



Mawlana Bhashani Science and Technology University

Lab-Report

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Experiment name : Implementation of Round Robin Scheduling Algorithm
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i) What is Round Robin Scheduling Algorithm?

Round Robin scheduling :

Let's take one example to understand it.

Time Quantum = 2

Process	Arrival time	Burst time
P1	0	4
P2	1	5
P3	2	2
P4	3	1
P5	4	6
P6	5	3

Hence the GANTT chart will be following:

P1	P2	P3	P1	P4	P5	P2	P6	P5	P2	P6	P5	
0	2	4	6	8	9	11	13	15	17	18	19	21

Process	A.T	B.T	W.T=(s.t-a.t) + (s.t-l.c.t)	T.A.T=B.T+W.T	R.T= s.t- a.t
P1	0	4	4	8	0
P2	1	5	12	17	1
P3	2	2	2	4	2
P4	3	1	5	6	5

P5	4	6	11	17	5
P6	6	3	10	13	7

Average waiting time = $4+12+2+5+11+10 = 7.33$ ms

Average turn around time = $8+17+4+6+17+13 = 10.83$ ms

ii) implementation of Round Robin algorithm in C

The implementation of Round Robin scheduling algorithm in C is given below:

Code:

```
//implementation of Round Robin scheduling algorithm
#include <iostream>
#include <vector>
using namespace std;
int main()
{
    int i,n,time,remain,temps=0,time_quantum;
    int wt=0,tat=0;
    cout<<"Enter the total number of process:";
    cin>>n;
    remain=n;

    vector<int>at(n);
    vector<int>bt(n);
    vector<int>rt(n);

    for(i=0; i<n; i++)
    {
        cout<<"Enter the Arrival time & Burst time of the processes:"<<i+1<<" ";
        cin>>at[i]>>bt[i];
        rt[i]=bt[i];
    }
    cout<<"Enter the value of time QUANTUM:"<<endl;
    cin>>time_quantum;
    cout<<"Process\tA.T\tB.T\tW.T\tT.A.T\n";
    for(time=0,i=0; remain!=0;)
    {
        if(rt[i]<=time_quantum && rt[i]>0)
```

```

    {
        time += rt[i];
        rt[i]=0;
        temps=1;
    }

    else if(rt[i]>0)
    {
        rt[i] -= time_quantum;
        time += time_quantum;
    }

    if(rt[i]==0 && temps==1)
    {
        remain--;
        cout<<i+1<<"\t"<<at[i]<<"\t"<<bt[i]<<"\t"<<time-at[i]-
bt[i]<<"\t"<<time-at[i];
        cout<<endl;
        wt += time-at[i]-bt[i];
        tat += time-at[i];
        temps=0;
    }

    if(i == n-1)
        i=0;
    else if(at[i+1] <= time)
        i++;
    else
        i=0;
}

cout<<"Average waiting time "<<wt*1.0/n<<endl;
cout<<"Average turn around time "<<tat*1.0/n<<endl;;

return 0;
}

```

Output:

```

Enter the total number of process:4
Enter the Arrival time & Burst time of the processes:1 1 4
Enter the Arrival time & Burst time of the processes:2 2 3
Enter the Arrival time & Burst time of the processes:3 3 5
Enter the Arrival time & Burst time of the processes:4 4 7
Enter the value of time QUANTUM:
2
Process A.T      B.T      W.T      T.A.T
1          1          4          5          9
2          2          3          6          9
3          3          5          8         13
4          4          7          8         15
Average waiting time 6.75
Average turn around time 11.5

Process returned 0 (0x0)   execution time : 49.919 s

```

Conclusion: This lab helps to learn Round Robin scheduling algorithm. This algorithm is very useful. We have implemented this algorithm using C language. In future we can solve any problem of this algorithm.