

Name: Om Jadhav
Roll No: I3275
Batch: T8

Assignment No 3

CODE: Shortest Job First (SJF)

```
#include<stdio.h>
int main()
{

    int at[10], bt[10], temp[10];
    int i, smallest, count = 0, time, limit;
    double wt = 0, tat = 0, end;
    float avgwt, avgtat;

    printf ("\nEnter the number of processes: \t");
    scanf ("%d", &limit);
    printf ("\nEnter details of %d processes", limit);
    for (i = 0; i < limit; i++)
    {
        printf ("\nEnter Arrival Time:\t");
        scanf ("%d", &at[i]);
        printf ("\nEnter Burst Time:\t");
        scanf ("%d", &bt[i]);
        temp[i] = bt[i];
    }

    bt[9] = 9999;

    for (time = 0; count != limit; time++)
    {
        smallest = 9;
        for (i = 0; i < limit; i++)
        {
            if (at[i] <= time && bt[i] < bt[smallest] && bt[i] > 0)
            {
                smallest = i;
            }
        }
        bt[smallest]--;

        if (bt[smallest] == 0)
        {
            count++;
            end = time + 1;
            wt = wt + end - at[smallest] - temp[smallest];
            tat = tat + end - at[smallest];
        }
    }
}
```

```

    }

}

avgwt = wt / limit;

avgtat = tat / limit;

printf ("\nAverage Waiting Time:\t%lf\n", avgwt);
printf ("\nAverage Turn Around Time:\t%lf\n", avgtat);

return 0;

}

```

OUTPUT:

```

Enter the number of processes:      3
Enter details of 3 processes
Enter Arrival Time:   3
Enter Burst Time:     5
Enter Arrival Time:   5
Enter Burst Time:     2
Enter Arrival Time:   6
Enter Burst Time:     7
Average Waiting Time:      2.000000

Average Turn Around Time:  6.666667

```

CODE: Round Robbin (RR)

```
#include <stdio.h>
int main(){
    int i, total = 0, x, limit, counter = 0, t_quantum;

    int wait_time = 0, turnaround_time = 0, arrival_time[10], burst_time[10], temp[10];
    float average_wait_time, average_turnaround_time;

    printf ("\nEnter Total Number of Processes: ");
    scanf ("%d", &limit);

    x = limit;

    for (i = 0; i < limit; i++)
    {
        printf ("\nProvide the details for Process[%d]\n", i + 1);
        printf ("Arrival Time:\t");

        scanf ("%d", &arrival_time[i]);

        printf ("Burst Time:\t");
        scanf ("%d", &burst_time[i]);
        temp[i] = burst_time[i];
    }

    printf ("\nEnter Time Quan-tum:\t");
    scanf ("%d", &t_quantum);

    printf ("\nProcess ID\t\tBurst Time\t Turnaround Time\t Waiting Time\n");
    for (total = 0, i = 0; x != 0;)
    {
        if (temp[i] <= t_quantum && temp[i] > 0)
        {
            total = total + temp[i];
            temp[i] = 0;
            counter = 1;
        }
        else if (temp[i] > 0)
        {
            temp[i] = temp[i] - t_quantum;
            total = total + t_quantum;
        }
        if (temp[i] == 0 && counter == 1)
        {
            x--;
            printf ("\nProcess[%d]\t\t%d\t\t %d\t\t %d", i + 1, burst_time[i], total - arrival_time[i], total
- arrival_time[i] - burst_time[i]);
            wait_time = wait_time + total - arrival_time[i] - burst_time[i];
            turnaround_time = turnaround_time + total - arrival_time[i];
            counter = 0;
        }
    }
}
```

```

    }

    if (i == limit - 1)
    {
        i = 0;
    }
    else if (arrival_time[i + 1] <= total)
    {
        i++;
    }
    else
    {
        i = 0;
    }
}

average_wait_time = wait_time * 1.0 / limit;
average_turnaround_time = turnaround_time * 1.0 / limit;
printf ("\n\nAverage Waiting Time:\t%f", average_wait_time);
printf ("\nAvg Turnaround Time:\t%f\n", average_turnaround_time);
return 0;
}

```

OUTPUT:

OUTPUT:-

Enter Total Number of Processes: 4

Provide the details for Process[1]

Arrival Time: 2

Burst Time: 6

Provide the details for Process[2]

Arrival Time: 3

Burst Time: 4

Provide the details for Process[3]

Arrival Time: 3

Burst Time: 6

Provide the details for Process[4]

Arrival Time: 5

Burst Time: 4

Enter Time Quan-tum: 2

Process ID	Burst Time	Turnaround Time	Waiting Time
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Process[1]	6	10	4
Process[2]	4	11	7
Process[4]	4	13	9
Process[3]	6	17	11

Average Waiting Time: 7.750000

Avg Turnaround Time: 12.750000