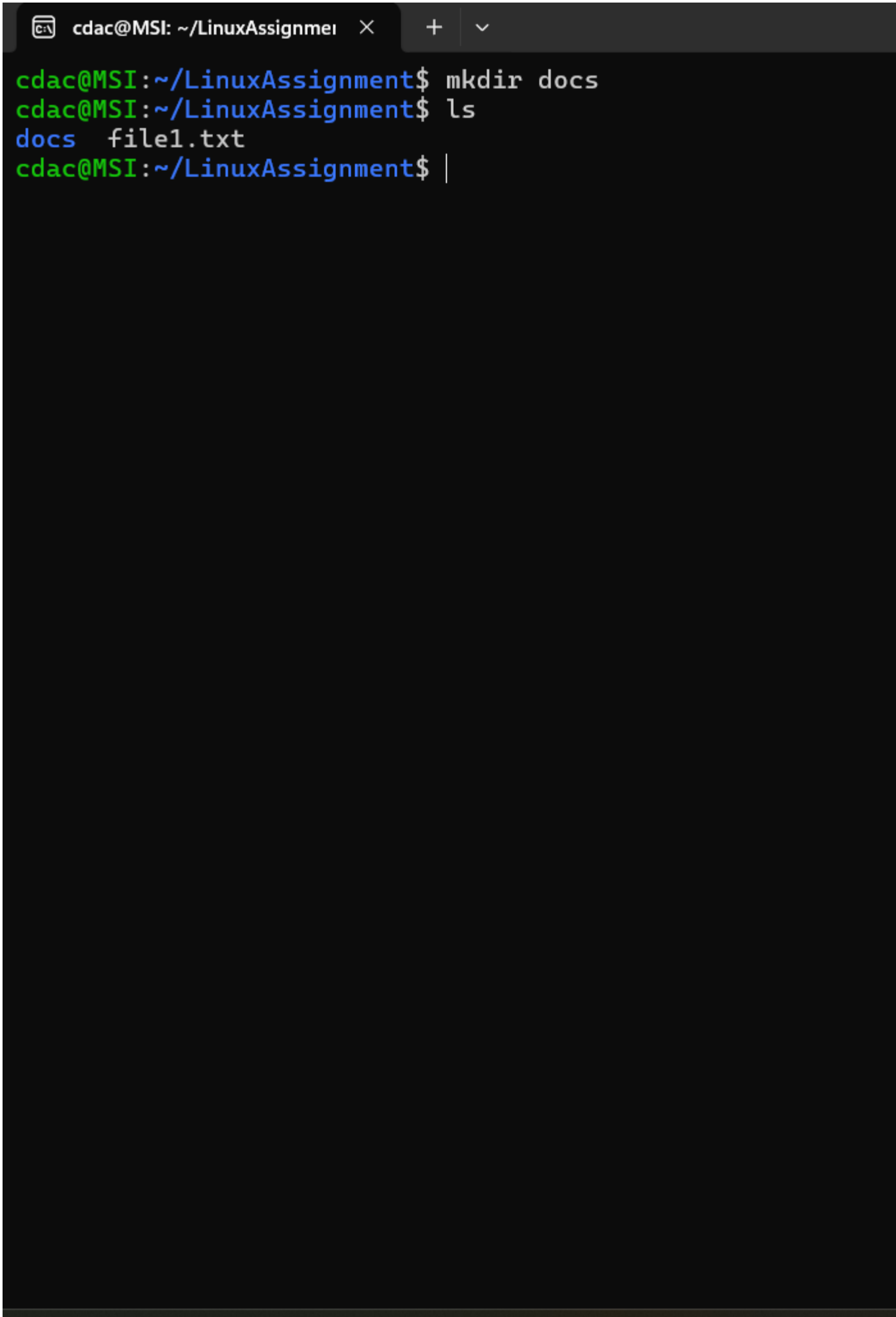
b) File Management:

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


cdac@MSI: ~/LinuxAssignmer
cdac@MSI:~/LinuxAssignment$ nano file1.txt
cdac@MSI:~/LinuxAssignment$ cat file1.txt
file1
cdac@MSI:~/LinuxAssignment$

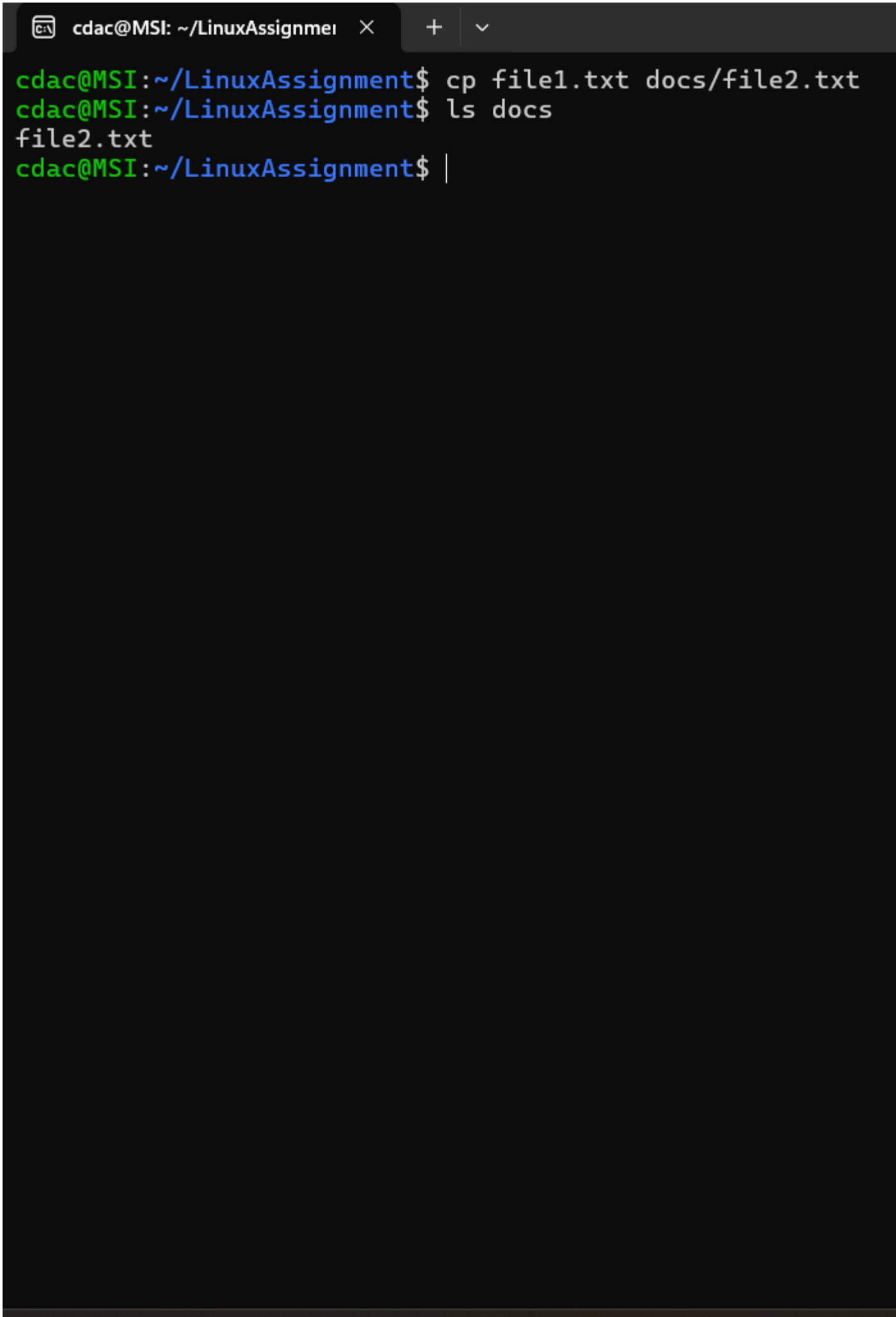
c) Directory Management:

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


cdac@MSI: ~/LinuxAssignmer
cdac@MSI:~/LinuxAssignment$ mkdir docs
cdac@MSI:~/LinuxAssignment$ ls
docs file1.txt
cdac@MSI:~/LinuxAssignment$

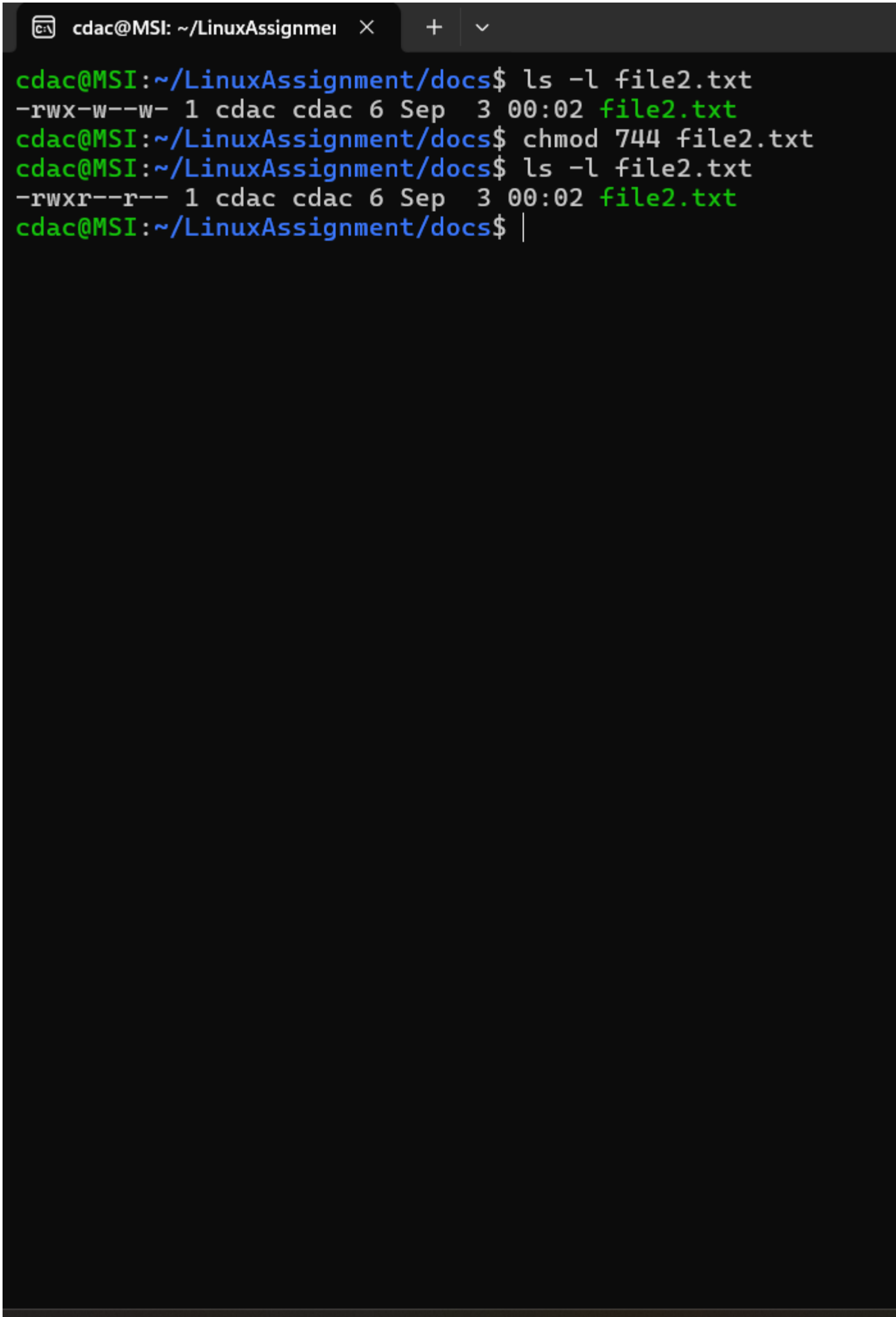
d) Copy and Move Files:

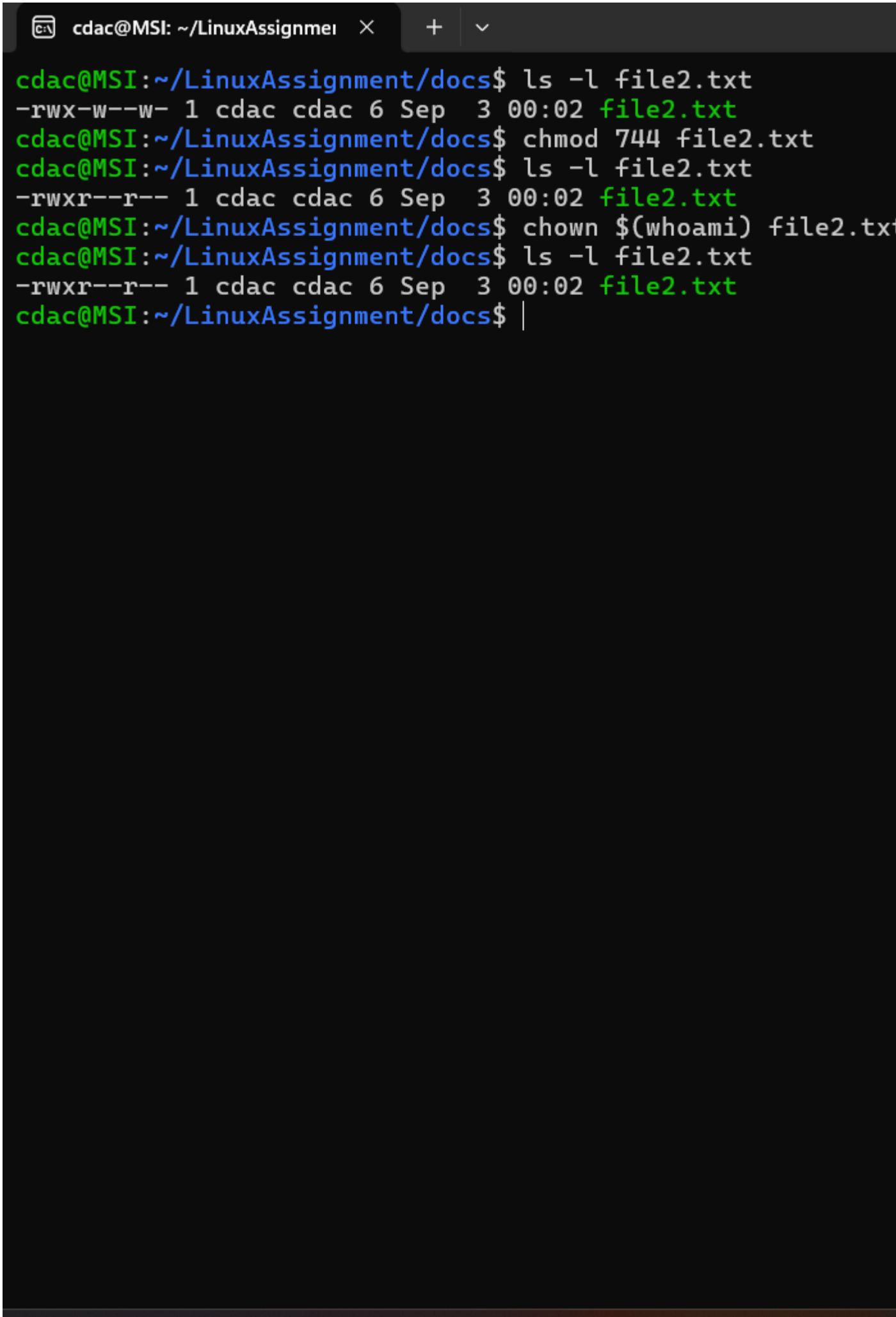
a. Copy the "file1.txt" file into the "docs" directory and rename it to "file2.txt".


cdac@MSI: ~/LinuxAssignmer
cdac@MSI:~/LinuxAssignment$ cp file1.txt docs/file2.txt
cdac@MSI:~/LinuxAssignment$ ls docs
file2.txt
cdac@MSI:~/LinuxAssignment$

e) Permissions and Ownership:

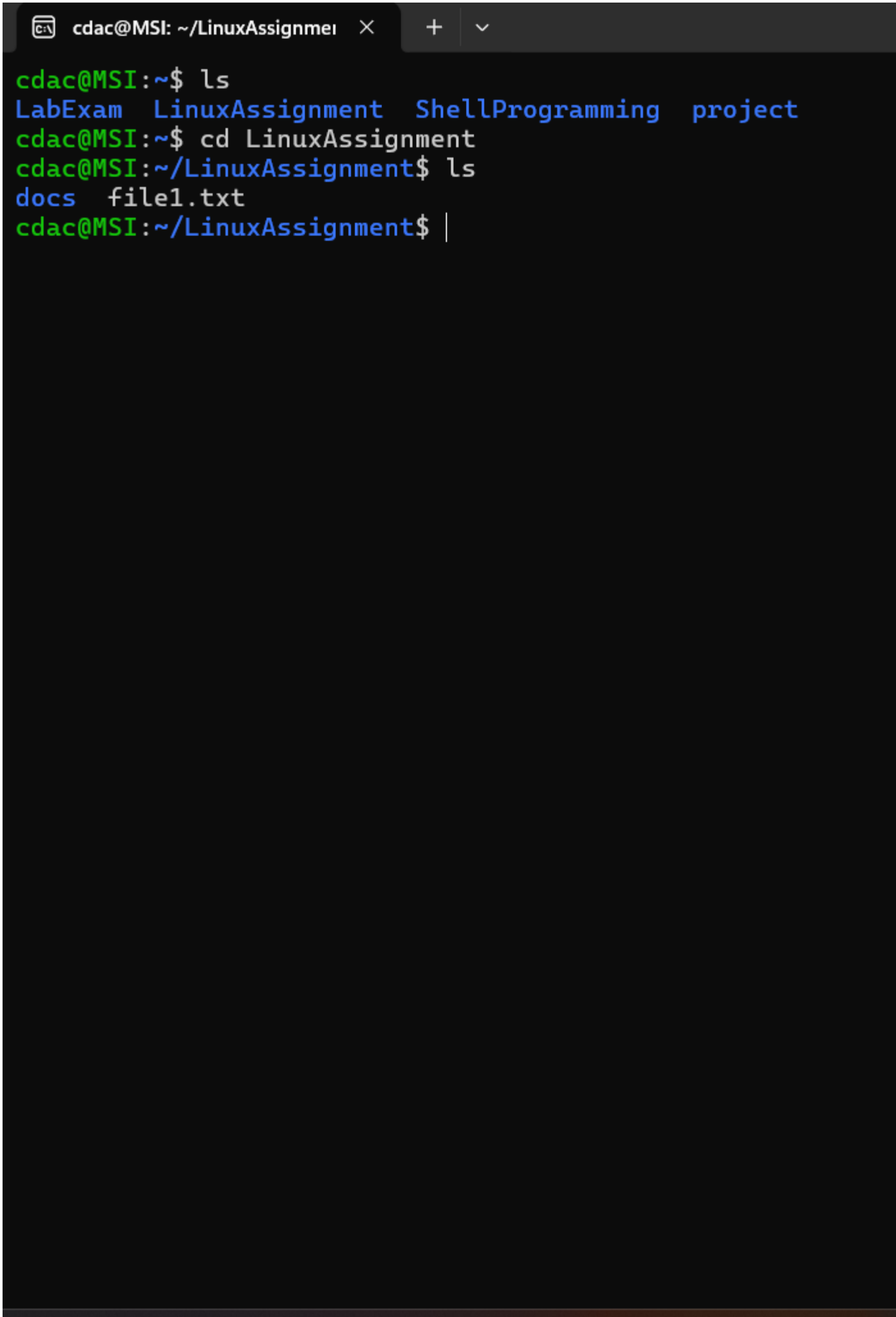
a. Change the permissions of "file2.txt" to allow read, write, and execute permissions for the owner and only read permissions for others. Then, change the owner of "file2.txt" to the current user.


cdac@MSI: ~/LinuxAssignmer
cdac@MSI:~/LinuxAssignment/docs$ ls -l file2.txt
-rwx-w--w- 1 cdac cdac 6 Sep 3 00:02 file2.txt
cdac@MSI:~/LinuxAssignment/docs$ chmod 744 file2.txt
cdac@MSI:~/LinuxAssignment/docs$ ls -l file2.txt
-rwxr--r-- 1 cdac cdac 6 Sep 3 00:02 file2.txt
cdac@MSI:~/LinuxAssignment/docs$


cdac@MSI: ~/LinuxAssignmer
cdac@MSI:~/LinuxAssignment/docs$ ls -l file2.txt
-rwx-w--w- 1 cdac cdac 6 Sep 3 00:02 file2.txt
cdac@MSI:~/LinuxAssignment/docs$ chmod 744 file2.txt
cdac@MSI:~/LinuxAssignment/docs$ ls -l file2.txt
-rwxr--r-- 1 cdac cdac 6 Sep 3 00:02 file2.txt
cdac@MSI:~/LinuxAssignment/docs$ chown $(whoami) file2.tx
cdac@MSI:~/LinuxAssignment/docs$ ls -l file2.txt
-rwxr--r-- 1 cdac cdac 6 Sep 3 00:02 file2.txt
cdac@MSI:~/LinuxAssignment/docs$

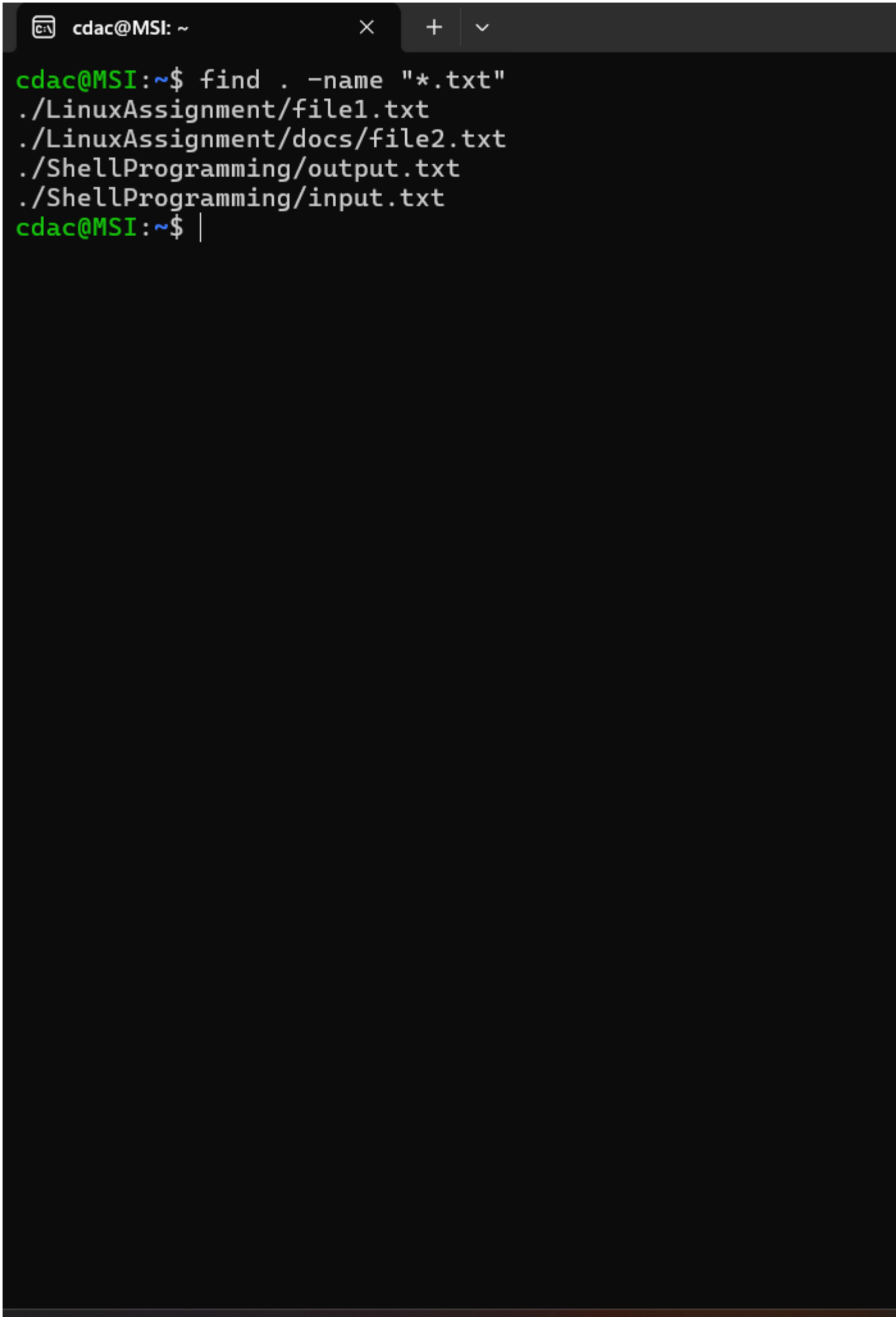
f) Final Checklist:

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

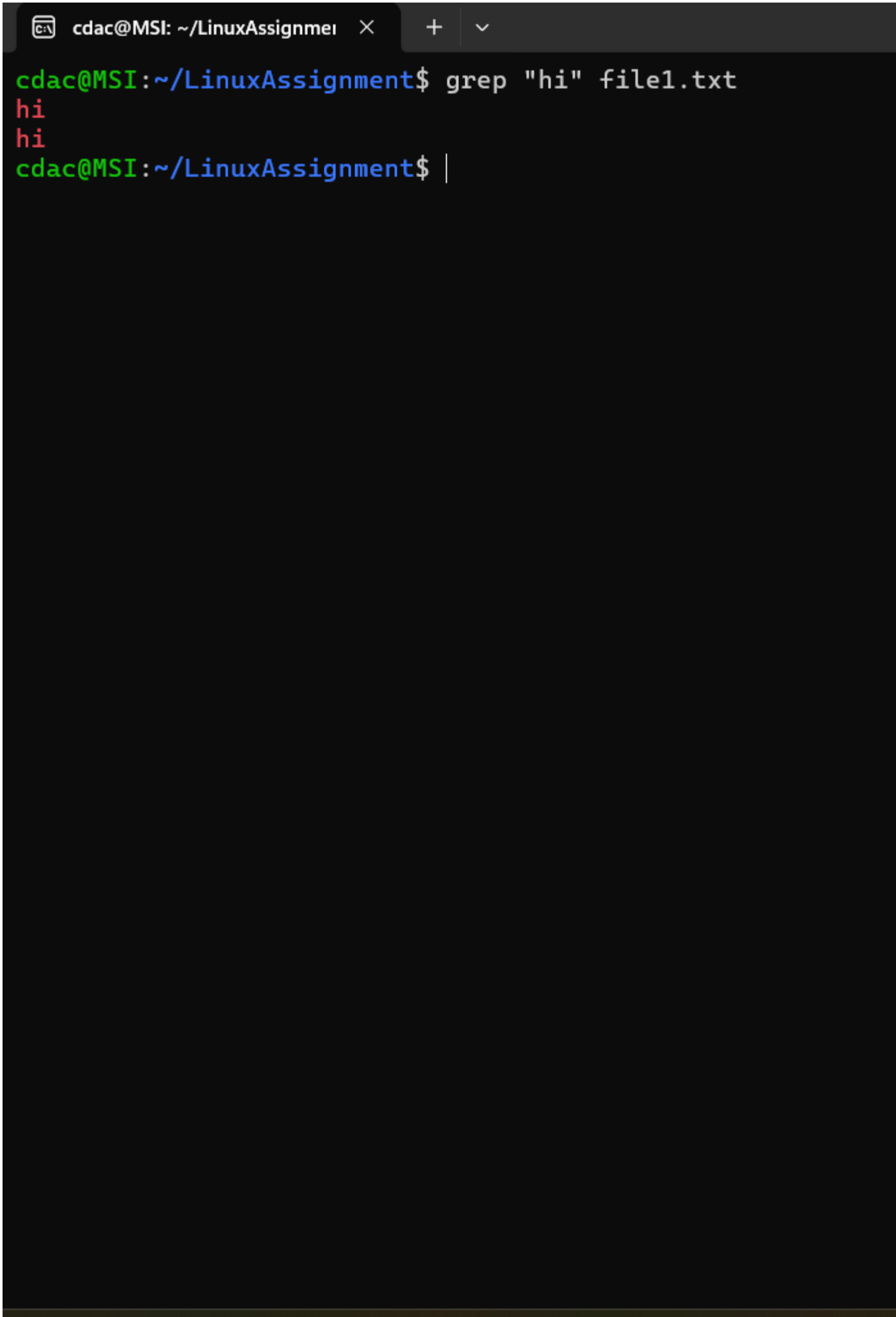

cdac@MSI: ~/LinuxAssignmer
cdac@MSI:~$ ls
LabExam LinuxAssignment ShellProgramming project
cdac@MSI:~$ cd LinuxAssignment
cdac@MSI:~/LinuxAssignment$ ls
docs file1.txt
cdac@MSI:~/LinuxAssignment$

g) File Searching:

a. Search for all files with the extension ".txt" in the current directory and its subdirectories.

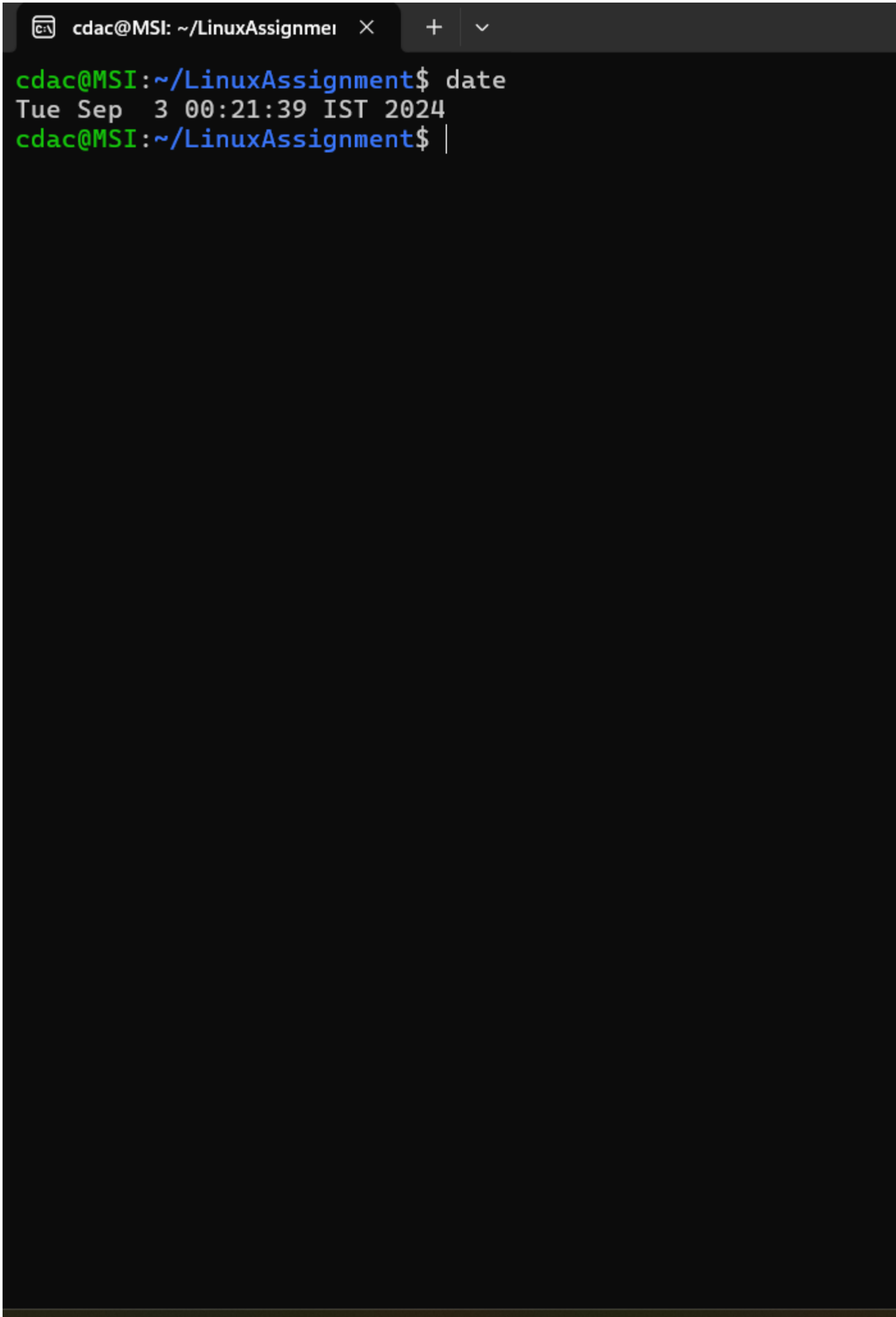

cdac@MSI: ~
cdac@MSI:~$ find . -name "*.txt"
./LinuxAssignment/file1.txt
./LinuxAssignment/docs/file2.txt
./ShellProgramming/output.txt
./ShellProgramming/input.txt
cdac@MSI:~$

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


cdac@MSI: ~/LinuxAssignmer
cdac@MSI:~/LinuxAssignment$ grep "hi" file1.txt
hi
hi
cdac@MSI:~/LinuxAssignment$

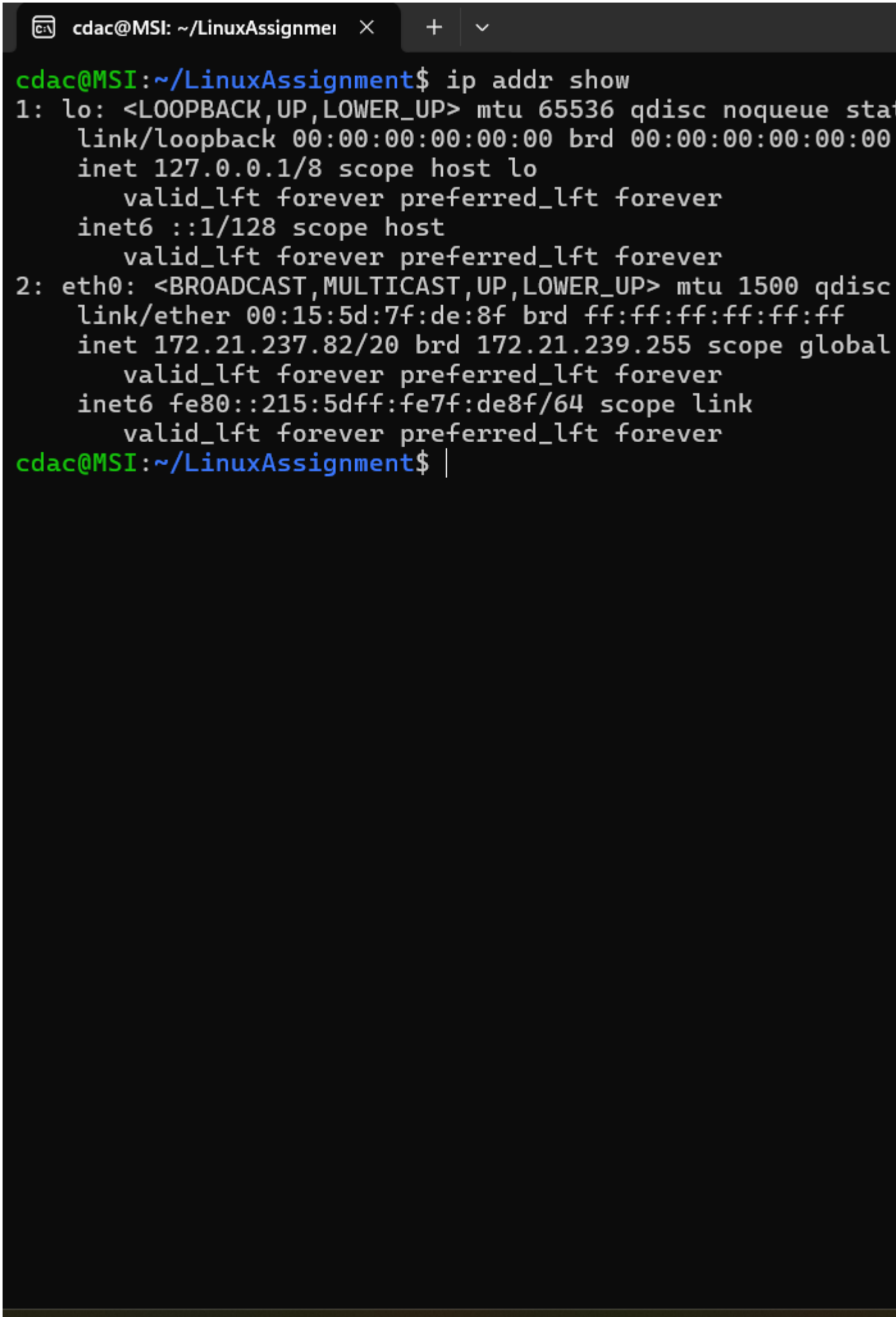
h) System Information:

a. Display the current system date and time.

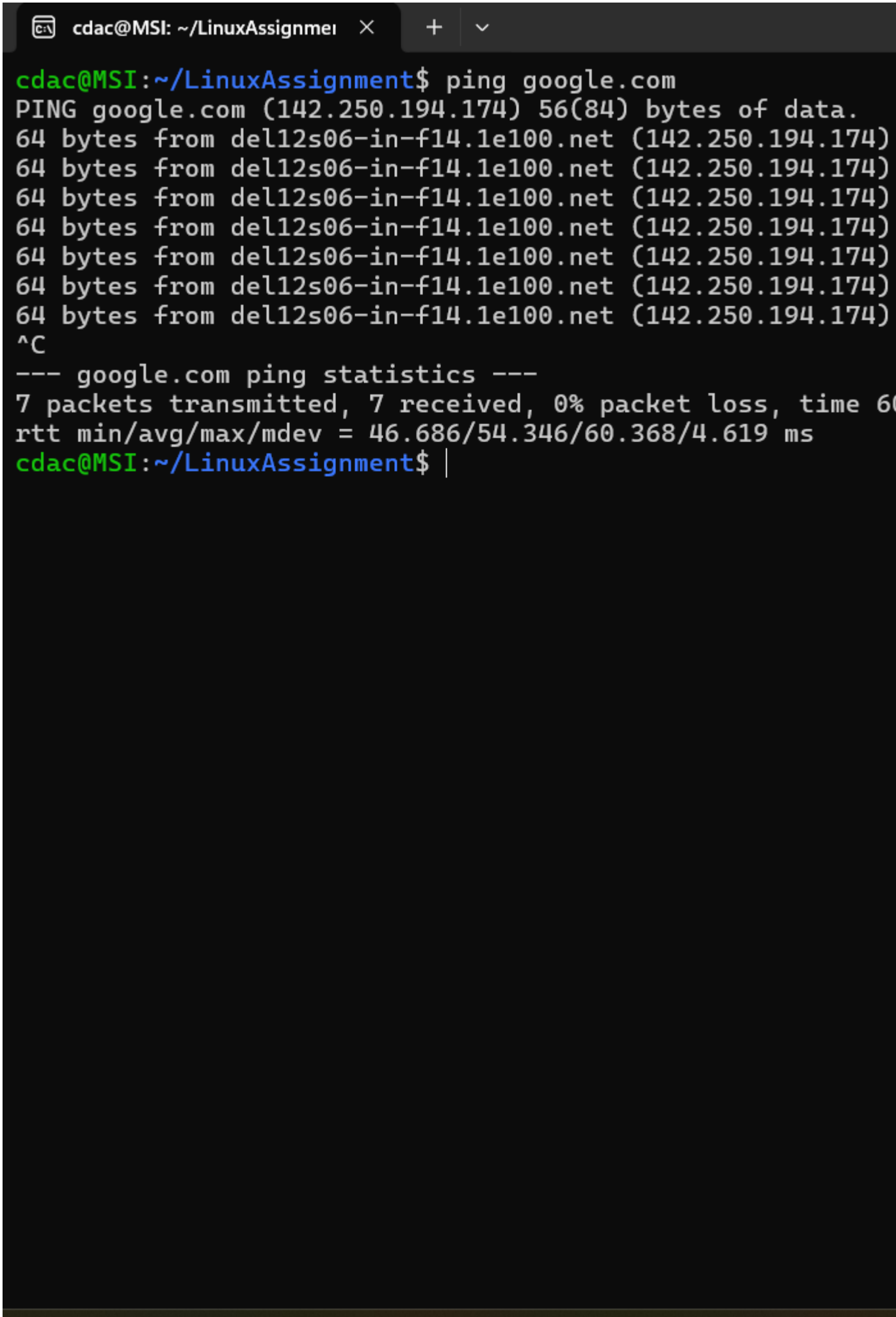

cdac@MSI: ~/LinuxAssignmei
cdac@MSI:~/LinuxAssignment$ date
Tue Sep 3 00:21:39 IST 2024
cdac@MSI:~/LinuxAssignment$

i) Networking:

a. Display the IP address of the system.

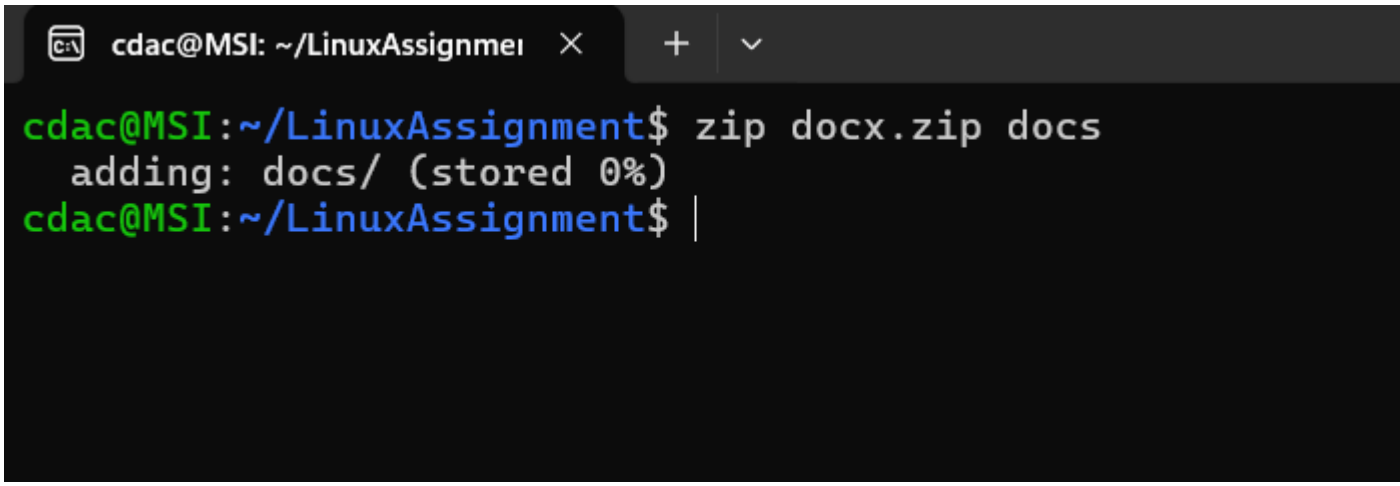

cdac@MSI: ~/LinuxAssignmer
cdac@MSI:~/LinuxAssignment$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue stat
link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
inet 127.0.0.1/8 scope host lo
valid_lft forever preferred_lft forever
inet6 ::1/128 scope host
valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc
link/ether 00:15:5d:7f:de:8f brd ff:ff:ff:ff:ff:ff
inet 172.21.237.82/20 brd 172.21.239.255 scope global
valid_lft forever preferred_lft forever
inet6 fe80::215:5dff:fe7f:de8f/64 scope link
valid_lft forever preferred_lft forever
cdac@MSI:~/LinuxAssignment$

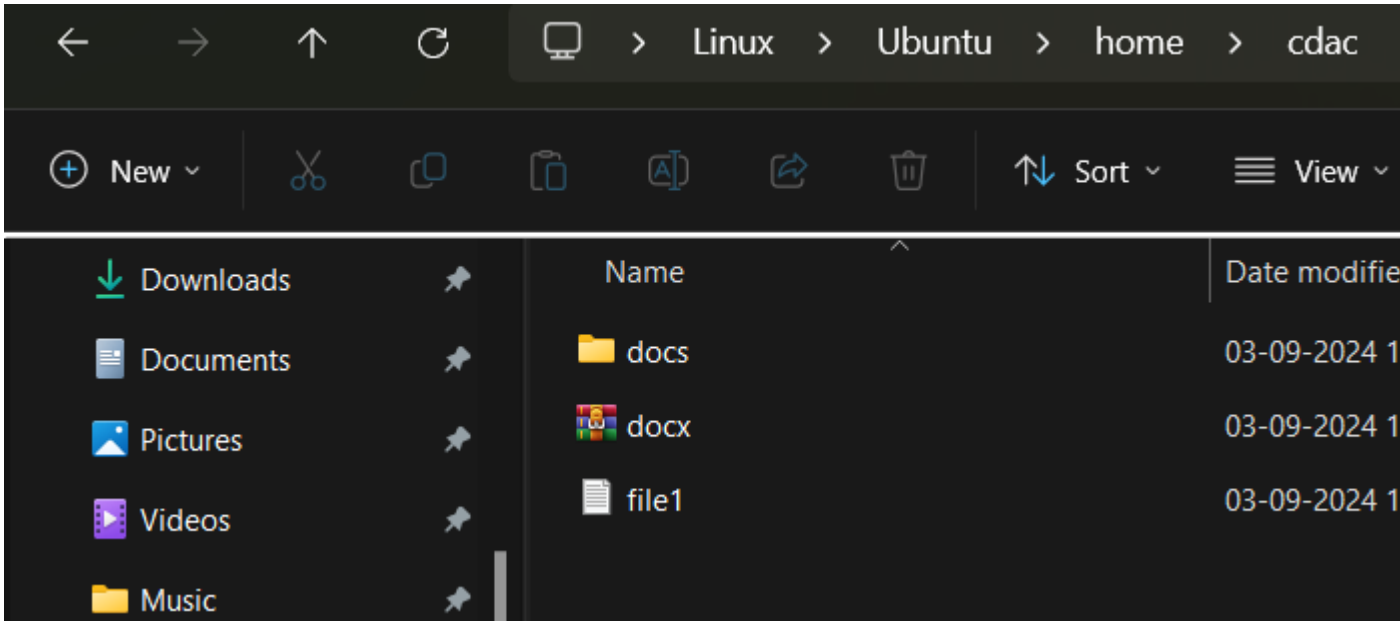
b. Ping a remote server to check connectivity (provide a remote server address to ping).


cdac@MSI: ~/LinuxAssignmer
cdac@MSI:~/LinuxAssignment$ ping google.com
PING google.com (142.250.194.174) 56(84) bytes of data.
64 bytes from del12s06-in-f14.1e100.net (142.250.194.174)
64 bytes from del12s06-in-f14.1e100.net (142.250.194.174)
64 bytes from del12s06-in-f14.1e100.net (142.250.194.174)
64 bytes from del12s06-in-f14.1e100.net (142.250.194.174)
64 bytes from del12s06-in-f14.1e100.net (142.250.194.174)
64 bytes from del12s06-in-f14.1e100.net (142.250.194.174)
64 bytes from del12s06-in-f14.1e100.net (142.250.194.174)
^C
--- google.com ping statistics ---
7 packets transmitted, 7 received, 0% packet loss, time 6
rtt min/avg/max/mdev = 46.686/54.346/60.368/4.619 ms
cdac@MSI:~/LinuxAssignment$

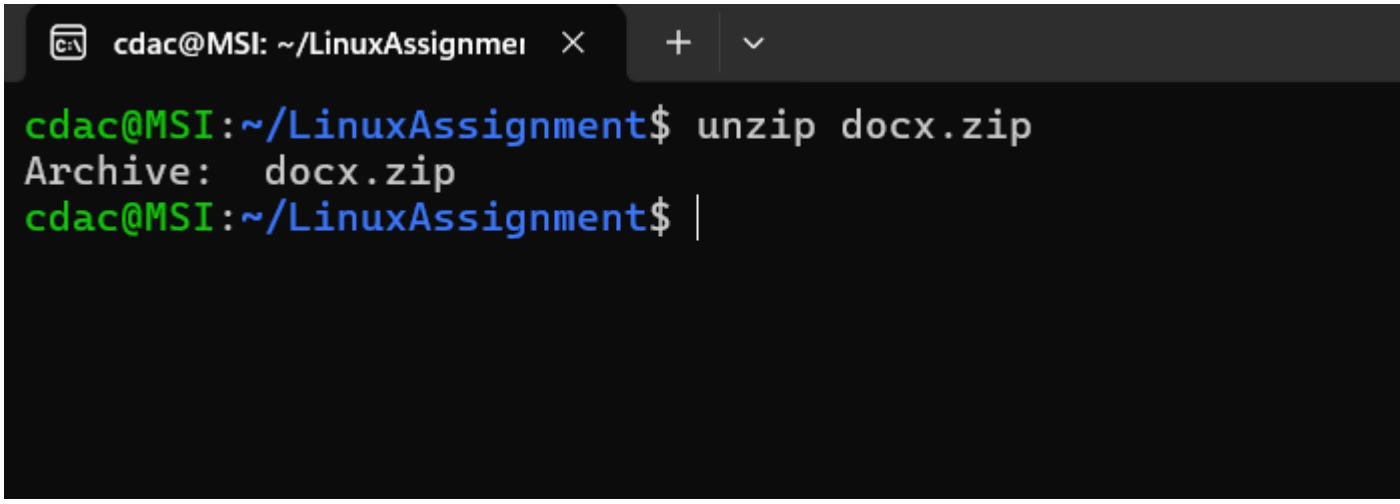
j) File Compression:

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



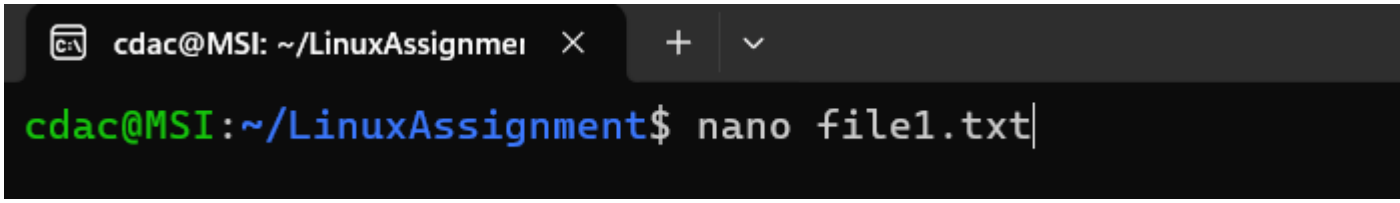


b. Extract the contents of the zip file into a new directory.

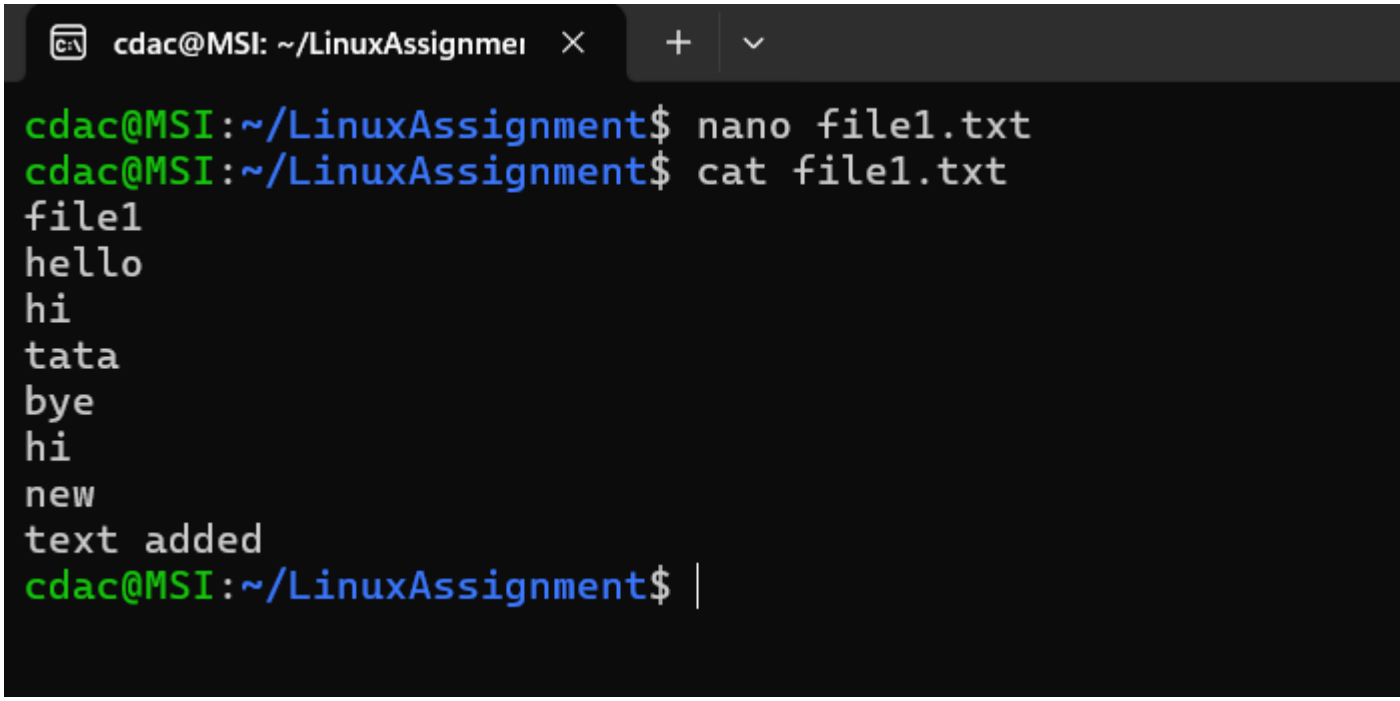


k) File Editing:

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




cdac@MSI: ~/LinuxAssignmer
GNU nano 6.2
file1
hello
hi
tata
bye
hi
new
text added
^G Help
^O Write Out
^W Where Is
^K Cut
^X Exit
^R Read File
^\ Replace
^U Past

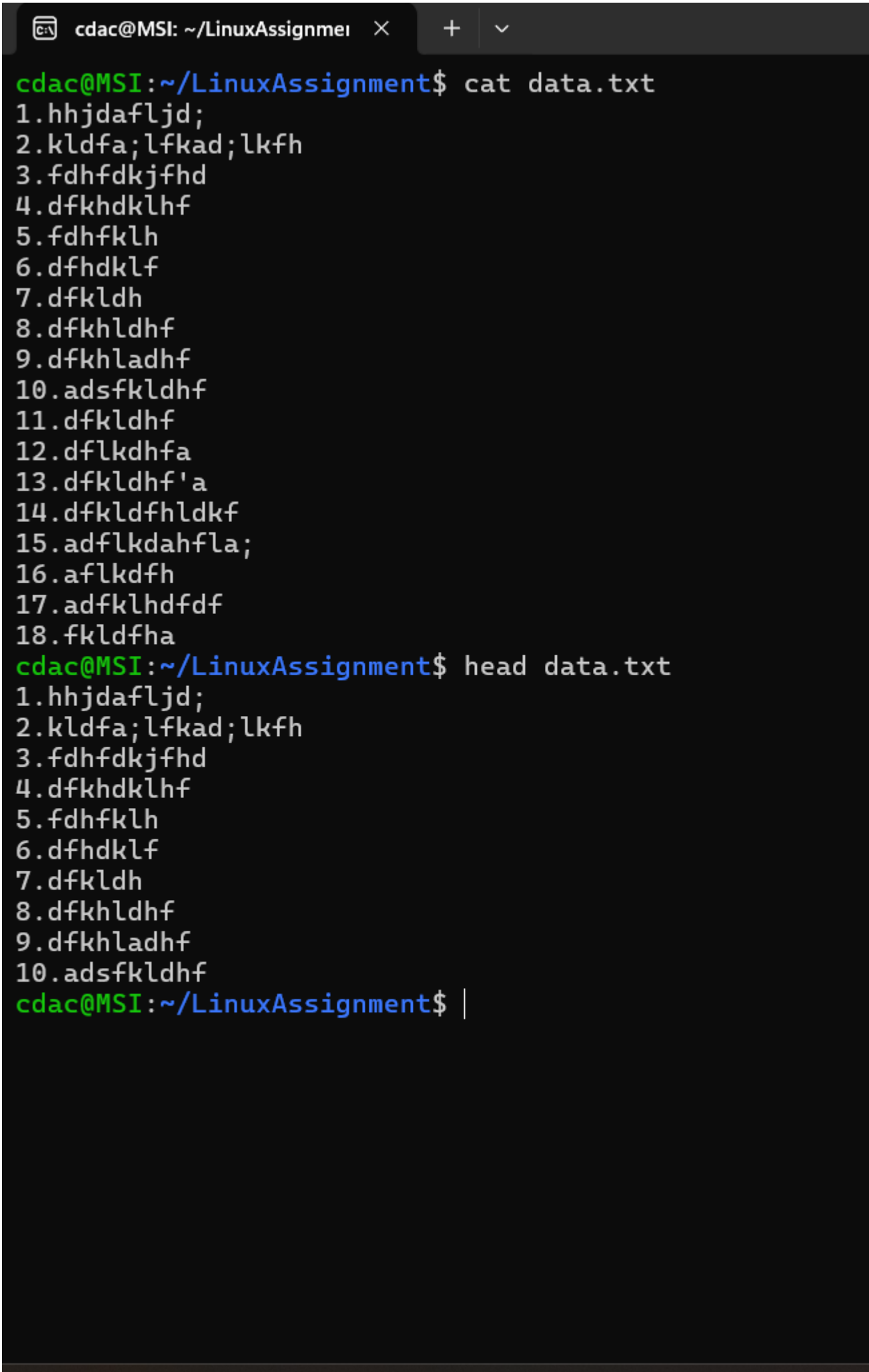


b. Replace a specific word in the "file1.txt" file with another word (provide the original word and the word to replace it with).

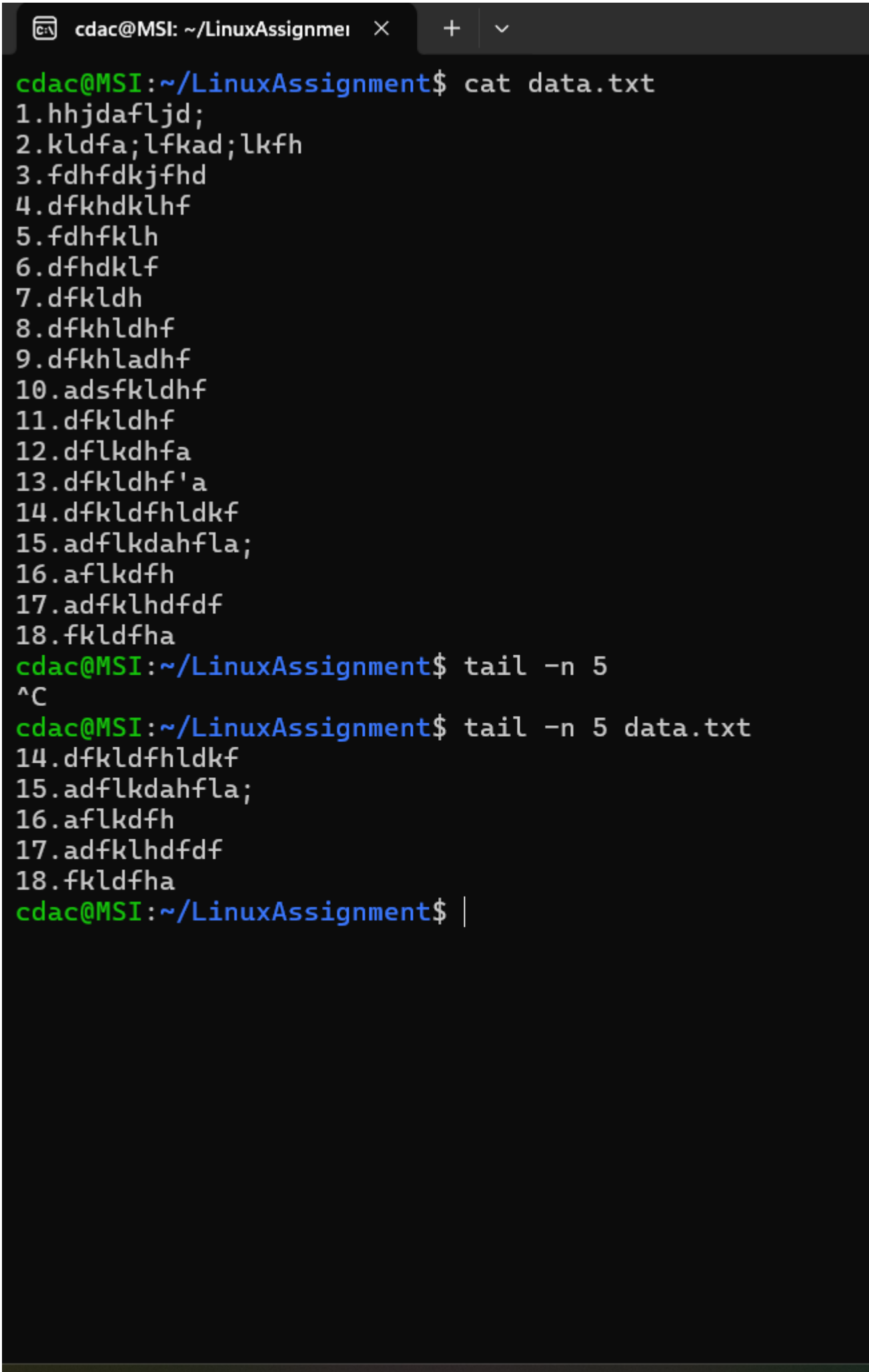
```
cdac@MSI: ~/LinuxAssignmer
cdac@MSI:~/LinuxAssignment$ nano file1.txt
cdac@MSI:~/LinuxAssignment$ cat file1.txt
file1
hello
hi
tata
bye
hi
new
text added
cdac@MSI:~/LinuxAssignment$ sed -i 's/hi/hey/g' file1.txt
cdac@MSI:~/LinuxAssignment$ cat file1.txt
file1
hello
hey
tata
bye
hey
new
text added
cdac@MSI:~/LinuxAssignment$
```

Problem 2:

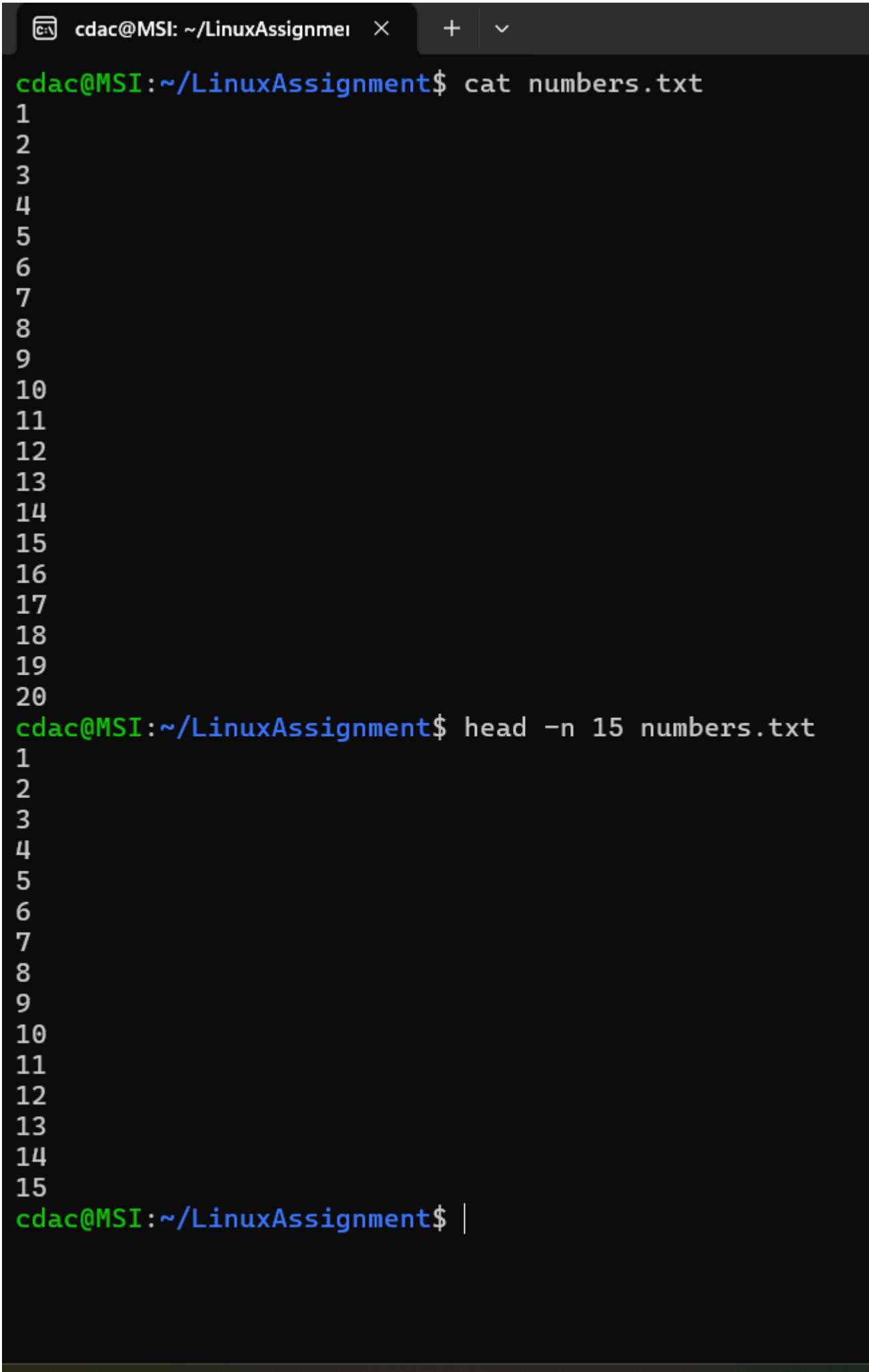
a. Suppose you have a file named "data.txt" containing important information. Display the first 10 lines of this file to quickly glance at its contents using a command.


cdac@MSI: ~/LinuxAssignmer
cdac@MSI:~/LinuxAssignment$ cat data.txt
1.hhjdafljd;
2.kldfa;lfkad;lkfh
3.fdhfdkjfhd
4.dfkhdklhf
5.fdhfklh
6.dfhdklf
7.dfkldh
8.dfkhldhf
9.dfkhladhf
10.adsfkldhf
11.dfkldhf
12.dflkdhfa
13.dfkldhf'a
14.dfkldfhldkf
15.adflkdahfla;
16.aflkdfh
17.adfklhdfdf
18.fkldfha
cdac@MSI:~/LinuxAssignment$ head data.txt
1.hhjdafljd;
2.kldfa;lfkad;lkfh
3.fdhfdkjfhd
4.dfkhdklhf
5.fdhfklh
6.dfhdklf
7.dfkldh
8.dfkhldhf
9.dfkhladhf
10.adsfkldhf
cdac@MSI:~/LinuxAssignment$

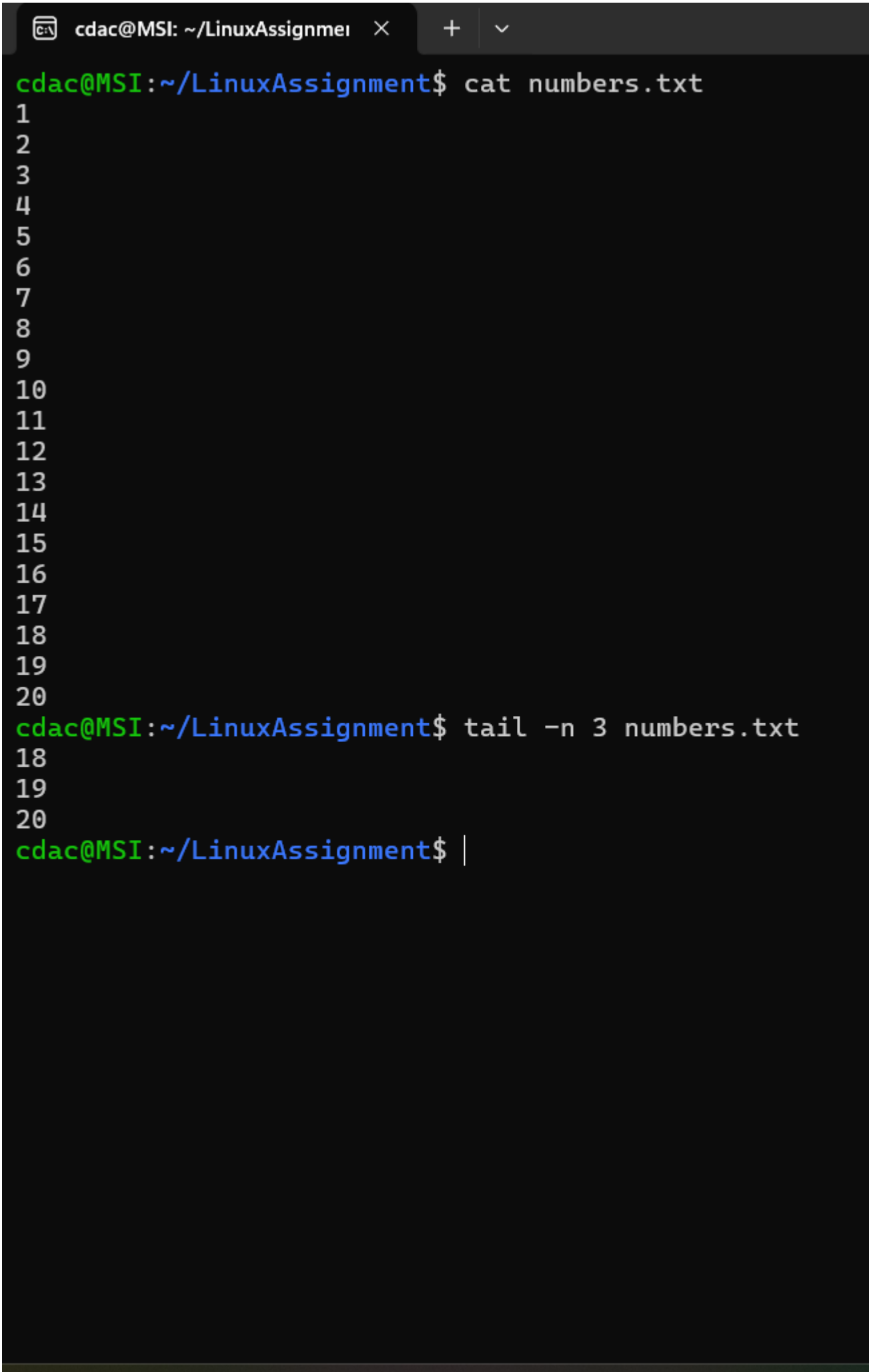
b. Now, to check the end of the file for any recent additions, display the last 5 lines of "data.txt" using another command


cdac@MSI: ~/LinuxAssignmer
cdac@MSI:~/LinuxAssignment$ cat data.txt
1.hhjdafljd;
2.kldfa;lfkad;lkfh
3.fdhfdkjfhd
4.dfkhdklhf
5.fdhfklh
6.dfhdklf
7.dfkldh
8.dfkhldhf
9.dfkhladhf
10.adsfkldhf
11.dfkldhf
12.dflkdhfa
13.dfkldhf'a
14.dfkldfhldkf
15.adflkdahfla;
16.aflkdfh
17.adfklhdfdf
18.fkldfha
cdac@MSI:~/LinuxAssignment$ tail -n 5
^C
cdac@MSI:~/LinuxAssignment$ tail -n 5 data.txt
14.dfkldfhldkf
15.adflkdahfla;
16.aflkdfh
17.adfklhdfdf
18.fkldfha
cdac@MSI:~/LinuxAssignment$

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.

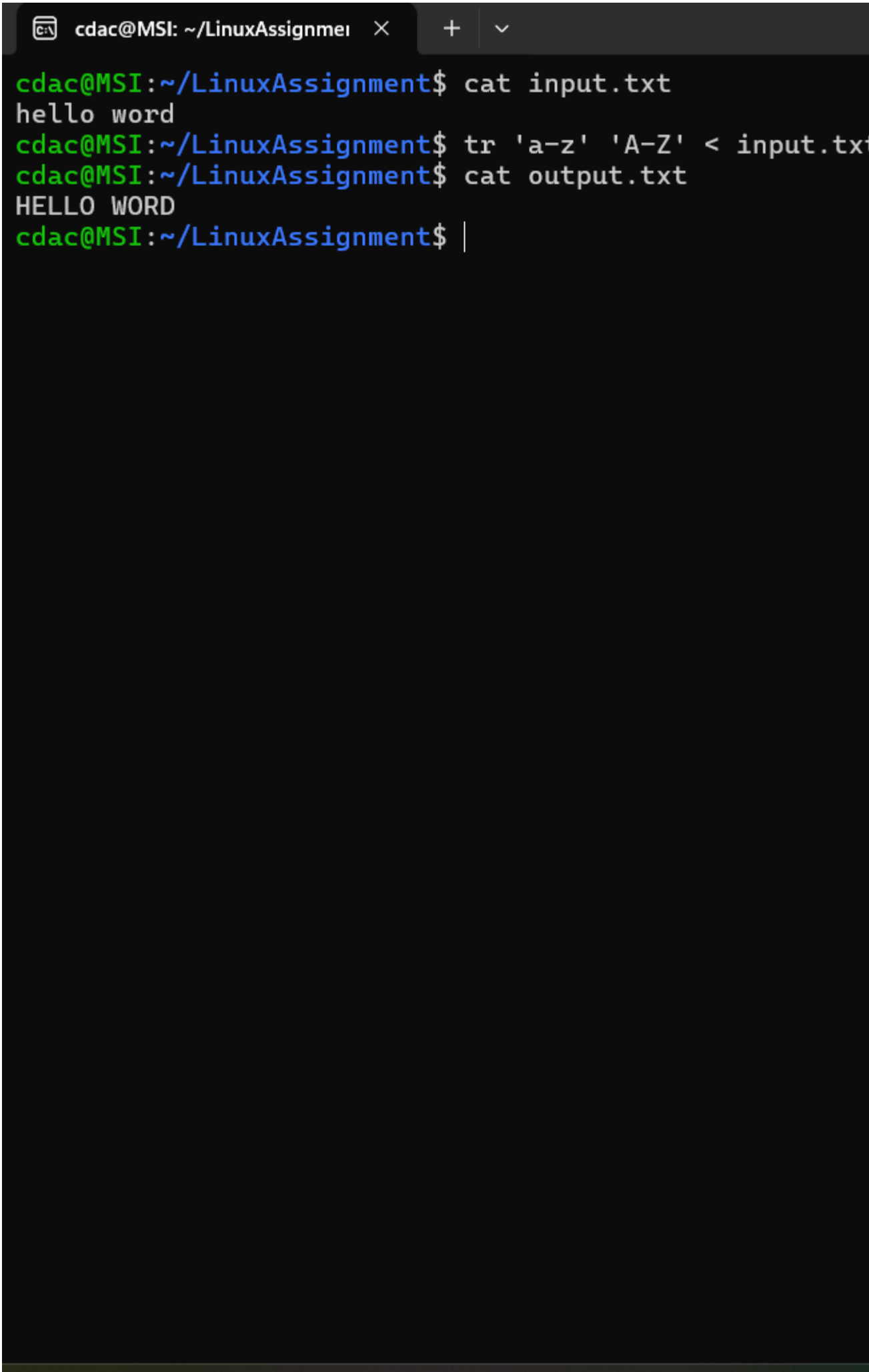

cdac@MSI: ~/LinuxAssignmer
cdac@MSI:~/LinuxAssignment$ cat numbers.txt
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
cdac@MSI:~/LinuxAssignment$ head -n 15 numbers.txt
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
cdac@MSI:~/LinuxAssignment$

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

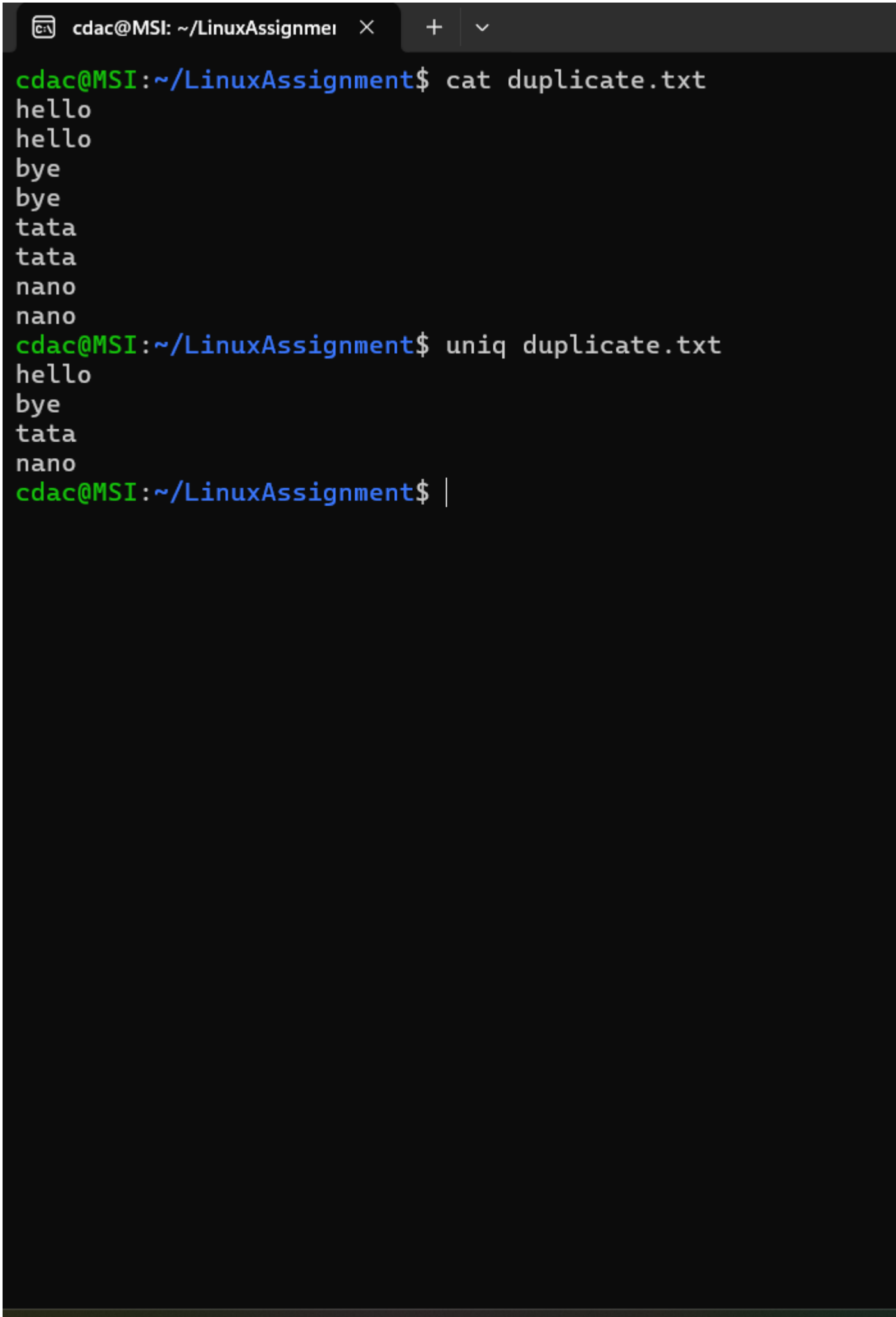

cdac@MSI: ~/LinuxAssignmer
cdac@MSI:~/LinuxAssignment$ cat numbers.txt
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
cdac@MSI:~/LinuxAssignment$ tail -n 3 numbers.txt
18
19
20
cdac@MSI:~/LinuxAssignment$

.

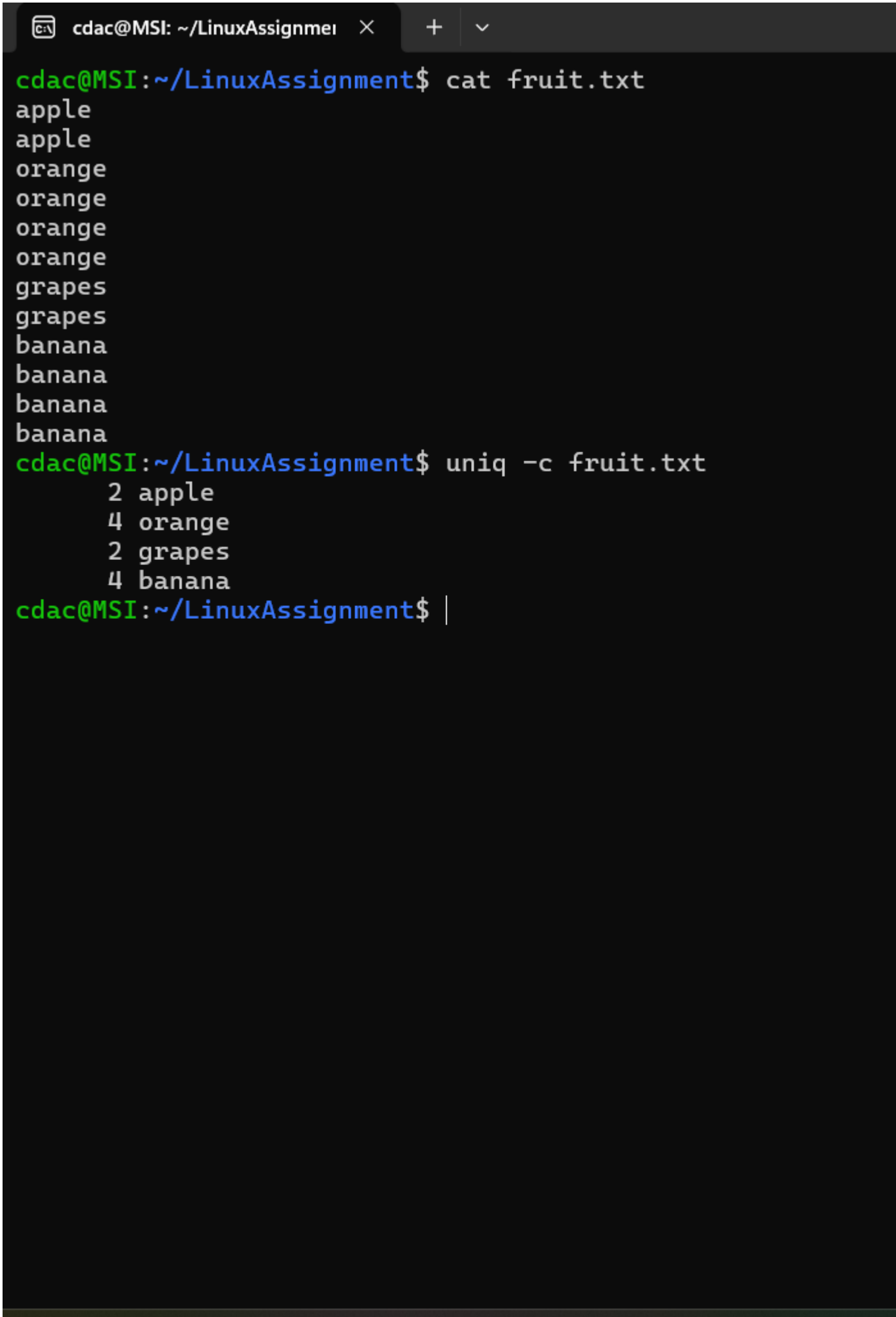
e. Imagine you have a file named "input.txt" with text content. Use a command to translate all lowercase letters to uppercase in "input.txt" and save the modified text in a new file named "output.txt."


cdac@MSI: ~/LinuxAssignmer
cdac@MSI:~/LinuxAssignment$ cat input.txt
hello word
cdac@MSI:~/LinuxAssignment$ tr 'a-z' 'A-Z' < input.tx
cdac@MSI:~/LinuxAssignment$ cat output.txt
HELLO WORD
cdac@MSI:~/LinuxAssignment$

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@MSI: ~/LinuxAssignmer
cdac@MSI:~/LinuxAssignment$ cat duplicate.txt
hello
hello
bye
bye
tata
tata
nano
nano
cdac@MSI:~/LinuxAssignment$ uniq duplicate.txt
hello
bye
tata
nano
cdac@MSI:~/LinuxAssignment$

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@MSI: ~/LinuxAssignmer
cdac@MSI:~/LinuxAssignment$ cat fruit.txt
apple
apple
orange
orange
orange
orange
grapes
grapes
banana
banana
banana
banana
cdac@MSI:~/LinuxAssignment$ uniq -c fruit.txt
2 apple
4 orange
2 grapes
4 banana
cdac@MSI:~/LinuxAssignment$