

### **Shortest Job First**

```
import java.util.*;

public class sjf
{
    public static void main (String args[])
    {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter no of process : ");
        int n= sc.nextInt();
        int pid[] = new int[n];
        int at[] = new int[n];
        int bt[] = new int[n];
        int ct[] = new int[n];
        int tat[] = new int[n];
        int wt[] = new int[n];
        int f[] = new int[n];
        int i,temp, st=0, tot=0;
        float avg_wt=0, avg_tat=0;

        for (i=0;i<n;i++)
        {
            pid[i]= i+1;
            System.out.println ("Enter arrival time of process " +(i+1)+ ":");
            at[i]= sc.nextInt();
            System.out.println("Enter burst time of process " +(i+1)+ ":");
            bt[i]= sc.nextInt();
            f[i]= 0;
        }

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

```

{
    for(int j=0; j < n-(i+1) ; j++)
    {
        if( at[j] > at[j+1] )
        {
            temp = at[j];
            at[j] = at[j+1];
            at[j+1] = temp;
            temp = bt[j];
            bt[j] = bt[j+1];
            bt[j+1] = temp;
            temp = pid[j];
            pid[j] = pid[j+1];
            pid[j+1] = temp;
        }
    }
}

```

```

while(true)
{
    int min=99,c=n;
    if (tot==n)
        break;

    for (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=st+bt[c];
        f[c]=1;
        tot++;
    }
}

for(i=0;i<n;i++)
{
    tat[i] = ct[i] - at[i];
    wt[i] = tat[i] - bt[i];
    avg_wt+= wt[i];
    avg_tat+= tat[i];
}

System.out.println("Pid\tAT\tBT\tCT\tTAT\tWT\n");

for(i=0;i<n;i++)
{
    System.out.println(pid[i] + "\t" + at[i] + "\t" + bt[i] + "\t" + ct[i] + "\t" + tat[i] + "\t" +
wt[i]);
}

System.out.println("\nAverage TAT(TURN AROUND TIME) is : "+(avg_tat/n));
System.out.println("\nAverage WT(WAITING TIME) is : "+ (avg_wt/n));
sc.close}
}

```

```
eclipse-workspace - fctf/src/SjfJava - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
<terminated> Sjf [Java Application] C:\Program Files\Java\jdk-18.0.2\bin\javaw.exe (26-Sep-2022, 9:58:49 am - 10:00:02 am) [pid: 872]

Enter no of process :
5
Enter arrival time of process 1:
0
Enter burst time of process 1:
2
Enter arrival time of process 2:
2
Enter burst time of process 2:
5
Enter arrival time of process 3:
4
Enter burst time of process 3:
3
Enter arrival time of process 4:
6
Enter burst time of process 4:
10
Enter arrival time of process 5:
8
Enter burst time of process 5:
4

Pid    AT    BT    CT    TAT    WT
1      0     2     2     2     0
2      2     5     7     5     0
3      4     3    10     6     3
4      6    10    24    18     8
5      8     4    14     6     2

Average TAT(TURN AROUND TIME) is : 7.4
```

```
eclipse-workspace - fctf/src/SjfJava - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
<terminated> Sjf [Java Application] C:\Program Files\Java\jdk-18.0.2\bin\javaw.exe (26-Sep-2022, 9:58:49 am - 10:00:02 am) [pid: 872]

Enter burst time of process 1:
2
Enter arrival time of process 2:
2
Enter burst time of process 2:
5
Enter arrival time of process 3:
4
Enter burst time of process 3:
3
Enter arrival time of process 4:
6
Enter burst time of process 4:
10
Enter arrival time of process 5:
8
Enter burst time of process 5:
4

Pid    AT    BT    CT    TAT    WT
1      0     2     2     2     0
2      2     5     7     5     0
3      4     3    10     6     3
4      6    10    24    18     8
5      8     4    14     6     2

Average TAT(TURN AROUND TIME) is : 7.4
Average WT(WAITING TIME) is : 2.6
```