OS LAB MANUAL

(CS23431)

Roll No:230701234

EX.NO:6c

PRIORITY SCHEDULING

Aim: To implement priority scheduling technique

Program:

Input:

```
#include <stdio.h>

struct Process {
    int id;
    int burst_time;
    int priority;
    int waiting_time;
    int turnaround_time;
};

void sortProcesses(struct Process p[], int n) {
    struct Process temp;
    for (int i = 0; i < n - 1; i++) {
        for (int j = i + 1; j < n; j++) {
            if (p[i].priority > p[j].priority) {
                temp = p[i];
                p[i] = p[j];
                p[j] = temp;
            }
```

```
        }
    }
}

int main() {
    int n;
    struct Process p[10];
    int total_waiting_time = 0, total_turnaround_time = 0;

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

    printf("Enter the burst time and priority of the processes:\n");
    for (int i = 0; i < n; i++) {
        printf("Process %d - Burst Time: ", i + 1);
        scanf("%d", &p[i].burst_time);
        printf("Process %d - Priority: ", i + 1);
        scanf("%d", &p[i].priority);
        p[i].id = i + 1;
        p[i].waiting_time = 0;
        p[i].turnaround_time = 0;
    }

    sortProcesses(p, n);

    for (int i = 0; i < n; i++) {
        if (i == 0) {
            p[i].waiting_time = 0;
        } else {
            p[i].waiting_time = p[i - 1].waiting_time + p[i - 1].burst_time;
        }
        p[i].turnaround_time = p[i].waiting_time + p[i].burst_time;
```

```
        total_waiting_time += p[i].waiting_time;
        total_turnaround_time += p[i].turnaround_time;
    }

    printf("\nProcess\tBurst Time\tPriority\tWaiting Time\tTurn Around Time\n");
    for (int i = 0; i < n; i++) {
        printf("%d\t%d\t\t%d\t\t%d\t\t%d\n",
            p[i].id, p[i].burst_time, p[i].priority,
            p[i].waiting_time, p[i].turnaround_time);
    }

    printf("\nAverage waiting time is: %.2f", (float)total_waiting_time / n);
    printf("\nAverage Turn Around Time is: %.2f\n", (float)total_turnaround_time / n);

    return 0;
}
```

Input:

```
pranav@Pranav:~$ vi sixc.c
pranav@Pranav:~$ gcc sixc.c
pranav@Pranav:~$ ./a.out
Enter the number of processes: 4
Enter the burst time and priority of the processes:
Process 1 - Burst Time: 4
Process 1 - Priority: 3
Process 2 - Burst Time: 7
Process 2 - Priority: 2
Process 3 - Burst Time: 9
Process 3 - Priority: 1
Process 4 - Burst Time: 3
Process 4 - Priority: 4
```

Output:

```
pranav@Pranav:~$ ./a.out
Enter the number of processes: 4
Enter the burst time and priority of the processes:
Process 1 - Burst Time: 4
Process 1 - Priority: 3
Process 2 - Burst Time: 7
Process 2 - Priority: 2
Process 3 - Burst Time: 9
Process 3 - Priority: 1
Process 4 - Burst Time: 3
Process 4 - Priority: 4

Process Burst Time      Priority        Waiting Time    Turn Around Time
3       9               1               0               9
2       7               2               9               16
1       4               3               16              20
4       3               4               20              23

Average waiting time is: 11.25
Average Turn Around Time is: 17.00
pranav@Pranav:~$
```