Ex. No.: 6d)
Date 28.2.25

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:

```
n = int(input("Enter the number of process: "))
proces = []
for i in range(0, n):
    proces.append(i+1)
bt = []
for i in range(0,n):
    burst_time = int(input("Enter burst time of process {i+1}:"))
    bt.append(burst_time)
```

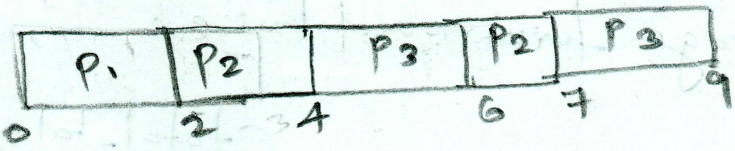
```
tq = int(input("Enter time quantum: "))
wt = [0] * n
tat = [0] * n
rem_bt = bt.copy()
time = 0
while(1):
    complete = true
    for i in range(n):
        complete = false
        if rem_bt[i] > tq:
            time += tq
            rem_bt[i] = tq
        else
            time += rem_bt[i]
            wt[i] = time - bt[i]
            rem_bt[i] = 0
    if complete:
        break
for i in rang(0, n):
    tat[i] = bt[i] + wt[i]
total wt = 0
total_tat = 0
```

```
for i in range (0, n):
    total_wt = total_wt + wt[i]
    total_tat = total_tat + tat[i]
print("Process  Burst time  Waiting time
                          Turnaround time")

for i in range (0, n):
    print(i+1, "\t\t", bt[i], "\t\t", wt[i],
          "\t\t", tat[i])

print("Average turnaround time: ",
      (total_tat/n))

print("Average waiting time: ",
      (total_wat/n))
```

Output:

Time quantum = 2

Process	AT (ms)	BT (ms)	CT (ms)	TAT (ms)	WT (ms)
1	0	2	2	2	0
2	0	3	7	7	4
3	0	4	9	9	5



$$\text{Avg tat} = \frac{2+7+9}{3} = \frac{18}{3} = 6\text{ms}$$

$$\text{Avg wt} = \frac{0+4+5}{3} = \frac{9}{3} = 3\text{ms}$$

Result:

The program to implement Round Robin scheduling has been executed and verified successfully.