PROGRAM NUMBER : 05

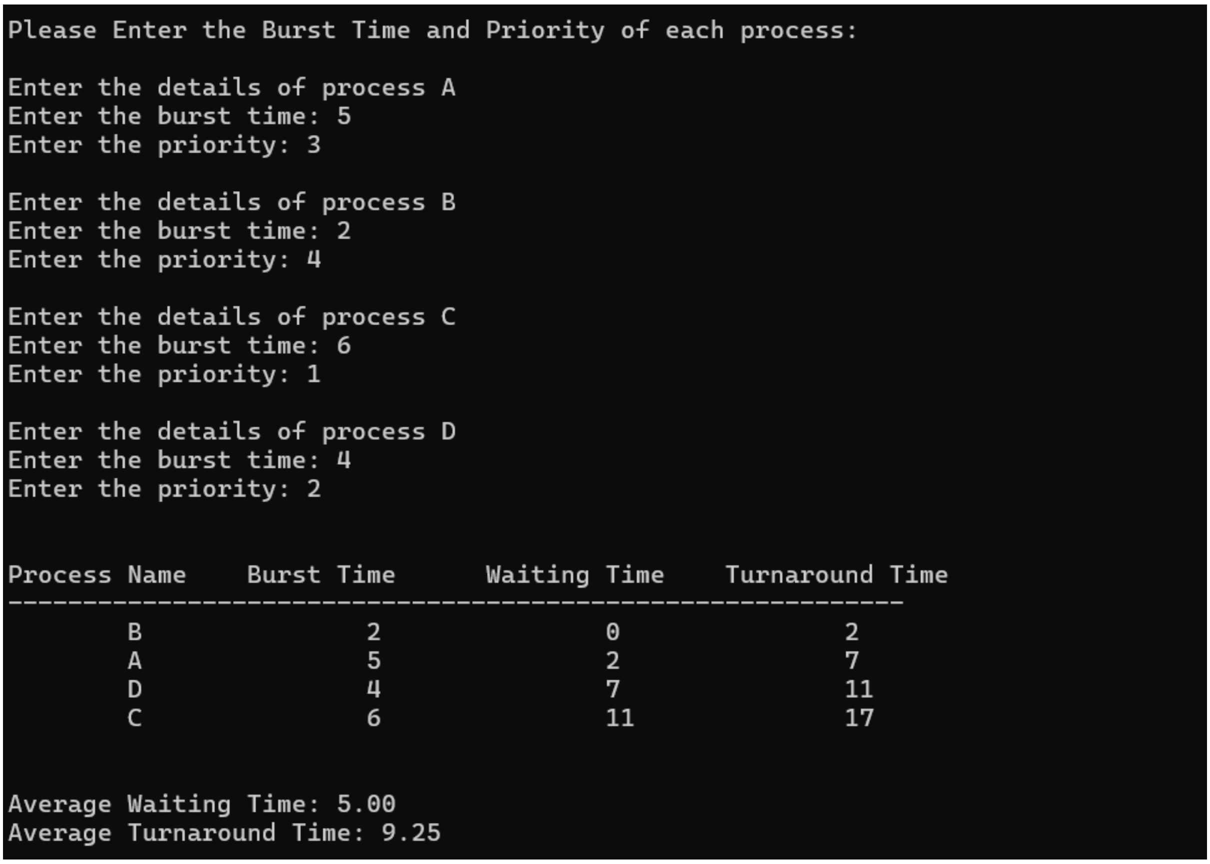
PROGRAM:

```
#include <stdio.h>

struct priority_scheduling {
    char process_name;
    int burst_time;
    int waiting_time;
    int turn_around_time;
    int priority;
};

int main() {
    int number_of_process;
    int total_waiting_time = 0, total_turnaround_time = 0;
    struct priority_scheduling temp_process;
    int ASCII_number = 65; // Start with 'A'
    int position;
    float average_waiting_time, average_turnaround_time;

    // Input the number of processes
    printf("Enter the total number of processes: ");
    scanf("%d", &number_of_process);

    struct priority_scheduling process[number_of_process];
```

```
// Input burst time and priority for each process
printf("\nPlease Enter the Burst Time and Priority of each process:\n");
for (int i = 0; i < number_of_process; i++) {
    process[i].process_name = (char)ASCII_number;
    printf("\nEnter the details of process %c\n", process[i].process_name);
    printf("Enter the burst time: ");
    scanf("%d", &process[i].burst_time);
    printf("Enter the priority: ");
    scanf("%d", &process[i].priority);
    ASCII_number++;
}

// Sort processes based on priority (higher priority comes first)
for (int i = 0; i < number_of_process; i++) {
    position = i;
    for (int j = i + 1; j < number_of_process; j++) {
        if (process[j].priority > process[position].priority) {
            position = j;
        }
    }
    temp_process = process[i];
    process[i] = process[position];
    process[position] = temp_process;
}
```

```
    // Calculate waiting times
    process[0].waiting_time = 0; // First process has no waiting time
    for (int i = 1; i < number_of_process; i++) {
        process[i].waiting_time = process[i - 1].waiting_time + process[i - 1].burst_time;
        total_waiting_time += process[i].waiting_time;
    }

    // Calculate turnaround times
    for (int i = 0; i < number_of_process; i++) {
        process[i].turn_around_time = process[i].burst_time + process[i].waiting_time;
        total_turnaround_time += process[i].turn_around_time;
    }

    // Calculate averages
    average_waiting_time = (float)total_waiting_time / number_of_process;
    average_turnaround_time = (float)total_turnaround_time / number_of_process;

    // Display the results
    printf("\n\nProcess Name\tBurst Time\tWaiting Time\tTurnaround Time\n");
    printf("------------------------------------------------------------\n");
    for (int i = 0; i < number_of_process; i++) {
        printf("\t%c\t\t%d\t\t%d\t\t%d\n",
               process[i].process_name, process[i].burst_time, process[i].waiting_time,
process[i].turn_around_time);
    }

    // Print averages
    printf("\n\nAverage Waiting Time: %.2f", average_waiting_time);
    printf("\nAverage Turnaround Time: %.2f\n", average_turnaround_time);

    return 0;
}
```

OUTPUT:



```
Please Enter the Burst Time and Priority of each process:

Enter the details of process A
Enter the burst time: 5
Enter the priority: 3

Enter the details of process B
Enter the burst time: 2
Enter the priority: 4

Enter the details of process C
Enter the burst time: 6
Enter the priority: 1

Enter the details of process D
Enter the burst time: 4
Enter the priority: 2


Process Name    Burst Time      Waiting Time    Turnaround Time
------------------------------------------------------------
        B               2               0               2
        A               5               2               7
        D               4               7               11
        C               6               11              17


Average Waiting Time: 5.00
Average Turnaround Time: 9.25
```