

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.

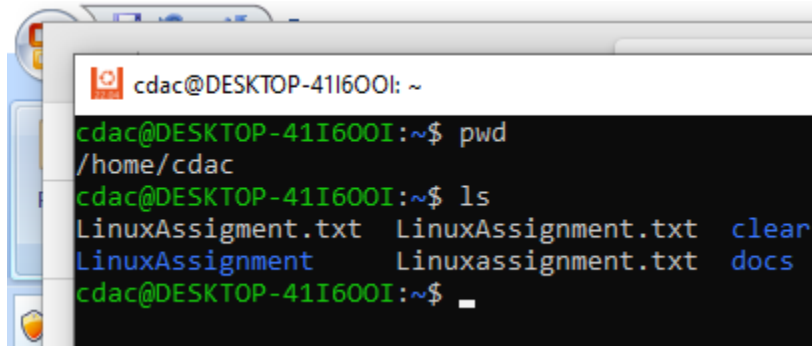
```
cdac@DESKTOP-41I600I: ~  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
  
cdac@DESKTOP-41I600I:~$ pwd  
/home/cdac  
cdac@DESKTOP-41I600I:~$ ls  
LinuxAssignment LinuxAssignment.txt Linuxassignment.txt clear file1.txt file1.txt.save  
cdac@DESKTOP-41I600I:~$ ls -l  
total 0  
drwxr-xr-x 1 cdac cdac 512 Aug 28 19:55 LinuxAssignment  
-rw-r--r-- 1 cdac cdac 17 Aug 28 19:56 LinuxAssignment.txt  
-rw-r--r-- 1 cdac cdac 18 Aug 28 20:13 Linuxassignment.txt  
drwxr-xr-x 1 cdac cdac 512 Aug 28 18:08 clear  
-rw-r--r-- 1 cdac cdac 6 Aug 28 12:03 file1.txt  
-rw----- 1 cdac cdac 7 Aug 28 10:09 file1.txt.save  
-rw----- 1 cdac cdac 49 Aug 28 11:58 file2.txt.save  
cdac@DESKTOP-41I600I:~$ nano LinuxAssignment.txt  
Command 'nano' not found, did you mean:  
  command 'mono' from deb mono-runtime (6.8.0.105+dfsg-3.2)  
  command 'nano' from deb nano (6.2-1)  
Try: sudo apt install <deb name>  
cdac@DESKTOP-41I600I:~$ nano LinuxAssignment.txt
```

- b) **File Management:** a. Inside the "LinuxAssignment" directory, create a new file named "file1.txt". Display its contents.

```
cdac@DESKTOP-41I600I: ~
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

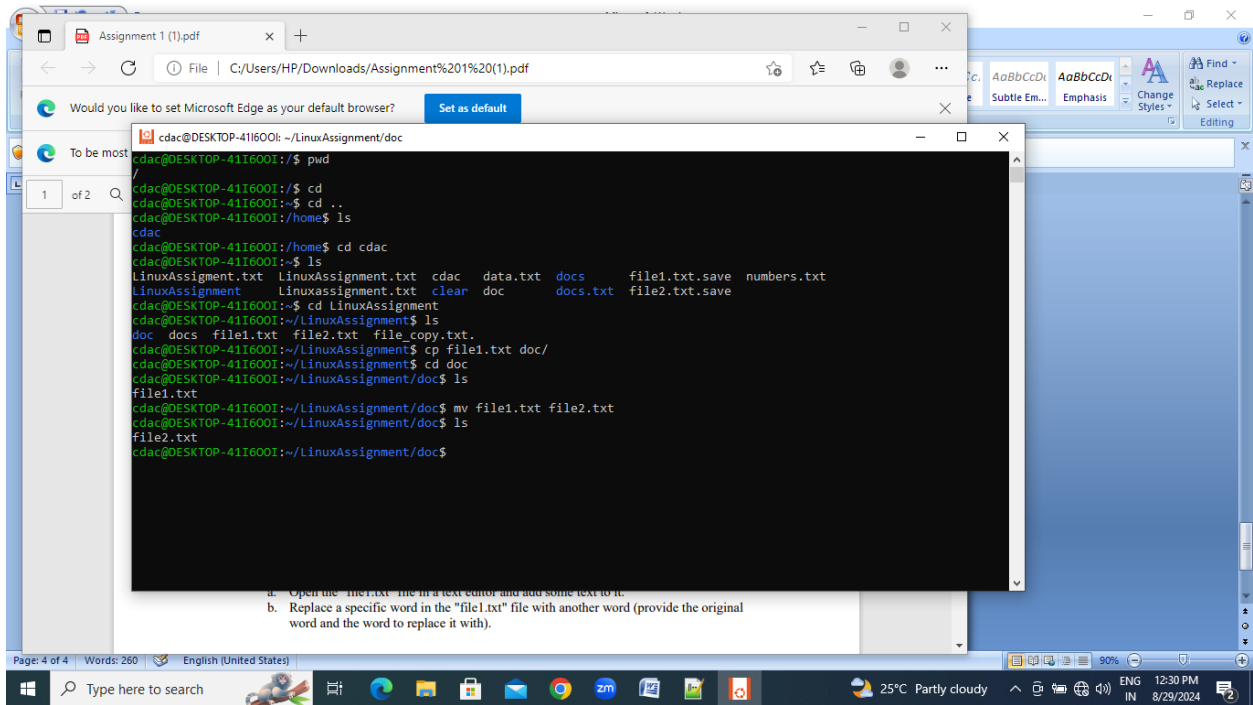
cdac@DESKTOP-41I600I:~$ pwd
/home/cdac
cdac@DESKTOP-41I600I:~$ ls
LinuxAssignment LinuxAssignment.txt Linuxassignment.txt clear file1.txt file1.txt.save file2.txt.save
cdac@DESKTOP-41I600I:~$ ls -l
total 0
drwxr-xr-x 1 cdac cdac 512 Aug 28 19:55 LinuxAssignment
-rw-r--r-- 1 cdac cdac 17 Aug 28 19:56 LinuxAssignment.txt
-rw-r--r-- 1 cdac cdac 18 Aug 28 20:13 Linuxassignment.txt
drwxr-xr-x 1 cdac cdac 512 Aug 28 18:08 clear
-rw-r--r-- 1 cdac cdac 6 Aug 28 12:03 file1.txt
-rw----- 1 cdac cdac 7 Aug 28 10:09 file1.txt.save
-rw----- 1 cdac cdac 49 Aug 28 11:58 file2.txt.save
cdac@DESKTOP-41I600I:~$ neno LinuxAssignment.txt
Command 'nenno' not found, did you mean:
  command 'mono' from deb mono-runtime (6.8.0.105+dfsg-3.2)
  command 'nano' from deb nano (6.2-1)
Try: sudo apt install <deb name>
cdac@DESKTOP-41I600I:~$ nano LinuxAssignment.txt
cdac@DESKTOP-41I600I:~$ cat LinuxAssignment
cat: LinuxAssignment: Is a directory
cdac@DESKTOP-41I600I:~$ cat LinuxAssignment.txt
hi
question2 ans
cdac@DESKTOP-41I600I:~$
```

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



```
cdac@DESKTOP-41I600I: ~
cdac@DESKTOP-41I600I:~$ pwd
/home/cdac
cdac@DESKTOP-41I600I:~$ ls
LinuxAssignment LinuxAssignment.txt clear
LinuxAssignment Linuxassignment.txt docs
cdac@DESKTOP-41I600I:~$
```

- 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.

```
cdac@DESKTOP-41I600I:~/LinuxAssignment/doc$ ls -l
total 0
-rw-r--r-- 1 cdac cdac 20 Aug 29 12:30 file2.txt
cdac@DESKTOP-41I600I:~/LinuxAssignment/doc$ chmod u+x file2.txt
cdac@DESKTOP-41I600I:~/LinuxAssignment/doc$ ls -l
total 0
-rwxr--r-- 1 cdac cdac 20 Aug 29 12:30 file2.txt
cdac@DESKTOP-41I600I:~/LinuxAssignment/doc$ chmod o+r file2.txt
cdac@DESKTOP-41I600I:~/LinuxAssignment/doc$ ls -l
total 0
-rwxr--r-- 1 cdac cdac 20 Aug 29 12:30 file2.txt
cdac@DESKTOP-41I600I:~/LinuxAssignment/doc$
```

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

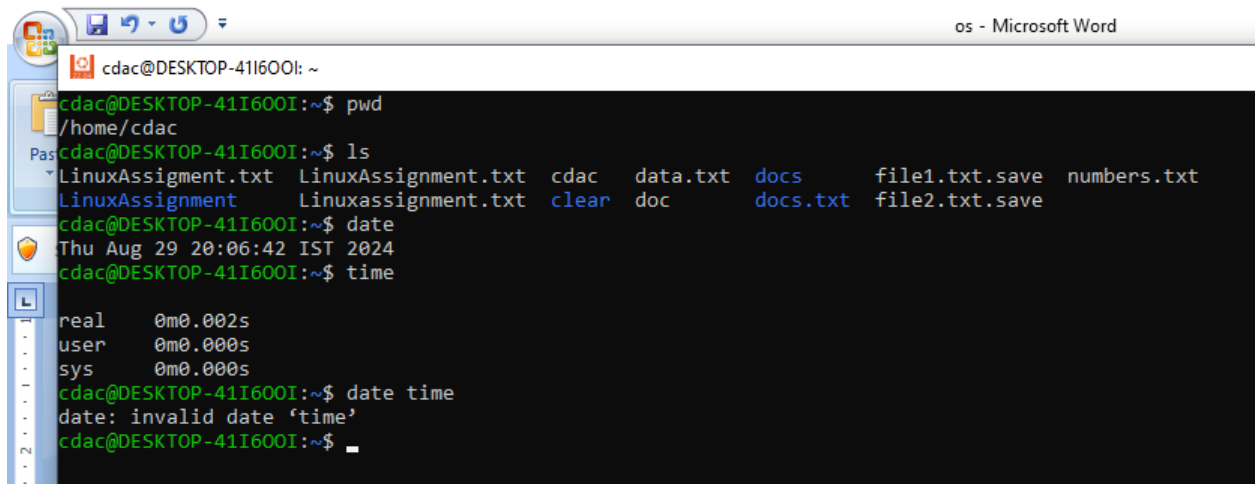
```
cdac@DESKTOP-41I600I:~/LinuxAssignment/doc$ cd
cdac@DESKTOP-41I600I:~$ cd ..
cdac@DESKTOP-41I600I:/home$ ls
cdac
cdac@DESKTOP-41I600I:/home$ ls -l
total 0
drwxr-x--- 1 cdac cdac 512 Aug 28 23:25 cdac
cdac@DESKTOP-41I600I:/home$ cd cdac
cdac@DESKTOP-41I600I:~$ ls
LinuxAssignment.txt  LinuxAssignment.txt  cdac  data.txt  docs  file1.txt.save  numbers.txt
LinuxAssignment     Linuxassignment.txt  clear  doc  docs.txt  file2.txt.save
cdac@DESKTOP-41I600I:~$ cd LinuxAssignment
cdac@DESKTOP-41I600I:~/LinuxAssignment$ ls
doc docs file1.txt file2.txt file_copy.txt.
cdac@DESKTOP-41I600I:~/LinuxAssignment$ ls -l
total 0
drwxr-xr-x 1 cdac cdac 512 Aug 29 12:30 doc
-rw-r--r-- 1 cdac cdac 20 Aug 29 12:23 docs
-rw-r--r-- 1 cdac cdac 20 Aug 29 12:03 file1.txt
-rw-r--r-- 1 cdac cdac 50 Aug 28 19:53 file2.txt
-rw-r--r-- 1 cdac cdac 50 Aug 29 10:54 file_copy.txt.
cdac@DESKTOP-41I600I:~/LinuxAssignment$ cd doc
cdac@DESKTOP-41I600I:~/LinuxAssignment/doc$ ls -l
total 0
-rwxr--r-- 1 cdac cdac 20 Aug 29 12:30 file2.txt
cdac@DESKTOP-41I600I:~/LinuxAssignment/doc$ ls
file2.txt
cdac@DESKTOP-41I600I:~/LinuxAssignment/doc$ ls
file2.txt
cdac@DESKTOP-41I600I:~/LinuxAssignment/doc$
```

- 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-41I600I: ~/LinuxAssignment
cdac@DESKTOP-41I600I:/home$ pwd
/home
cdac@DESKTOP-41I600I:/home$ ls
cdac
cdac@DESKTOP-41I600I:/home$ ls
cdac
cdac@DESKTOP-41I600I:/home$ cd
cdac@DESKTOP-41I600I:~$ ls
LinuxAssignment.txt  LinuxAssignment.txt  cdac  data.txt  docs  file1.txt.save  numbers.txt
LinuxAssignment      LinuxAssignment.txt  clear  doc      docs.txt  file2.txt.save
cdac@DESKTOP-41I600I:~$ cd
cdac@DESKTOP-41I600I:~$ cd ..
cdac@DESKTOP-41I600I:/home$ ls
cdac
cdac@DESKTOP-41I600I:/home$ cd LinuxAssignment
-bash: cd: LinuxAssignment: No such file or directory
cdac@DESKTOP-41I600I:/home$ ls
cdac
cdac@DESKTOP-41I600I:/home$ cd ..
cdac@DESKTOP-41I600I:/$ cd
cdac@DESKTOP-41I600I:~$ cd LinuxAssignment
cdac@DESKTOP-41I600I:~/LinuxAssignment$ ls
doc  docs  file1.txt  file2.txt  file_copy.txt.
cdac@DESKTOP-41I600I:~/LinuxAssignment$ find . -type f -name "*.txt"
./doc/file2.txt
./file1.txt
./file2.txt
cdac@DESKTOP-41I600I:~/LinuxAssignment$ grep "hi" file1.txt
hii question d ans
cdac@DESKTOP-41I600I:~/LinuxAssignment$ _
```

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



The screenshot shows a Windows desktop environment. On the left, there is a taskbar with icons for the Start menu, File Explorer, and a terminal window. The terminal window is open and displays the following commands and output:

```
cdac@DESKTOP-41I600I: ~
cdac@DESKTOP-41I600I:~$ pwd
/home/cdac
cdac@DESKTOP-41I600I:~$ ls
LinuxAssignment.txt  LinuxAssignment.txt  cdac  data.txt  docs  file1.txt.save  numbers.txt
LinuxAssignment      LinuxAssignment.txt  clear  doc      docs.txt  file2.txt.save
cdac@DESKTOP-41I600I:~$ date
Thu Aug 29 20:06:42 IST 2024
cdac@DESKTOP-41I600I:~$ time
real    0m0.002s
user    0m0.000s
sys     0m0.000s
cdac@DESKTOP-41I600I:~$ date time
date: invalid date 'time'
cdac@DESKTOP-41I600I:~$ _
```

On the right side of the desktop, a Microsoft Word document titled "os - Microsoft Word" is open. The terminal window is positioned over the Word document, partially obscuring it.

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).

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.

```
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

cdac@DESKTOP-41I600I:~$ pwd
/home/cdac
cdac@DESKTOP-41I600I:~$ ls
LinuxAssignment.txt  LinuxAssignment.txt  cdac  doc  docs.txt  file2.txt.save
LinuxAssignment     Linuxassignment.txt  clear docs  file1.txt.save
cdac@DESKTOP-41I600I:~$ touch data.txt
cdac@DESKTOP-41I600I:~$ nano data.txt
cdac@DESKTOP-41I600I:~$ cat data.txt
hi
hellow
welcom
good moring
how are you ?
had you brakfast?
ok bye
see you
take care
tata
cdac@DESKTOP-41I600I:~$
```

- 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-41I600I:~$ nano data.txt
cdac@DESKTOP-41I600I:~$ cat data.txt
hi
hellow
welcom
good moring
how are you ?
had you brakfast?
ok bye
see you
take care
tata
cdac@DESKTOP-41I600I:~$ head-5 data.txt
head-5: command not found
cdac@DESKTOP-41I600I:~$ head -5 data.txt
hi
hellow
welcom
good moring
how are you ?
cdac@DESKTOP-41I600I:~$
```

- 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@DESKTOP-41I600I:~$ pwd
/home/cdac
cdac@DESKTOP-41I600I:~$ ls
LinuxAssignment.txt  LinuxAssignment.txt  cdac  data.txt  docs  file1.txt.save
LinuxAssignment     Linuxassignment.txt  clear  doc      docs.txt  file2.txt.save
cdac@DESKTOP-41I600I:~$ nano numbers.txt
cdac@DESKTOP-41I600I:~$ cat numbers.txt
1:one
2:two
3:Three
4:four
5:five
6:six
7:seven
8:eight
9:nine
10:ten
11:eleven
12:twelve
13:thirteen
14:fourteen
15 :fifteen
cdac@DESKTOP-41I600I:~$
```

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

```
cdac@DESKTOP-41I600I:~$ tail -3 numbers.txt
13:thirteen
14:fourteen
15 :fifteen
cdac@DESKTOP-41I600I:~$
```

- 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."