OS LAB MANUAL

(CS23431)

Lab:3

Roll No:230701246

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;
                }
            }
        }

    printf("\nProcess\tBurst Time\tWaiting Time\tTurn Around
Time\n");
    for (int i = 0; i < n; i++) {
        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:

```
praveen@LAPTOP-Q0D8O6DB:~$ vi rr.c
praveen@LAPTOP-Q0D8O6DB:~$ gcc rr.c
praveen@LAPTOP-Q0D8O6DB:~$ ./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:

```
praveen@LAPTOP-Q0D8O6DB:~$ vi rr.c
praveen@LAPTOP-Q0D8O6DB:~$ gcc rr.c
praveen@LAPTOP-Q0D8O6DB:~$ ./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
```