Ex. No.: 6d)
Date 20/03/2025

ROUND ROBIN SCHEDULING

Aim:

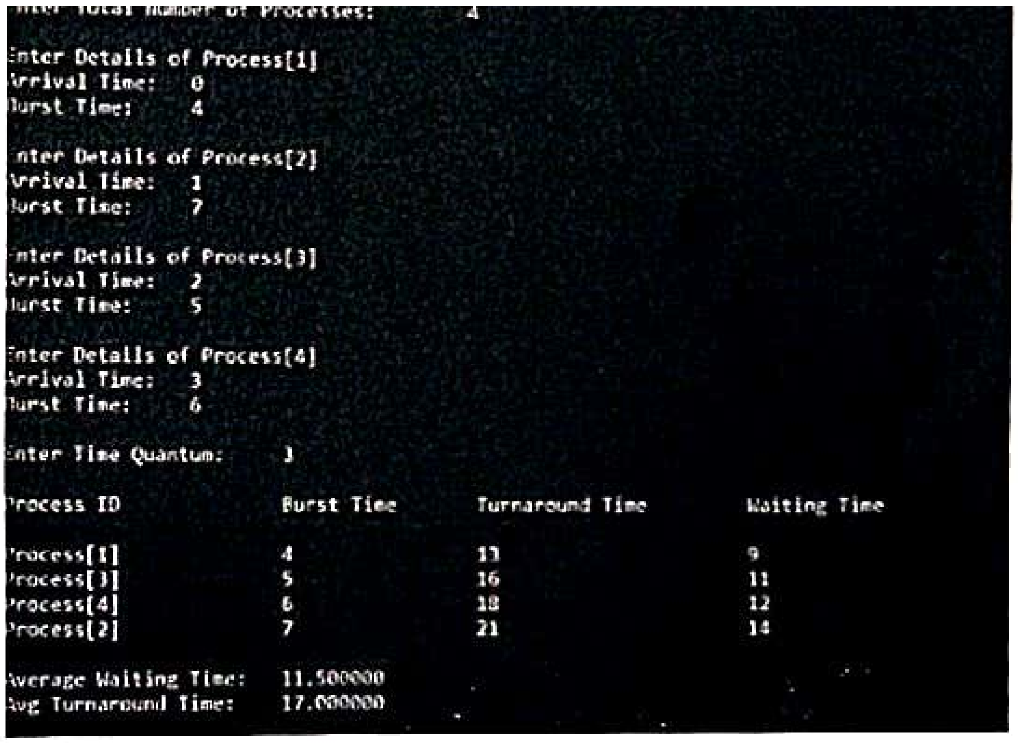
To implement the Round Robin (RR) scheduling technique

Algorithm:

```
1. Declare the structure and its elements.
2. Get number of processes and Time quantum as input from the user.
3. Read the process name, arrival time and burst time
4. Create an array rem_bt[] to keep track of remaining burst time of processes which is initially
   copy of bt[] (burst times array)
5. Create another array wt[] to store waiting times of processes. Initialize this array as 0. 6.
Initialize time : t = 0
7. Keep traversing the all processes while all processes are not done. Do following for i'th
process if it is not done yet.
 a- If rem_bt[i] > quantum
 (i) t = t + quantum
 (ii) bt_rem[i] -= quantum;
 b- Else // Last cycle for this process
 (i) t = t + bt_rem[i];
 (ii) wt[i] = t - bt[i]
 (iii) bt_rem[i] = 0; // This process is over
8. Calculate the waiting time and turnaround time for each process.
9. Calculate the average waiting time and average turnaround time.
10. Display the results.
```

Program Code:

```
#include <stdio.h>
int main()
{
    int n;
    printf(" Enter Total no of Process:");
    scanf(" %d", &n);
    int wait=0, turnaro=0, arr[n], burst[n], temp[n];
    int x=n;
    for(int i=0; i<n; i++){
        printf("Enter details %d\n", i+1);
        printf(" Arrival time : ");
        scanf(" %d ", & arr[i]);
        printf("Burst Time:");
        Scanf("%d", &burst[i]);
    }
    int time_quant;
    printf("Enter Quant :");
    Scanf("%d", &time_Quant);
    int total =0, counter =0, i;
    printf("Process ID Burst time  Turn Around Time  Waiting Time\n");
    for (total=0; i=0; x!=0){
        if (temp [i]<= time_quant && temp [i]>0){
              total = total+ temp[i];
              temp [i]=0;
              counter=1;
        }
        else if (temp[i]>0){
              temp[i]= temp [i] - time_Quant;
              total+ = time_Quant;
        }
        if (temp[i]==0 && counter==1) {
              x --;
              printf("\nProcess No %d \t\t %d \t\t %d", i+1)
              burst [i], total_arr[i], total_arr[i] - burst[i])
              wait = wait+ total_arr[i] - burst[i];
              turnaro = total arr[i];
              counter=0;
        }
        if (i==n-1)
             i= 0;
        else if ( arr[i+1] <= total)
             i++;
        else
             i = 0;
    }
    float avgW = (float) wait/n;
    float avg t = (float) turnaround/n;
    printf("\n Average Waiting Time : %f ", avg W)
    printf(" \nAverage Turn Around Time: %f, avgt);
    return 0;
}
```



```
Enter Total Number of Processes:        4

Enter Details of Process[1]
Arrival Time:    0
Burst Time:      4

Enter Details of Process[2]
Arrival Time:    1
Burst Time:      7

Enter Details of Process[3]
Arrival Time:    2
Burst Time:      5

Enter Details of Process[4]
Arrival Time:    3
Burst Time:      6

Enter Time Quantum:     3

Process ID              Burst Time       Turnaround Time          Waiting Time

Process[1]              4                13                       9
Process[3]              5                16                       11
Process[4]              6                18                       12
Process[2]              7                21                       14

Average Waiting Time:   11.500000
Avg Turnaround Time:    17.000000
```

✓

Output:

```
Enter Total no of Process:3
Enter Details of Process:1
Arrival Time:0
Burst Time:4
Enter Details of Process2
ArrivalTime:1
Burst Time:7
Enter Details of Process:3
Arrival Time:2
Burst Time:5
Enter Time Quant:2
ProcessID    BurstTime    TurnAroundTime    Waiting Time
   1             4              8                4
   3             5             13                8
   2             7             15                8
Average Waiting Time: 6.66ms
Average TurnAround Time: 12:00ms
```

Result:

Thus the Round Robin Algorithm is executed

[illegible]