Mawlana Bhashani Science and Technology University

Lab-Report

Report No: 10

Course code: ICT-3110

Course title: Operating System Lab

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Experiment No:10

Experiment Name: Implementation of Round Robin Scheduling Algorithm

Theory:

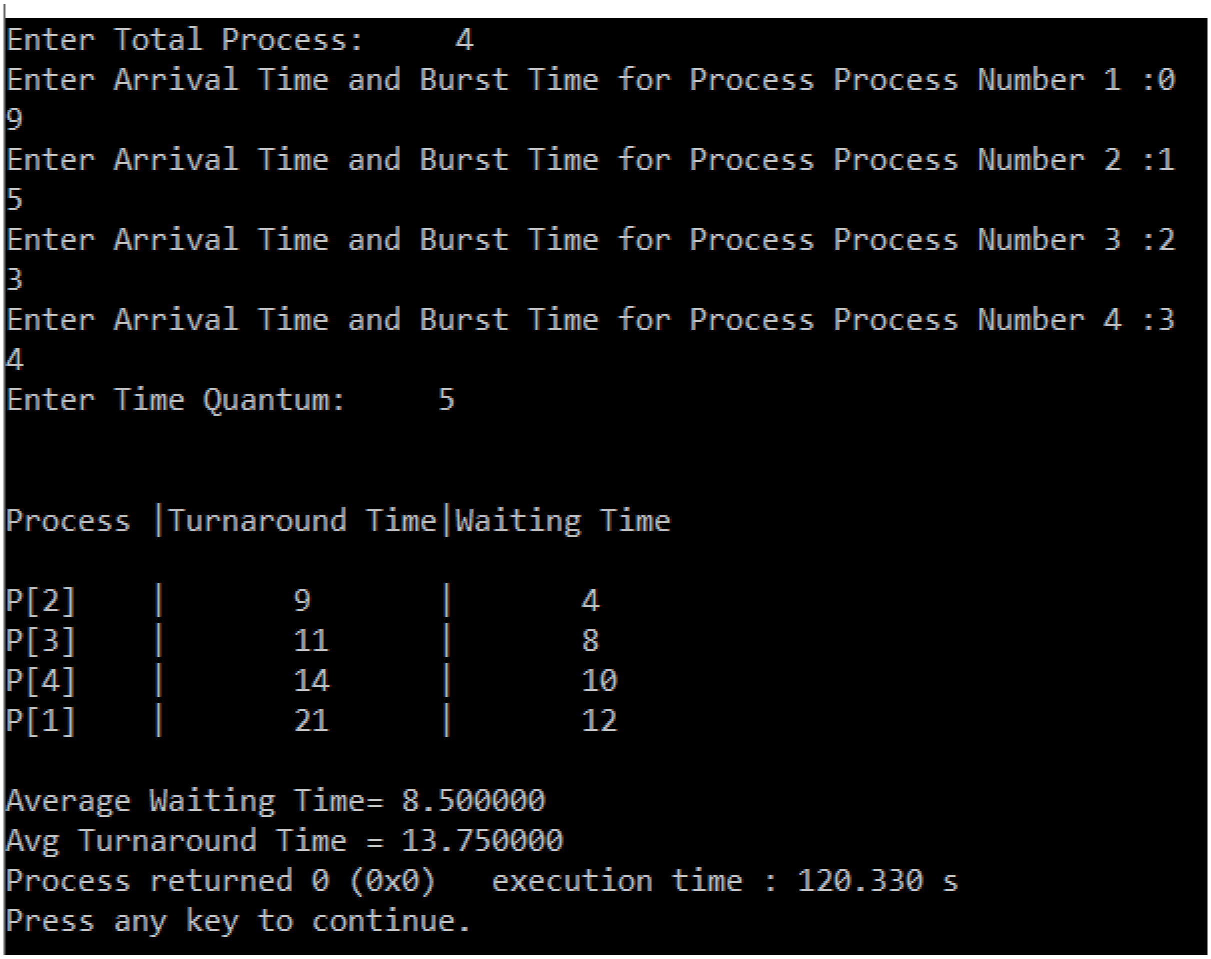
Round Robin is the preemptive process scheduling algorithm. Each process is provided a fix time to execute, it is called a **quantum**. Once a process is executed for a given time period, it is preempted and other process executes for a given time period. Context switching is used to save states of preempted processes. It is a real time algorithm which responds to the event within a specific time limit.

Working Process:

```
#include<stdio.h>

int main()
{

  int count,j,n,time,remain,flag=0,time_quantum;
  int wait_time=0,turnaround_time=0,at[10],bt[10],rt[10];
  printf("Enter Total Process:\t ");
  scanf("%d",&n);
  remain=n;
  for(count=0; count<n; count++)
  {
    printf("Enter Arrival Time and Burst Time for Process Process Number %d :",count+1);
    scanf("%d",&at[count]);
    scanf("%d",&bt[count]);
    rt[count]=bt[count];
  }
  printf("Enter Time Quantum:\t");
  scanf("%d",&time_quantum);
  printf("\n\nProcess\t|Turnaround Time|Waiting Time\n\n");
  for(time=0,count=0; remain!=0;)
  {
    if(rt[count]<=time_quantum && rt[count]>0)
    {
      time+=rt[count];
      rt[count]=0;
      flag=1;
    }
    else if(rt[count]>0)
    {
      rt[count]-=time_quantum;
      time+=time_quantum;
    }
    if(rt[count]==0 && flag==1)
    {
      remain--;
      printf("P[%d]\t|\t%d\t|\t%d\n",count+1,time-at[count],time-at[count]-bt[count]);
      wait_time+=time-at[count]-bt[count];
      turnaround_time+=time-at[count];
      flag=0;
    }
    if(count==n-1)
______count=0;
```

```
        else if(at[count+1]<=time)
          count++;
        else
          count=0;
    }
    printf("\nAverage Waiting Time= %f\n",wait_time*1.0/n);
    printf("Avg Turnaround Time = %f",turnaround_time*1.0/n);


    return 0;
}
```

Output Sample:



```
Enter Total Process:     4
Enter Arrival Time and Burst Time for Process Process Number 1 :0
9
Enter Arrival Time and Burst Time for Process Process Number 2 :1
5
Enter Arrival Time and Burst Time for Process Process Number 3 :2
3
Enter Arrival Time and Burst Time for Process Process Number 4 :3
4
Enter Time Quantum:     5


Process |Turnaround Time|Waiting Time

P[2]    |       9       |       4
P[3]    |       11      |       8
P[4]    |       14      |       10
P[1]    |       21      |       12

Average Waiting Time= 8.500000
Avg Turnaround Time = 13.750000
Process returned 0 (0x0)   execution time : 120.330 s
Press any key to continue.
```

Discussion: To learn Round Robin scheduling algorithm, this lab helped a lot. We learnt this topic and now we can implement these further.