Module COS Assignment 2

PART A

Q1. Echo “Hello, World!”

Echo prints the string and values.

Q2. name="Productive"

```
cdac@DESKTOP-214LJET:~/LogicalShellScript$ name="Productive"
cdac@DESKTOP-214LJET:~/LogicalShellScript$ echo $name
Productive
cdac@DESKTOP-214LJET:~/LogicalShellScript$
```

Q3. touch file.txt

It will create new file named file.txt inside current directory

Q4. ls –a

display all information about files

```
cdac@DESKTOP-214LJET:~$ ls -a
.               .landscape                  Assignment2
..              .lesshst                    COS
.bash_history   .local                      LinuxAssignment
.bash_logout    .motd_shown                 LogicalShellScript
.bashrc         .profile                    file1.txt
.cache          .sudo_as_admin_successful
cdac@DESKTOP-214LJET:~$
```

Q5. Rm file.txt

Deleted file.txt

```
cdac@DESKTOP-214LJET:~$ cd Assignment2
cdac@DESKTOP-214LJET:~/Assignment2$ rm file.txt
cdac@DESKTOP-214LJET:~/Assignment2$ ls
cdac@DESKTOP-214LJET:~/Assignment2$
```

Q6. cp file1.txt file2.txt

```
cdac@DESKTOP-214LJET:~/Assignment2$ rm file.txt
cdac@DESKTOP-214LJET:~/Assignment2$ ls
cdac@DESKTOP-214LJET:~/Assignment2$ touch file1.txt
cdac@DESKTOP-214LJET:~/Assignment2$ nano file1.txt
cdac@DESKTOP-214LJET:~/Assignment2$ cp file1.txt fil
e2.txt
cdac@DESKTOP-214LJET:~/Assignment2$ cat file2.txt
asdfghjklewertyuioidszxcvbn
cdac@DESKTOP-214LJET:~/Assignment2$
```

Q7. mv file.txt /path/to/directory/

```
cdac@DESKTOP-214LJET:~$ ls
Assignment2  COS  LinuxAssignment  LogicalShellScript  file1.txt
cdac@DESKTOP-214LJET:~$ cd Assignment2
cdac@DESKTOP-214LJET:~/Assignment2$ ls
file1.txt  file2.txt
cdac@DESKTOP-214LJET:~/Assignment2$ touch file.txt
cdac@DESKTOP-214LJET:~/Assignment2$ mv file.txt /home/cdac/LogicalShellScript
cdac@DESKTOP-214LJET:~/Assignment2$ cd ..
cdac@DESKTOP-214LJET:~$ ls
Assignment2  COS  LinuxAssignment  LogicalShellScript  file1.txt
cdac@DESKTOP-214LJET:~$ cd LogicalShellScript
cdac@DESKTOP-214LJET:~/LogicalShellScript$ ls
10  divide.txt  file.txt  forloop.txt  sum.txt  sum1.txt  temp.txt
cdac@DESKTOP-214LJET:~/LogicalShellScript$
```

Q8. chmod 755 script.sh

Using this command permissions are given to file.

```
cdac@DESKTOP-214LJET:~/LogicalShellScript$ touch script.sh
cdac@DESKTOP-214LJET:~/LogicalShellScript$ chmod 755 script.sh
cdac@DESKTOP-214LJET:~/LogicalShellScript$ ls -l
total 20
-rw-r--r-- 1 cdac cdac  46 Feb 28 17:46 10
-rw-r--r-- 1 cdac cdac 213 Feb 28 18:01 divide.txt
-rw-r--r-- 1 cdac cdac   0 Feb 28 18:53 file.txt
-rw-r--r-- 1 cdac cdac 101 Feb 28 18:26 forloop.txt
-rwxr-xr-x 1 cdac cdac   0 Feb 28 18:56 script.sh
-rw-r--r-- 1 cdac cdac  73 Feb 28 17:50 sum.txt
-rw-r--r-- 1 cdac cdac   0 Feb 28 17:52 sum1.txt
-rw-r--r-- 1 cdac cdac 104 Feb 28 17:49 temp.txt
cdac@DESKTOP-214LJET:~/LogicalShellScript$
```

Q9. grep "pattern" file.txt

Grep is used to search any string in file.

```
cdac@DESKTOP-214LJET:~$ cd Assignment2
cdac@DESKTOP-214LJET:~/Assignment2$ ls
file1.txt  file2.txt
cdac@DESKTOP-214LJET:~/Assignment2$ cd file.txt
-bash: cd: file.txt: No such file or directory
cdac@DESKTOP-214LJET:~/Assignment2$ touch file.txt
cdac@DESKTOP-214LJET:~/Assignment2$ nano file.txt
cdac@DESKTOP-214LJET:~/Assignment2$ grep "pattern" file.txt
asdfgpatternjkllkjhgf
cdac@DESKTOP-214LJET:~/Assignment2$
```

Q10. kill pid

This command is used to terminate the PID.

Q11. mkdir mydir && cd mydir && touch file.txt && echo "Hello, World!" > file.txt && cat file.txt

This command intentions are-
Make directory mydir
And enter in mydir
And create file.txt file
And print “Hello, World!”
Redirect to file.txt file
And cat file.txt will concatinate and display content of file.txt on command line interface

Q12. ls -l | grep ".txt"

```
cdac@DESKTOP-214LJET:~/Assignment2$ mkdir mydir && cd mydir && t
ouch file.txt && echo "Hello, World!" > file.txt && cat file.txt
Hello, World!
cdac@DESKTOP-214LJET:~/Assignment2/mydir$ ls -l | grep ".txt"
-rw-r--r-- 1 cdac cdac 14 Feb 28 19:29 file.txt
cdac@DESKTOP-214LJET:~/Assignment2/mydir$
```

In this command we first listed the my dir directory files with long formatting and then in pipeline there was grep .txt command was for searching the .txt string on list of files

Q13. cat file1.txt file2.txt | sort | uniq

```
cdac@DESKTOP-214LJET:~/Assignment2$ nano file1.txt
cdac@DESKTOP-214LJET:~/Assignment2$ nano file2.txt
cdac@DESKTOP-214LJET:~/Assignment2$ cat file1.txt file2.txt | so
rt | uniq
asdfghjklewertyuioidszxcvbn
sdfghasdfghjklewertyuioidszxcvbn
cdac@DESKTOP-214LJET:~/Assignment2$
```

In this first file1.txt and file2.txt concatenated after they are sorted and then only uniq lines are printed

Q14. ls -l | grep "^d"

```
cdac@DESKTOP-214LJET:~/Assignment2$ ls -l | grep "^d"
drwxr-xr-x 2 cdac cdac 4096 Feb 28 19:29 mydir
cdac@DESKTOP-214LJET:~/Assignment2$
```

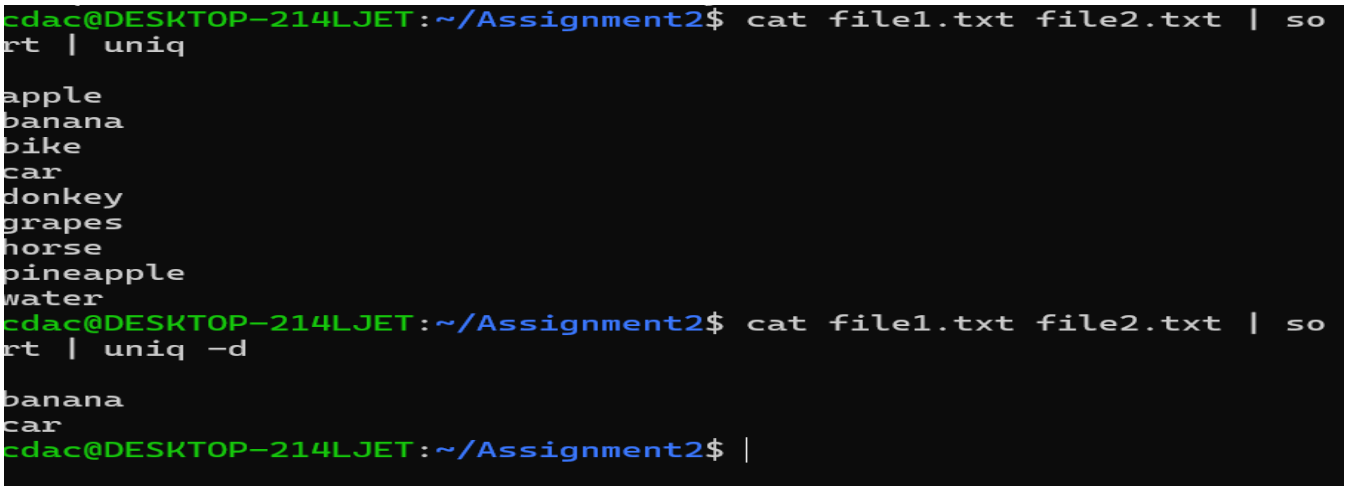
Q15. grep -r "pattern" /path/to/directory/

```
cdac@DESKTOP-214LJET:~/Assignment2$ pwd
/home/cdac/Assignment2
cdac@DESKTOP-214LJET:~/Assignment2$ grep -r "pattern" /home/cdac
/Assignment2
/home/cdac/Assignment2/file.txt:asdfgpatternjkllkjhgf
cdac@DESKTOP-214LJET:~/Assignment2$ ^C
cdac@DESKTOP-214LJET:~/Assignment2$ nano file2.txt
cdac@DESKTOP-214LJET:~/Assignment2$ nano file.txt
cdac@DESKTOP-214LJET:~/Assignment2$ touch script.sh
cdac@DESKTOP-214LJET:~/Assignment2$ cd..
^C
cdac@DESKTOP-214LJET:~/Assignment2$ cd ..
cdac@DESKTOP-214LJET:~$ nano script.sh
cdac@DESKTOP-214LJET:~$ grep -r "pattern" /home/cdac/Assignment2
/home/cdac/Assignment2/file2.txt:patternsdfghasdfghjklewertyuioi
dszxcvbn
/home/cdac/Assignment2/file.txt:patternasdfgpatternjkllkjhgf
cdac@DESKTOP-214LJET:~$ grep -r "pattern" /home/cdac/
/home/cdac/script.sh:pattern
/home/cdac/Assignment2/file2.txt:patternsdfghasdfghjklewertyuioi
dszxcvbn
/home/cdac/Assignment2/file.txt:patternasdfgpatternjkllkjhgf
/home/cdac/.bashrc:# If set, the pattern "**" used in a pathname
 expansion context will
cdac@DESKTOP-214LJET:~$
```

In this command we are searching for string pattern using grep cmd in recursive -r way in given path files and directories

Q16 cat file1.txt file2.txt | sort | uniq –d

In this file file1.txt and file2.txt concatenated after that they ar sorted and after that duplicates from that files removed.



Q 17. chmod 644 file.txt

```
total 16
-rw-r--r-- 1 cdac cdac   29 Feb 28 19:41 file.txt
-rw-r--r-- 1 cdac cdac   44 Feb 28 19:49 file1.txt
-rw-r--r-- 1 cdac cdac   27 Feb 28 19:49 file2.txt
drwxr-xr-x 2 cdac cdac 4096 Feb 28 19:29 mydir
-rw-r--r-- 1 cdac cdac    0 Feb 28 19:42 script.sh
cdac@DESKTOP-214LJET:~/Assignment2$
cdac@DESKTOP-214LJET:~/Assignment2$ chmod 644 file.txt
cdac@DESKTOP-214LJET:~/Assignment2$ ls -l
total 16
-rw-r--r-- 1 cdac cdac   29 Feb 28 19:41 file.txt
-rw-r--r-- 1 cdac cdac   44 Feb 28 19:49 file1.txt
-rw-r--r-- 1 cdac cdac   27 Feb 28 19:49 file2.txt
drwxr-xr-x 2 cdac cdac 4096 Feb 28 19:29 mydir
-rw-r--r-- 1 cdac cdac    0 Feb 28 19:42 script.sh
cdac@DESKTOP-214LJET:~/Assignment2$ chmod 744 file.txt
cdac@DESKTOP-214LJET:~/Assignment2$ ls -l
total 16
-rwxr--r-- 1 cdac cdac   29 Feb 28 19:41 file.txt
-rw-r--r-- 1 cdac cdac   44 Feb 28 19:49 file1.txt
-rw-r--r-- 1 cdac cdac   27 Feb 28 19:49 file2.txt
drwxr-xr-x 2 cdac cdac 4096 Feb 28 19:29 mydir
-rw-r--r-- 1 cdac cdac    0 Feb 28 19:42 script.sh
cdac@DESKTOP-214LJET:~/Assignment2$ chmod 644 file.txt
cdac@DESKTOP-214LJET:~/Assignment2$ ls -l
total 16
-rw-r--r-- 1 cdac cdac   29 Feb 28 19:41 file.txt
-rw-r--r-- 1 cdac cdac   44 Feb 28 19:49 file1.txt
-rw-r--r-- 1 cdac cdac   27 Feb 28 19:49 file2.txt
drwxr-xr-x 2 cdac cdac 4096 Feb 28 19:29 mydir
-rw-r--r-- 1 cdac cdac    0 Feb 28 19:42 script.sh
cdac@DESKTOP-214LJET:~/Assignment2$
```

In this first file.txt file having 644 permissions so I changed my previous permissions to 744 and after again I gave 644 permission to file.txt.

In this 644 means o = rw g = r other = r
744 means o = rwx g = r other = r

PART B

Identify True or False:

1. ls is used to list files and directories in a directory.

   TRUE

2. mv is used to move files and directories.

   TRUE

3. cd is used to copy files and directories.

   FALSE

3. pwd stands for "print working directory" and displays the current directory.

   TRUE

4. grep is used to search for patterns in files.

   TRUE

5. chmod 755 file.txt gives read, write, and execute permissions to the owner, and read and execute permissions to group and others.

   TRUE

6. mkdir -p directory1/directory2 creates nested directories, creating directory2 inside directory1
   if directory1 does not exist.

   TRUE

7. rm -rf file.txt deletes a file forcefully without confirmation.

   TRUE

Identify the Incorrect Commands:

1. chmodx is used to change file permissions.

   CHMOD

2. cpy is used to copy files and directories.

   CP

3. mkfile is used to create a new file.

   TOUCH

4. catx is used to concatenate files.

   CAT

5. rn is used to rename files.

   MV

Part E

1) Process	Arrival Time	Burst Time
P1	0	5
P2	1	3
P3	2	6

Calculate the average waiting time using First-Come, First-Served (FCFS) scheduling.

PID	Arrival Time	Burst Time	Response	Wait Time
P1	0	5	0	0
P2	1	3	5	4
P3	2	6	8	6
				Avg = 3.33

Gantt Chart

P1	P2	P3	
0	5	8	14

2. Consider the following processes with arrival times and burst times:
Process	Arrival Time	Burst Time
P1	0	3
P2	1	5
P3	2	1
P4	3	4

Calculate the average turnaround time using Shortest Job First (SJF) scheduling.

PID	Arrival Time	Burst Time	Response	Wait Time	TAT
P1	0	3	0	0	3
P2	1	5	8	7	12
P3	2	1	3	1	2
P4	3	4	4	1	5
					Avg= 5.5

Gantt Chart

P1	P1	P1	P3	P4	P2	
0	1	2	3	4	8	13

3. Consider the following processes with arrival times, burst times, and priorities (lower number indicates higher priority):

Process	Arrival Time	Burst Time	Priority
P1	0	6	3
P2	1	4	1
P3	2	7	4
P4	3	2	2

Calculate the average waiting time using Priority Scheduling.

PID	Arrival Time	Burst Time	Priority	Response Time	Wait Time
P1	0	6	3	0	7
P2	1	4	1	15	14
P3	2	7	4	2	0
P4	3	2	2	13	10
					Avg= 7.75

Gantt Chart

P1	P1	P3	P3	P1	P4	P2	
0	1	2	3	9	13	15	19

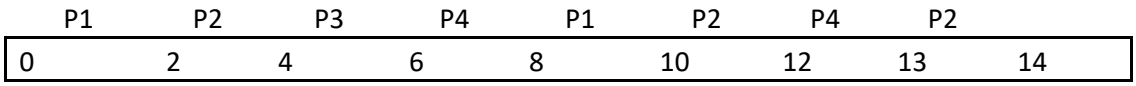
4. Consider the following processes with arrival times and burst times, and the time quantum for
Round Robin scheduling is 2 units:

Process	Arrival Time	Burst Time
P1	0	4
P2	1	5
P3	2	2
P4	3	3

Calculate the average turnaround time using Round Robin scheduling.

PID	Arrival Time	Burst Time	Response Time	Wait Time	TAT
P1	0	4	0	6	10
P2	1	5	2	9	14
P3	2	2	4	4	6
P4	3	3	6	10	13
					Avg= 10.75

Gantt Chart



5. Consider a program that uses the fork() system call to create a child process. Initially, the parent
process has a variable x with a value of 5. After forking, both the parent and child processes increment the value of x by 1.
What will be the final values of x in the parent and child processes after the fork() call?

Answer:

6 , as there is only one fork() is called so it will create only one child and parent process so the value of X will be incremented once from 5 to **6**