

**EXP 7: Construct a C program to implement non-preemptive SJF algorithm.**

```
#include <stdio.h>

int main() {
    int n, i, j;
    int bt[20], p[20], wt[20], tat[20];
    int temp;
    float total_wt = 0, total_tat = 0;

    printf("Enter number of processes: ");
    scanf("%d", &n);

    // Input burst times and assign process numbers
    for (i = 0; i < n; i++) {
        p[i] = i + 1; // Process ID
        printf("Enter burst time for process %d: ", p[i]);
        scanf("%d", &bt[i]);
    }

    // Sort processes by burst time (SJF logic)
    for (i = 0; i < n - 1; i++) {
        for (j = i + 1; j < n; j++) {
            if (bt[j] < bt[i]) {
                // Swap burst time
                temp = bt[i];
                bt[i] = bt[j];
                bt[j] = temp;

                // Swap process ID
                temp = p[i];
                p[i] = p[j];
                p[j] = temp;
            }
        }
    }

    // Calculate waiting time and turnaround time
    wt[0] = 0;
    for (i = 1; i < n; i++) {
        wt[i] = wt[i-1] + bt[i-1];
    }

    for (i = 0; i < n; i++) {
        tat[i] = wt[i] + bt[i];
        total_wt += wt[i];
        total_tat += tat[i];
    }

    printf("Average waiting time: %.2f\n", total_wt / n);
    printf("Average turnaround time: %.2f\n", total_tat / n);
}
```

```

        p[i] = p[j];
        p[j] = temp;
    }
}

// Calculate waiting time
wt[0] = 0;
for (i = 1; i < n; i++) {
    wt[i] = wt[i - 1] + bt[i - 1];
    total_wt += wt[i];
}

// Calculate turnaround time
for (i = 0; i < n; i++) {
    tat[i] = wt[i] + bt[i];
    total_tat += tat[i];
}

// Display results
printf("\nProcess\tBurst Time\tWaiting Time\tTurnaround Time\n");
for (i = 0; i < n; i++) {
    printf("P%d\t%d\t%d\t%d\n", p[i], bt[i], wt[i], tat[i]);
}

printf("\nAverage Waiting Time = %.2f", total_wt / n);
printf("\nAverage Turnaround Time = %.2f\n", total_tat / n);

return 0;
}

```

## Sample Input

Enter number of processes: 3

Enter burst time for process 1: 3

Enter burst time for process 2: 5

Enter burst time for process 3: 7

## Sample Output

Process	Burst Time	Waiting Time	Turnaround Time
P1	3	0	3
P2	5	3	8
P3	7	8	15

Average Waiting Time = 3.67  
Average Turnaround Time = 8.67