OS LAB MANUAL

(CS23431)

Roll No:230701234

EX.NO:6D

ROUND ROBIN SCHEDULING

Aim: To implement the Round Robin (RR) scheduling technique

Program:

```
#include <stdio.h>

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

int main() {
    int n, quantum, t = 0;
    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 time quantum: ");
    scanf("%d", &quantum);
```

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

while (1) {
    int done = 1;
    for (int i = 0; i < n; i++) {
        if (p[i].remaining_burst_time > 0) {
            done = 0;
            if (p[i].remaining_burst_time > quantum) {
                t += quantum;
                p[i].remaining_burst_time -= quantum;
            } else {
                t += p[i].remaining_burst_time;
                p[i].waiting_time = t - p[i].burst_time;
                p[i].turnaround_time = t;
                p[i].remaining_burst_time = 0;
            }
        }
    }
    if (done == 1)
        break;
}
```

```
    printf("\nProcess\tBurst Time\tWaiting Time\tTurn Around
Time\n");
    for (int i = 0; i < n; i++) {
        total_waiting_time += p[i].waiting_time;
        total_turnaround_time += p[i].turnaround_time;
        printf("%d\t%d\t\t%d\t\t%d\n", p[i].id, p[i].burst_time,
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 sixdee.c
pranav@Pranav:~$ gcc sixdee.c
pranav@Pranav:~$ vi sixdee.c
pranav@Pranav:~$ gcc sixdee.c
pranav@Pranav:~$ ./a.out
Enter the number of processes: 4
Enter the time quantum: 4
Enter the burst time of the processes:
Process 1 - Burst Time: 6
Process 2 - Burst Time: 8
Process 3 - Burst Time: 5
Process 4 - Burst Time: 4
```

OUTPUT:

```
pranav@Pranav:~$ ./a.out
Enter the number of processes: 4
Enter the time quantum: 4
Enter the burst time of the processes:
Process 1 - Burst Time: 6
Process 2 - Burst Time: 8
Process 3 - Burst Time: 5
Process 4 - Burst Time: 4

Process Burst Time      Waiting Time    Turn Around Time
1       6               12              18
2       8               14              22
3       5               18              23
4       4               12              16

Average waiting time is: 14.00
Average Turn Around Time is: 19.75
```