**EXP 5: Construct a scheduling program with C that selects the waiting process with the highest priority to execute next.**

```
#include <stdio.h>

int main() {
    int n, i, j;
    int bt[20], p[20], pr[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 priorities
    for (i = 0; i < n; i++) {
        p[i] = i + 1;
        printf("Enter burst time for process %d: ", p[i]);
        scanf("%d", &bt[i]);
        printf("Enter priority (lower number = higher priority) for process %d: ", p[i]);
        scanf("%d", &pr[i]);
    }

    // Sort processes by priority (lower number = higher priority)
    for (i = 0; i < n - 1; i++) {
        for (j = i + 1; j < n; j++) {
            if (pr[j] < pr[i]) {
                // Swap burst time
                temp = bt[i];
                bt[i] = bt[j];
                bt[j] = temp;
```

```
            // Swap priority
            temp = pr[i];
            pr[i] = pr[j];
            pr[j] = temp;

            // Swap process number
            temp = p[i];
            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];
}

// Print results
printf("\nProcess\tBurst Time\tPriority\tWaiting Time\tTurnaround Time\n");
for (i = 0; i < n; i++) {
    printf("P%d\t%d\t\t%d\t\t%d\t\t%d\n", p[i], bt[i], pr[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 priority (lower number = higher priority) for process 1: 4

Enter burst time for process 2: 5

Enter priority (lower number = higher priority) for process 2: 7

Enter burst time for process 3: 2

Enter priority (lower number = higher priority) for process 3: 1

## Sample Output

```
Process Burst Time      Priority        Waiting Time    Turnaround Time
P3      2               1               0               2
P1      3               4               2               5
P2      5               7               5               10

Average Waiting Time = 2.33
Average Turnaround Time = 5.67
```