

Assignment 2:

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Part A

echo "Hello, World!"

```
cdac@DESKTOP-OC51QE3:~$ echo "Hello, World!"  
Hello, World!
```

name="Productive"

```
cdac@DESKTOP-OC51QE3:~$ echo name  
name  
cdac@DESKTOP-OC51QE3:~$ echo "$name"  
Productive
```

touch file.txt

```
cdac@DESKTOP-OC51QE3:~$ touch file.txt  
cdac@DESKTOP-OC51QE3:~$ ls -l  
total 36  
-rw----- 1 cdac cdac    2 Aug 27 19:58 File1.txt.save  
drwxr-xr-x 2 cdac cdac 4096 Aug 27 21:24 Java  
drwxr-xr-x 3 cdac cdac 4096 Aug 28 20:21 LinuxAssignments  
drwxr-xr-x 2 cdac cdac 4096 Aug 27 20:22 OS  
-rw-r--r-- 1 cdac cdac   42 Aug 27 23:29 combined.txt  
-rw-r--r-- 1 cdac cdac    0 Aug 30 00:29 file.txt  
-rw-r--r-- 1 cdac cdac   15 Aug 28 19:21 file1.txt  
-rw----- 1 cdac cdac    1 Aug 27 19:57 file1.txt.save  
-rw-r--r-- 1 cdac cdac   14 Aug 27 23:26 file1.txt.txt  
-rwx---r-- 1 cdac cdac   27 Aug 27 23:07 file2.txt
```

ls -a

```
cdac@DESKTOP-OC51QE3:~$ ls -a
.          .bash_logout  .lessht     .profile    Java        combined.txt  file1.txt.save
..         .bashrc       .local      .sudo_as_admin_successful LinuxAssignments file.txt      file1.txt.txt
.bash_history .cache       .motd_shown File1.txt.save OS          file1.txt     file2.txt
```

rm file.txt

```
cdac@DESKTOP-OC51QE3:~$ rm file.txt
cdac@DESKTOP-OC51QE3:~$ ls
File1.txt.save Java LinuxAssignments OS combined.txt file1.txt file1.txt.save file1.txt.txt file2.txt
cdac@DESKTOP-OC51QE3:~$ ls -l
total 36
-rw----- 1 cdac cdac  2 Aug 27 19:58 File1.txt.save
drwxr-xr-x 2 cdac cdac 4096 Aug 27 21:24 Java
drwxr-xr-x 3 cdac cdac 4096 Aug 28 20:21 LinuxAssignments
drwxr-xr-x 2 cdac cdac 4096 Aug 27 20:22 OS
-rw-r--r-- 1 cdac cdac  42 Aug 27 23:29 combined.txt
-rw-r--r-- 1 cdac cdac  15 Aug 28 19:21 file1.txt
-rw----- 1 cdac cdac   1 Aug 27 19:57 file1.txt.save
-rw-r--r-- 1 cdac cdac  14 Aug 27 23:26 file1.txt.txt
-rwx--r-- 1 cdac cdac  27 Aug 27 23:07 file2.txt
```

cp file1.txt file2.txt

```
cdac@DESKTOP-OC51QE3:~$ cp file1.txt file2.txt
cdac@DESKTOP-OC51QE3:~$ ls
File1.txt.save Java LinuxAssignments OS combined.txt file1.txt file1.txt.save file1.txt.txt file2.txt
cdac@DESKTOP-OC51QE3:~$ ls -l
total 36
-rw----- 1 cdac cdac  2 Aug 27 19:58 File1.txt.save
drwxr-xr-x 2 cdac cdac 4096 Aug 27 21:24 Java
drwxr-xr-x 3 cdac cdac 4096 Aug 28 20:21 LinuxAssignments
drwxr-xr-x 2 cdac cdac 4096 Aug 27 20:22 OS
-rw-r--r-- 1 cdac cdac  42 Aug 27 23:29 combined.txt
-rw-r--r-- 1 cdac cdac  15 Aug 28 19:21 file1.txt
-rw----- 1 cdac cdac   1 Aug 27 19:57 file1.txt.save
-rw-r--r-- 1 cdac cdac  14 Aug 27 23:26 file1.txt.txt
-rwx--r-- 1 cdac cdac  15 Aug 30 00:34 file2.txt
cdac@DESKTOP-OC51QE3:~$ cat file1.txt
This is file1.
cdac@DESKTOP-OC51QE3:~$ cat file2.txt
This is file1.
cdac@DESKTOP-OC51QE3:~$ |
```

mv file.txt /path/to/directory/

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ mv file1.txt /home/cdac/LinuxAssignments/Docs/
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ cd Docs
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ ls -l
total 28
-rw-r--r-- 1 cdac cdac  95 Aug 28 21:48 Duplicate.txt.txt
-rw-r--r-- 1 cdac cdac 798 Aug 28 21:57 Duplicate1.txt
-rw-r--r-- 1 cdac cdac 798 Aug 28 21:50 Duplicate1.txt.txt
-rw-r--r-- 1 cdac cdac  55 Aug 29 11:16 Fruits.txt
-rw-r--r-- 1 cdac cdac 282 Aug 31 06:04 file1.txt
-rwxr--rwx 1 cdac cdac 910 Sep  4 12:35 file2.txt
-rw-r--r-- 1 cdac cdac 686 Aug 28 21:29 output.txt
```

chmod 755 script.sh

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ chmod 755 script.sh
chmod: cannot access 'script.sh': No such file or directory
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ touch script.sh
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ ls
Docs docs.zip file8.txt script.sh
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ chmod 755 script.sh
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ ls
Docs docs.zip file8.txt script.sh
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ ls -l
total 12
drwxr-xr-x 2 cdac cdac 4096 Aug 29 12:09 Docs
-rw-r--r-- 1 cdac cdac 350 Aug 28 20:21 docs.zip
-rw-r--r-- 1 cdac cdac 10 Aug 28 19:03 file8.txt
-rwxr-xr-x 1 cdac cdac 0 Aug 30 14:56 script.sh
```

grep "pattern" file.txt

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ touch file.txt
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ ls
Docs docs.zip file.txt file8.txt script.sh
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ grep "pattern" file.txt
Designs and patterns are same.
```

kill PID

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ echo "$$"
200281
```

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ echo "$$"
200281
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ kill 200281
```

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

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ mkdir mydir && cd mydir && touch file.txt && echo "Hello, World!" > file.txt && cat file.txt
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/mydir$ ls -l
total 4
-rw-r--r-- 1 cdac cdac 14 Aug 30 15:31 file.txt
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/mydir$ cat file.txt
Hello, World!
```

ls -l | grep ".txt"

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/mydir$ ls -l | grep ".txt"
-rw-r--r-- 1 cdac cdac 14 Aug 30 15:31 file.txt
```

cat file1.txt file2.txt | sort | uniq

```
cdac@DESKTOP-OC51QE3:~$ cat file1.txt file2.txt | sort | uniq
This is file1.
```

ls -l | grep "^d"

```
cdac@DESKTOP-OC51QE3:~$ ls -l | grep "^d"
drwxr-xr-x 2 cdac cdac 4096 Aug 27 21:24 Java
drwxr-xr-x 4 cdac cdac 4096 Aug 30 15:31 LinuxAssignments
drwxr-xr-x 2 cdac cdac 4096 Aug 27 20:22 OS
```

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

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ grep -r "This" /home/cdac/LinuxAssignments/Docs/
/home/cdac/LinuxAssignments/Docs/Duplicate1.txt:This is a duplicate file.
/home/cdac/LinuxAssignments/Docs/Duplicate1.txt:This is a duplicate file.
/home/cdac/LinuxAssignments/Docs/Duplicate1.txt:This is file1.
/home/cdac/LinuxAssignments/Docs/Duplicate1.txt:This will be saved.
/home/cdac/LinuxAssignments/Docs/Duplicate1.txt:This book is sure to liquefy your brain.
/home/cdac/LinuxAssignments/Docs/Duplicate1.txt.txt:This is a duplicate file.
/home/cdac/LinuxAssignments/Docs/Duplicate1.txt.txt:This is a duplicate file.
/home/cdac/LinuxAssignments/Docs/Duplicate1.txt.txt:This is file1.
/home/cdac/LinuxAssignments/Docs/Duplicate1.txt.txt:This will be saved.
/home/cdac/LinuxAssignments/Docs/Duplicate1.txt.txt:This book is sure to liquefy your brain.
/home/cdac/LinuxAssignments/Docs/file2.txt:This is file1.
/home/cdac/LinuxAssignments/Docs/file2.txt:This will be saved.
/home/cdac/LinuxAssignments/Docs/file2.txt:This book is sure to liquefy your brain.
/home/cdac/LinuxAssignments/Docs/file2.txt:This is file1.
/home/cdac/LinuxAssignments/Docs/file2.txt:This will be saved.
/home/cdac/LinuxAssignments/Docs/file2.txt:This book is sure to liquefy your brain.
/home/cdac/LinuxAssignments/Docs/Duplicate.txt.txt:This is a duplicate file.
/home/cdac/LinuxAssignments/Docs/Duplicate.txt.txt:This is a duplicate file.
```

cat file1.txt file2.txt | sort | uniq -d

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments/Docs$ cat file1.txt file2.txt | sort | uniq
ABC
At that moment I was the most fearsome weasel in the entire swamp.
EVERYONE SAYS THEY LOVE NATURE UNTIL THEY REALIZE HOW DANGEROUS SHE CAN BE.
EVERYONE WAS CURIOUS ABOUT THE LARGE WHITE BLIMP THAT APPEARED OVERNIGHT.This is file1.
Everyone says they love nature until they realize how dangerous she can be.
Everyone was curious about the large white blimp that appeared overnight.
He watched the dancing piglets with panda bear tummies in the swimming pool.
I used to practice weaving with spaghetti three hours a day but stopped because I didn't want to die alone.
I was fishing for compliments and accidentally caught a trout.
PQR
She did her best to help him.
THE GREAT DANE LOOKED MORE LIKE A HORSE THAN A DOG.
THIS BOOK IS SURE TO LIQUEFY YOUR BRAIN.
THIS IS FILE1.
THIS WILL BE SAVED.
The Great Dane looked more like a horse than a dog.
The blue parrot drove by the hitchhiking mongoose.
This book is sure to liquefy your brain.
This is file1.
This will be saved.
```

chmod 644 file.txt

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ chmod 644 file.txt
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ ls -l
total 28
drwxr-xr-x 2 cdac cdac 4096 Aug 29 12:09 Docs
-rw-r--r-- 1 cdac cdac 350 Aug 28 20:21 docs.zip
-rw-r--r-- 1 cdac cdac 82 Aug 30 15:23 file.txt
-rw-r--r-- 1 cdac cdac 282 Aug 31 06:04 file1.txt
-rw-r--r-- 1 cdac cdac 114 Aug 31 06:07 file2.txt
-rw-r--r-- 1 cdac cdac 10 Aug 28 19:03 file8.txt
drwxr-xr-x 2 cdac cdac 4096 Aug 30 15:31 mydir
-rwxr-xr-x 1 cdac cdac 0 Aug 30 14:56 script.sh
```

cp -r source_directory destination_directory

```
cdac@DESKTOP-OC51QE3:~$ cp -r Java Archives
cdac@DESKTOP-OC51QE3:~$ ls -l
total 64
drwxr-xr-x 4 cdac cdac 4096 Sep  4 20:33 Archives
-rw-r--r-- 1 cdac cdac 144 Sep  3 20:16 Eo.txt
drwxr-xr-x 2 cdac cdac 4096 Aug 27 21:24 Java
drwxr-xr-x 4 cdac cdac 4096 Sep  4 20:02 LinuxAssignments
drwxr-xr-x 2 cdac cdac 4096 Aug 27 20:22 OS
-rw-r--r-- 1 cdac cdac 924 Sep  2 11:09 access.log
-rw-r--r-- 1 cdac cdac 42 Aug 27 23:29 combined.txt
-rw-r--r-- 1 cdac cdac 98 Sep  3 20:31 file5.txt
-rw-r--r-- 1 cdac cdac 149 Sep  3 20:43 file6.txt
-rw-r--r-- 1 cdac cdac 569 Sep  3 23:15 file7.txt
-rw-r--r-- 1 cdac cdac 263 Sep  4 11:15 file8.txt
-rw-r--r-- 1 cdac cdac 52 Sep  3 20:19 loop.txt
-rw-r--r-- 1 cdac cdac 71 Sep  3 20:26 loop1.txt
-rw-r--r-- 1 cdac cdac 386 Sep  2 11:38 recent_access.log
-rw-r--r-- 1 cdac cdac 692 Sep  2 11:19 sorted_access.log
-rw-r--r-- 1 cdac cdac 107 Sep  3 20:06 sum.txt
```

find /path/to/search -name "*.txt"

```
cdac@DESKTOP-OC51QE3:~$ find /home/cdac/LinuxAssignments/ -name "file2.txt"
/home/cdac/LinuxAssignments/Docs/file2.txt
/home/cdac/LinuxAssignments/file2.txt
```

chmod u+x file.txt

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ chmod u+x file.txt
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ ls -l
total 28
drwxr-xr-x 2 cdac cdac 4096 Aug 29 12:09 Docs
-rw-r--r-- 1 cdac cdac 350 Aug 28 20:21 docs.zip
-rwxr--r-- 1 cdac cdac 82 Aug 30 15:23 file.txt
-rw-r--r-- 1 cdac cdac 282 Aug 31 06:04 file1.txt
-rw-r--r-- 1 cdac cdac 114 Aug 31 06:07 file2.txt
-rw-r--r-- 1 cdac cdac 10 Aug 28 19:03 file8.txt
drwxr-xr-x 2 cdac cdac 4096 Aug 30 15:31 mydir
-rwxr-xr-x 1 cdac cdac 0 Aug 30 14:56 script.sh
```

echo \$PATH

```
cdac@DESKTOP-OC51QE3:~/LinuxAssignments$ echo $PATH
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/usr/lib/wsl/lib:/mnt/c/Program Files/Common Files/Oracle/Java/javapath:/mnt/c/Program Files (x86)/Common Files/Oracle/Java/javapath:/mnt/c/Program Files (x86)/Common Files/Oracle/Java/javapath:/mnt/c/Windows/system32:/mnt/c/Windows:/mnt/c/Windows/System32/Wbem:/mnt/c/Windows/System32/WindowsPowerShell/v1.0:/mnt/c/Windows/System32/OpenSSH:/mnt/c/Program Files/dotnet:/mnt/c/Users/PRASHANSA/AppData/Local/Microsoft/WindowsApps:/mnt/c/Users/PRASHANSA/AppData/Local/Programs/Microsoft VS Code/bin:/mnt/c/Src/flutter/bin:/mnt/c/Program Files/Android/Android Studio/bin:/snap/bin
```

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
4. pwd stands for "print working directory" and displays the current directory.- True
5. grep is used to search for patterns in files.- True
6. chmod 755 file.txt gives read, write, and execute permissions to the owner, and read and execute permissions to group and others.- False
7. mkdir -p directory1/directory2 creates nested directories, creating directory2 inside directory1 if directory1 does not exist.- False

8. rm -rf file.txt deletes a file forcefully without confirmation.- True

Identify the Incorrect Commands:

1. chmodx is used to change file permissions.- False
2. cpy is used to copy files and directories.- False
3. mkfile is used to create a new file.- False
4. catx is used to concatenate files. False
5. rn is used to rename files.- True

Part C

Question 1: Write a shell script that prints "Hello, World!" to the terminal.

```
cdac@DESKTOP-0C51QE3:~$ echo "Hello, World!"  
Hello, World!
```

Question 2: Declare a variable named "name" and assign the value "CDAC Mumbai" to it. Print the value of the variable.

```
cdac@DESKTOP-0C51QE3:~$ name="CDAC Mumbai"  
cdac@DESKTOP-0C51QE3:~$ echo name  
name  
cdac@DESKTOP-0C51QE3:~$ echo $name  
CDAC Mumbai
```

Question 3: Write a shell script that takes a number as input from the user and prints it.

```
cdac@DESKTOP-0C51QE3:~$ num=1  
cdac@DESKTOP-0C51QE3:~$ echo $num  
1
```

Question 4: Write a shell script that performs addition of two numbers (e.g., 5 and 3) and prints the result.

```
GNU nano 6.2 sum.txt
#!/bin/bash
echo "Enter number1"
read num1
echo "Enter number2"
read num2
sum=$((num1 + num2))
echo $sum
```

```
cdac@DESKTOP-0C51QE3:~$ nano sum.txt
cdac@DESKTOP-0C51QE3:~$ bash sum.txt
Enter number1
1
Enter number2
2
3
```

Question 5: Write a shell script that takes a number as input and prints "Even" if it is even, otherwise prints "Odd".

```
GNU nano 6.2 Eo.txt
#!/bin/bash
echo "Enter number"
read num1
if [ `expr $num1 % 2` == 0 ]
then
    echo "$num1 is even number."
else
    echo "$num1 is odd number."
fi
```



```
cdac@DESKTOP-0C51QE3:~$ nano Eo.txt
cdac@DESKTOP-0C51QE3:~$ bash Eo.txt
Enter number
1
1 is odd number.
cdac@DESKTOP-0C51QE3:~$ bash Eo.txt
Enter number
2
2 is even number.
cdac@DESKTOP-0C51QE3:~$ bash Eo.txt
Enter number
3
3 is odd number.
```

Question 6: Write a shell script that uses a for loop to print numbers from 1 to 5.

```
GNU nano 6.2                                loop.txt
#!/bin/bash
for(( i=1; i<=5; i++))
do
    echo $i
done
```

```
cdac@DESKTOP-0C51QE3:~$ nano loop.txt
cdac@DESKTOP-0C51QE3:~$ bash loop.txt
1
2
3
4
5
```

Question 7: Write a shell script that uses a while loop to print numbers from 1 to 5.

```
GNU nano 6.2                                loop1.txt
#!/bin/bash
i=1
while [ $i -le 5 ]
do
    echo $i
    i=$((i+1))
done
```

```
cdac@DESKTOP-0C51QE3:~$ bash loop1.txt
1
2
3
4
5
```

Question 8: Write a shell script that checks if a file named "file.txt" exists in the current directory. If it does, print "File exists", otherwise, print "File does not exist".

```
GNU nano 6.2                                file5.txt
#!/bin/bash
if [ -f "loop1.txt" ];
then
    echo "File exists"
else
    echo "File does not exists"
fi
```

```
cdac@DESKTOP-0C51QE3:~$ nano file5.txt
cdac@DESKTOP-0C51QE3:~$ bash file5.txt
File exists
```

Question 9: Write a shell script that uses the if statement to check if a number is greater than 10 and prints a message accordingly.

```
GNU nano 6.2 file6.txt
#!/bin/bash
echo "Enter the number"
read num1
if [ $num1 -gt 10 ]
then
    echo "$num1 is greater than 10"
else
    echo "$num1 is not greater than 10"
fi
```

```
cdac@DESKTOP-OC51QE3:~$ bash file6.txt
Enter the number
2
2 is not greater than 10
cdac@DESKTOP-OC51QE3:~$ bash file6.txt
Enter the number
11
11 is greater than 10
```

Question 10: Write a shell script that uses nested for loops to print a multiplication table for numbers from 1 to 5. The output should be formatted nicely, with each row representing a number and each column representing the multiplication result for that number.

```
GNU nano 6.2                                file7.txt
#!/bin/bash
echo "      Multiplication Table"
echo "-----+-----"

#Print the nums at top of table and format dashes
echo -n "      |"; printf '\t%d' {0..5}; echo
echo "-----+-----"

#for loops to create table nums
for y in {0..9}
do
    #Print the side nums and |
    echo -n "$y   |"
    #for loop to create x
    for x in {0..5}
    do
        #Multiply vars, tab for spacing
        echo -en "\t${(x*y)}"
    done
    #Print
    echo
done
#Print bottom dashes for format
echo "-----+-----"
```

```
cdac@DESKTOP-OC51QE3:~$ bash file7.txt
      Multiplication Table
-----+-----
      |      0      1      2      3      4      5
-----+-----
0      |      0      0      0      0      0      0
1      |      0      1      2      3      4      5
2      |      0      2      4      6      8     10
3      |      0      3      6      9     12     15
4      |      0      4      8     12     16     20
5      |      0      5     10     15     20     25
6      |      0      6     12     18     24     30
7      |      0      7     14     21     28     35
8      |      0      8     16     24     32     40
9      |      0      9     18     27     36     45
-----+-----
```

Question 11: Write a shell script that uses a while loop to read numbers from the user until the user enters a negative number. For each positive number entered, print its square. Use the break statement to exit the loop when a negative number is entered.

```
GNU nano 6.2 file8.txt
#!/bin/bash
while true;
do
    read -p "Enter a number (negative number to quit)" number

    if [ $number -lt 0 ]; then
        echo "Negative number entered. Exiting..."
        break
    fi
    square=$(( $number * $number ))
    echo "The square of $number is $square"
done
```

```
cdac@DESKTOP-OC51QE3:~$ bash file8.txt
Enter a number (negative number to quit)4
The square of 4 is 16
Enter a number (negative number to quit)-3
Negative number entered. Exiting...
```

Part E

Part E

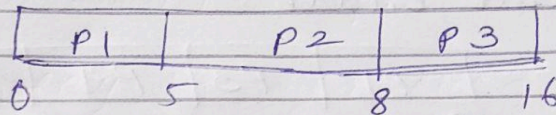
Page No.	
Date	

(1).

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

Soln: (First come first serve)

Gantt chart



Avg

Process	AT	BT	CT	TAT	WT
P1	0	5	5	5	0
P2	1	3	8	7	4
P3	2	6	16	14	8

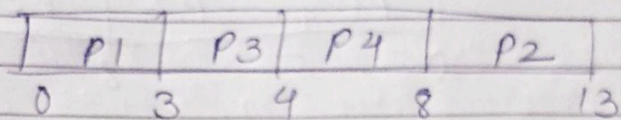
$$\text{Avg WT} = \frac{8+4+0}{3} = \underline{\underline{4}}$$

Page No. _____
Date _____

(2) Process	AT	BT	CT	TAT	WT
P1	0	3	3	3	0
P2	1	5	13	12	7
P3	2	1	4	2	1
P4	3	4	8	5	1

Solⁿ : Shortest job first

Gantt chart :

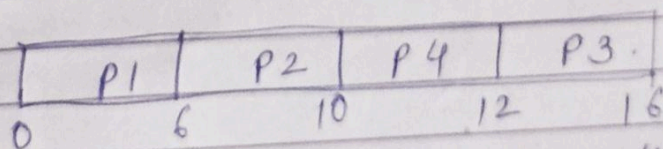


$$\text{Avg TAT} = \frac{3+12+2+5}{4} = \underline{\underline{5.5}}$$

(3) Process	Priority	AT	BT	CT	TAT	WT
P1	3	0	6	6	6	0
P2	1	1	4	10	9	5
P3	4	2	7	16	14	7
P4	2	3	2	12	9	7

Solⁿ : Priority scheduling

Gantt chart :



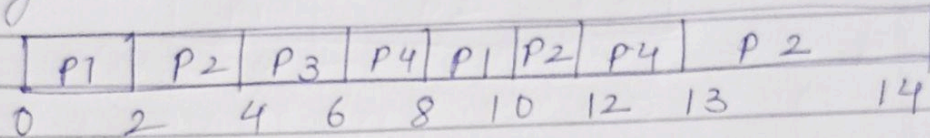
$$\text{Avg. W.T} = \frac{0+5+7+7}{4} = \underline{\underline{4.75}}$$

(4)

Process	AT	BT	CT	TAT	WT
P1	0	4/0	10	10	6
P2	1	5/1	14	13	8
P3	2	2/0	6	4	2
P4	3	3/10	10/13	10	7

Soln: Round Robin Scheduling

Gantt chart:



$$\text{Avg. TAT} = \frac{10 + 13 + 4 + 10}{4} = \underline{\underline{9.25}}$$

(5) child and parent process maintain separate copies of all the variables and can't communicate. so if parent adds to x, the x in the child will remain unchanged. therefore, $x = 6$.

