

ASSIGNMENT 3

First Come First Serve(FCFS)

Program:

```
class FCFS

{

public static void main(String a[])

{

String ar[]={"Procss "," Bus Time "," Waiting Time "," Tun Around Time"};

String p[]={"p1","p2","p3"};

int wt[]=new int[3];

int tat[]=new int[3];

int bt[]={24,3,4};

int i;

wt[0]=0;

for(i=1;i<3;i++)

{

wt[i]=wt[i-1]+bt[i-1];

}

for(i=0;i<3;i++)

{

tat[i]=wt[i]+bt[i];

}

System.out.print("");

System.out.println(" OUTPUT ");

System.out.print("");

System.out.println("Process BusTime waitingTime Turn Arount time");

int totaltat=0;

int totalwt=0;

for(i=0;i<3;i++)

{

System.out.println(p[i]+" "+bt[i]+" "+wt[i])+" "+tat[i];

}

for(i=0;i<3;i++)

{
```

```

totalwt=totalwt+wt[i];
}

totaltat=tat[0]+tat[1]+tat[2];

float avgwt=(float) totalwt/3;

float avgtat=(float) totaltat/3;

System.out.println("Total Tun around Time =" +totaltat);

System.out.println("Average Waiting Time = "+avgwt);

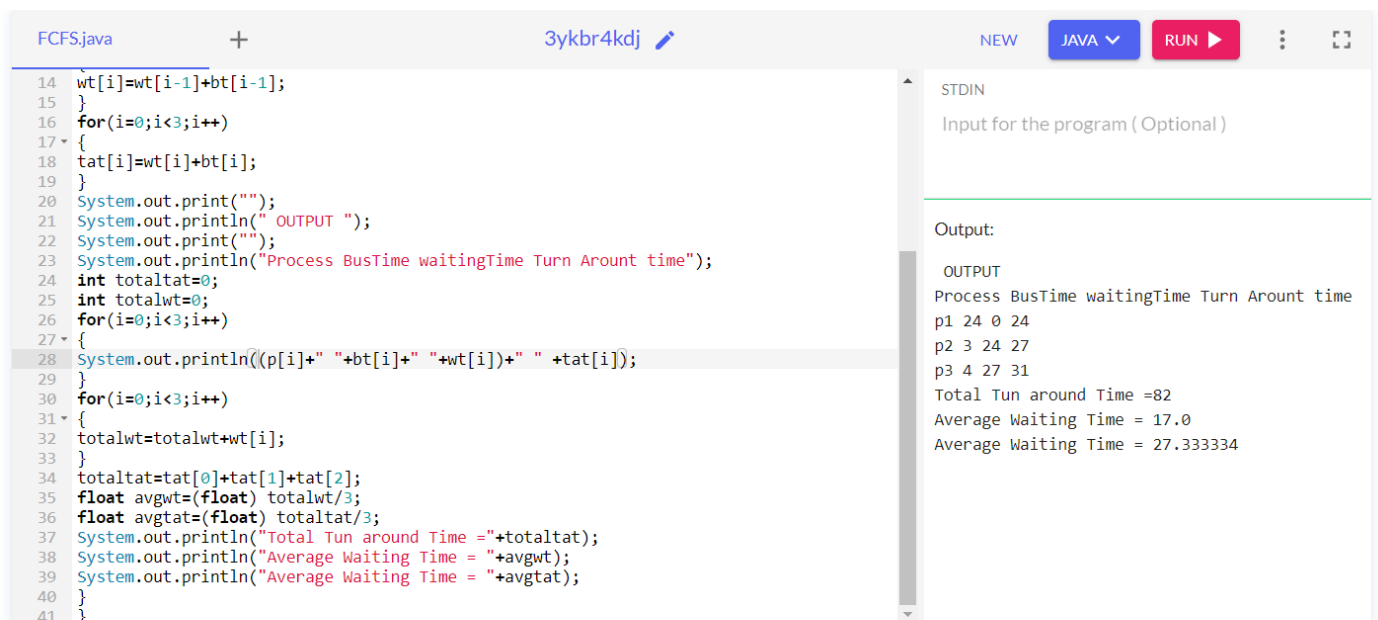
System.out.println("Average Waiting Time = "+avgtat);

}

}

```

Output:



The screenshot shows a Java online compiler interface. The code is in a file named 'FCFS.java' and is being compiled by '3ykr4kdj'. The code calculates the total turnaround time, average waiting time, and average turnaround time for three processes. The output is displayed on the right side of the interface.

```

14 wt[i]=wt[i-1]+bt[i-1];
15 }
16 for(i=0;i<3;i++)
17 {
18 tat[i]=wt[i]+bt[i];
19 }
20 System.out.print("");
21 System.out.println(" OUTPUT ");
22 System.out.print("");
23 System.out.println("Process BusTime waitingTime Turn Arount time");
24 int totaltat=0;
25 int totalwt=0;
26 for(i=0;i<3;i++)
27 {
28 System.out.println((p[i]+" "+bt[i]+" "+wt[i])+" "+tat[i]);
29 }
30 for(i=0;i<3;i++)
31 {
32 totalwt=totalwt+wt[i];
33 }
34 totaltat=tat[0]+tat[1]+tat[2];
35 float avgwt=(float) totalwt/3;
36 float avgtat=(float) totaltat/3;
37 System.out.println("Total Tun around Time =" +totaltat);
38 System.out.println("Average Waiting Time = "+avgwt);
39 System.out.println("Average Waiting Time = "+avgtat);
40 }
41 }

```

Output:

```

OUTPUT
Process BusTime waitingTime Turn Arount time
p1 24 0 24
p2 3 24 27
p3 4 27 31
Total Tun around Time =82
Average Waiting Time = 17.0
Average Waiting Time = 27.333334

```

Java online compiler

Shortest Job First(SJF)

Program:

```

public class SJF
{
    public static void main(String[] args)
    {
        int n = 5;

        int t = 0;

        int st = 0;

```

```

float avgwt = 0;

float avgta = 0;

int[] pid = {1, 2, 3, 4, 5};

int[] at = {0, 0, 6, 11, 12};

int[] bt = {4, 3, 7, 4, 2};

int[] f = new int[n];

int[] ct = new int[n];

int[] ta = new int[n];

int[] wt = new int[n];

for(int i=0; i<n; i++)

f[i] = 0;

while(true)

{

int c=n, min=999;

if(t==n) break;

for (int i=0; i<n; i++)

{

if ((at[i] <= st) && (f[i] == 0) && (bt[i]<min))

{

min = bt[i];

c = i;

}

}

if (c==n)

st++;

else

{

ct[c] = st + bt[c];

st += bt[c];

ta[c] = ct[c] - at[c];

wt[c] = ta[c] - bt[c];

f[c] = 1;

t++;

}

```

```

}

for (int j=0; j<n; j++)

{

avgwt += wt[j];

avgta += ta[j];

}

avgwt /= n;

avgta /= n;

System.out.println("\n\tprocess\tAT\tBT\tWT");

for (int i=0; i<n; i++)

{

System.out.println("\t"+pid[i]+" \t"+at[i]+" \t"+bt[i]+" \t"+wt[i]);

}

System.out.println("\nAverage waiting time is: " + avgwt);

System.out.println("Average turnaround time is: " + avgta);

}

}

```

Output:

The screenshot shows a Java online compiler interface with the following components:

- Editor:** Contains the Java code for the SJF scheduling algorithm, with line numbers 31 to 58.
- Buttons:** "NEW", "JAVA" (dropdown), "RUN" (with a play icon), and a "ctrl+enter" button.
- STDIN:** A text area for input, currently empty, with the label "Input for the program (Optional)".
- Output:** Displays the results of the program execution.

process	AT	BT	WT
1	0	4	3
2	0	3	0
3	6	7	1
4	11	4	5
5	12	2	2

Average waiting time is: 2.2
Average turnaround time is: 6.2

Java online compiler

Non-Preemptive Algorithm

Program:

```
class NPRMT
{
    public static void main(String args[])
    {
        int st[]={0,4,7,16,14};
        int bt[]={4,3,7,4,2};
        int at[]={0,0,6,11,12};
        int wt[]=new int[5];
        int tat[]=new int[5];
        for(int i=0;i<5;i++)
        {
            wt[i]=st[i]-at[i];
            System.out.println("Waiting Time for Process "+(i+1)+" is : "+wt[i]);
        }
        int total_wt=wt[0]+wt[1]+wt[3]+wt[4];
        float avg_wt=total_wt/5;
        System.out.println("Total Waiting Time is : "+total_wt);
        System.out.println("Average Waiting Time is : "+avg_wt);
        for(int i=0;i<5;i++)
        {
            tat[i]=wt[i]+bt[i];
            System.out.println("Turn Around Time for Process "+(i+1)+" is : "+tat[i]);
        }
        int total_tat=tat[0]+tat[1]+tat[2]+tat[3]+tat[4];
        int avg_tat=total_tat/5;
        System.out.println("Total Turn Around Time is : "+total_tat);
        System.out.println("Average Turn Around Time is : "+avg_tat);
    }
}
```

Output:

NPRMT.java + 3ykbr4kdj NEW JAVA RUN

```
2 {
3 public static void main(String args[])
4 {
5 int st[]={0,4,7,16,14};
6 int bt[]={4,3,7,4,2};
7 int at[]={0,0,6,11,12};
8 int wt[]=new int[5];
9 int tat[]=new int[5];
10 for(int i=0;i<5;i++)
11 {
12 wt[i]=st[i]-at[i];
13 System.out.println("Waiting Time for Process "+(i+1)+" is : "+wt[i]);
14 }
15 int total_wt=wt[0]+wt[1]+wt[3]+wt[4];
16 float avg_wt=total_wt/5;
17 System.out.println("Total Waiting Time is : "+total_wt);
18 System.out.println("Average Waiting Time is : "+avg_wt);
19 for(int i=0;i<5;i++)
20 {
21 tat[i]=wt[i]+bt[i];
22 System.out.println("Turn Around Time for Process "+(i+1)+" is : "+tat[i]);
23 }
24 int total_tat=tat[0]+tat[1]+tat[2]+tat[3]+tat[4];
25 int avg_tat=total_tat/5;
26 System.out.println("Total Turn Around Time is : "+total_tat);
27 System.out.println("Average Turn Around Time is : "+avg_tat);
28 }
29 }
```

STDIN
Input for the program (Optional)

Output:
Waiting Time for Process 1 is : 0
Waiting Time for Process 2 is : 4
Waiting Time for Process 3 is : 1
Waiting Time for Process 4 is : 5
Waiting Time for Process 5 is : 2
Total Waiting Time is : 11
Average Waiting Time is : 2.0
Turn Around Time for Process 1 is : 4
Turn Around Time for Process 2 is : 7
Turn Around Time for Process 3 is : 8
Turn Around Time for Process 4 is : 9
Turn Around Time for Process 5 is : 4
Total Turn Around Time is : 32
Average Turn Around Time is : 6

Java online compiler

Round Robin Scheduling(RRS)

Program:

```
class RRS
{
public static void main(String args[])
{
int bt[]={5,4,2,1};
int at[]={0,1,2,4};
int ct[]={12,11,6,9};
int wt[]=new int[5];
int tat[]=new int[5];
for(int i=0;i<4;i++)
{
tat[i]=ct[i]-at[i];
System.out.println("Turn Around Time for Process "+(i+1)+" is : "+tat[i]);
}
int total_tat=tat[0]+tat[1]+tat[2]+tat[3];
int avg_tat=total_tat/4;
System.out.println("Total Turn Around Time is : "+total_tat);
System.out.println("Average Turn Around Time is : "+avg_tat);
}
```

```

for(int i=0;i<4;i++)
{
wt[i]=tat[i]-bt[i];

System.out.println("Waiting Time for Process "+(i+1)+" is : "+wt[i]);

}

int total_wt=wt[0]+wt[1]+wt[2]+wt[3];

float avg_wt=total_wt/4;

System.out.println("Total Waiting Time is : "+total_wt);

System.out.println("Average Waiting Time is : "+avg_wt);

}

}

```

Output:

The screenshot shows a Java online compiler interface. The code is in a file named 'RRS.java' and is written by '3ykbr4kdj'. The code calculates the waiting time for four processes. The output is displayed on the right side of the interface.

```

RRS.java  +  3ykbr4kdj  NEW  JAVA  RUN
2  {
3  public static void main(String args[])
4  {
5  int bt[]={5,4,2,1};
6  int at[]={0,1,2,4};
7  int ct[]={12,11,6,9};
8  int wt[]=new int[5];
9  int tat[]=new int[5];
10 for(int i=0;i<4;i++)
11 {
12 tat[i]=ct[i]-at[i];
13 System.out.println("Turn Around Time for Process "+(i+1)+" is : "+tat[i]);
14 }
15 int total_tat=tat[0]+tat[1]+tat[2]+tat[3];
16 int avg_tat=total_tat/4;
17 System.out.println("Total Turn Around Time is : "+total_tat);
18 System.out.println("Average Turn Around Time is : "+avg_tat);
19 for(int i=0;i<4;i++)
20 {
21 wt[i]=tat[i]-bt[i];
22 System.out.println("Waiting Time for Process "+(i+1)+" is : "+wt[i]);
23 }
24 int total_wt=wt[0]+wt[1]+wt[2]+wt[3];
25 float avg_wt=total_wt/4;
26 System.out.println("Total Waiting Time is : "+total_wt);
27 System.out.println("Average Waiting Time is : "+avg_wt);
28 }
29 }

```

STDIN
Input for the program (Optional)

Output:

```

Turn Around Time for Process 1 is : 12
Turn Around Time for Process 2 is : 10
Turn Around Time for Process 3 is : 4
Turn Around Time for Process 4 is : 5
Total Turn Around Time is : 31
Average Turn Around Time is : 7
Waiting Time for Process 1 is : 7
Waiting Time for Process 2 is : 6
Waiting Time for Process 3 is : 2
Waiting Time for Process 4 is : 4
Total Waiting Time is : 19
Average Waiting Time is : 4.0

```

Java online compiler