Practical-5

Q.Write a program to simulate CPU Scheduling Algorithms: FCFS, SJF (Preemptive), Priority (Non-Preemptive) and Round Robin (Preemptive).

```
//FCFS,SJF

import java.util.*; public class Main{
public static void main(String args[]){

 int wt[],proc[],tat[],bst[],n,i,j,total=0;

 Scanner sc= new Scanner(System.in);

 System.out.println("Page scheduling MENU: ");

 System.out.println(" 1. Using FCFS?");
 System.out.println(" 2. Using SJF?");
System.out.print("Your Choice==> ");
 int x= sc.nextInt();

 System.out.print("\nNo. of processes: ");
n=sc.nextInt();  proc = new int[n];
wt=new int[n]; bst=new int[n]; tat= new
int[n];
switch (x){ case
1:
 System.out.println("Enter Cpu time: ");
for(i=0;i<n;i++){
```

```
 System.out.print(" Process["+(i+1)+"]: ");
bst[i]=sc.nextInt();  proc[i]=i+1;
 }
 wt[0]=0;
 for(i = 1;i<n;i++){
wt[i]=0;  for(j=0;j<i;j++){
wt[i]+=bst[j];
total+=wt[i];
 }
 }
 System.out.println("\nProcess\t\tBT\tWT\tTAT");
 System.out.println("-----------------------------------");
for(i=0;i<n;i++){  tat[i]=wt[i]+bst[i];
 System.out.println("Proc["+proc[i]+"]\t\t"+bst[i]+"\t"+wt[i]+"\t"+tat[i]);
 }

 case 2:
System.out.println("Enter Cpu time: "); for(i=0;i<n;i++){
System.out.print(" Process["+(i+1)+"]: ");
bst[i]=sc.nextInt(); proc[i]=i+1;

}
 for(i=0;i<n;i++){
int pp=i;
for(j=i+1;j<n;j++){
if(bst[j]<bst[pp])
pp=j;}

 int temp=bst[i];
bst[i]=bst[pp];
```

```
 bst[pp]=temp;


 temp=proc[i];
proc[i]=proc[pp];
proc[pp]=temp;
 }
 wt[0]=0;
 for(i = 1;i<n;i++){
wt[i]=0;  for(j=0;j<i;j++){
wt[i]+=bst[j];
total+=wt[i];
 }
 }
 System.out.println("\nProcess\t\tBT\tWT\tTAT");
System.out.println("-----------------------------------");
for(i=0;i<n;i++){ tat[i]=wt[i]+bst[i];
System.out.println("Proc["+proc[i]+"]\t\t"+bst[i]+"\t"+wt[i]+"\t"+tat[i]);
}
}
}
}
```

#Output:

Page scheduling MENU:

1. Using FCFS?

2. Using SJF?

Your Choice==> 1

No. of processes: 4 Enter

Cpu time:

Process[1]: 10

Process[2]: 20

Process[3]: 30

Process[4]: 40

Process	BT	WT	TAT
Proc[1]	10	0	10
Proc[2]	20	10	30
Proc[3]	30	30	60
Proc[4]	40	60	100

Page scheduling MENU:

1. Using FCFS?

2. Using SJF?

Your Choice==> 2

No. of processes: 4

Enter Cpu time:

Process[1]: 10

Process[2]: 21

Process[3]: 15

Process[4]: 5

Process	BT	WT	TAT
Proc[4]	5	0	5
Proc[1]	10	5	15
Proc[3]	15	15	30
Proc[2]	21	30	51

```
//  program to simulate CPU Scheduling Algorithms: Priority and Round Robin:-


// 2.Round Robin:-


import java.util.*; public class Main { public
static void main(String args[]) { Scanner s = new
Scanner(System.in); int
wtime[],btime[],rtime[],num,quantum,total;
wtime = new int[10]; btime = new int[10]; rtime
= new int[10];
System.out.print("Enter number of processes(MAX 10): "); num
= s.nextInt();

System.out.print("Enter burst time");
for(int i=0;i<num;i++) { System.out.print("\nP["+(i+1)+"]: "); btime[i] = s.nextInt(); rtime[i]
=
btime[i]; wtime[i]=0; } System.out.print("\n\nEnter quantum: "); quantum = s.nextInt();
int rp =
num; int i=0; int time=0; System.out.print("0"); wtime[0]=0; while(rp!=0) {
if(rtime[i]>quantum)
{
rtime[i]=rtime[i]-quantum;
System.out.print(" | P["+(i+1)+"] | ");
time+=quantum;
System.out.print(time);
}
else if(rtime[i]<=quantum && rtime[i]>0)
{time+=rtime[i]; rtime[i]=rtime[i]-rtime[i];
System.out.print(" | P["+(i+1)+"] | ");
rp--;
System.out.print(time);
```

```
}
i++;
if(i==num)
{
i=0;
}
}
}
}
```

#Output:

```
Enter number of processes(MAX 10): 4
Enter burst time
P[1]: 2

P[2]: 4

P[3]: 6

P[4]: 8


Enter quantum: 2
0 | P[1] | 2
 | P[2] | 4 | P[3] | 6 | P[4] | 8 | P[2] | 10
 | P[3] | 12 | P[4] | 14 | P[3] | 16
 | P[4] | 18 | P[4] | 20
```