UNIVERSITY OF ENGINEERING AND TECHNOLOGY, TAXILA

FACULTY OF TELECOMMUNICATION AND INFORMATION ENGINEERING

SOFTWARE ENGINEERING DEPARTMENT

OPERATING SYSTEMS LAB

Lab 15
Round Robin Scheduling Algorithm

Task: Write a program for round robin scheduling algorithm. And compare its results with previous implemented algorithms.

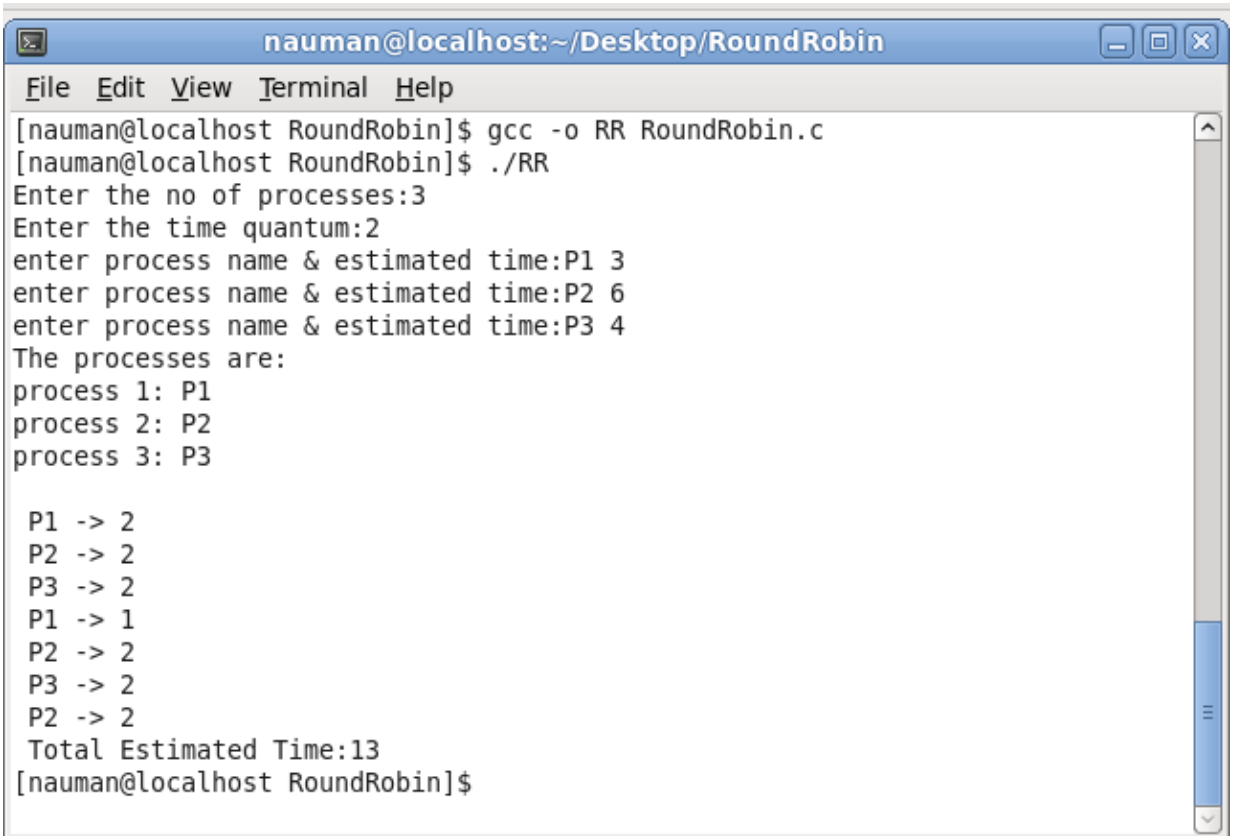
Solution:

Source Code:

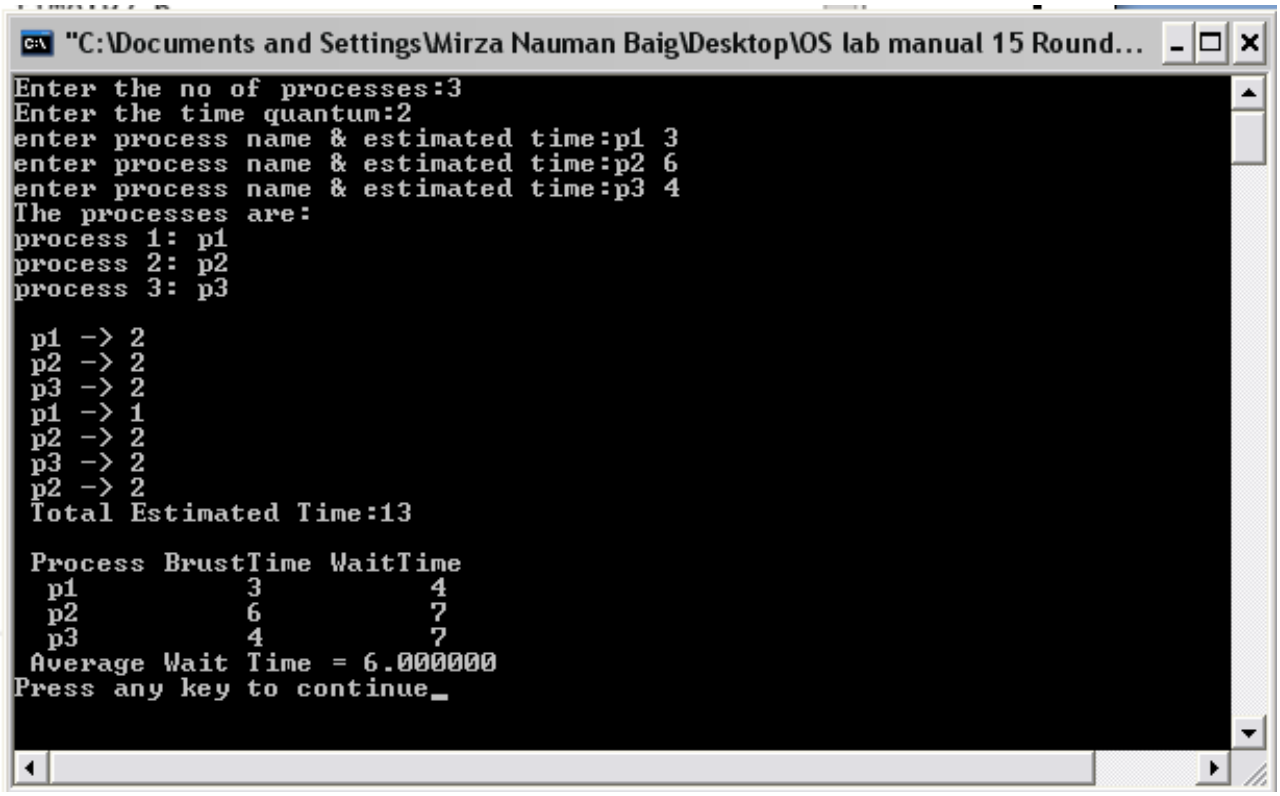
```
#include<stdio.h>
void main()
{
  // Declare and initialize variables

  printf("Enter the no of processes:");
  scanf("%d",&n);
  printf("Enter the time quantum:");
  scanf("%d",&ts);
  for(i=0;i<n;i++)
  {
    printf("enter process name & estimated time:");
    scanf("%s %d",pn[i],&et[i]);
  }
  printf("The processes are:\n");
  for(i=0;i<n;i++)
    printf("process %d: %s\n",i+1,pn[i]);

  for(i=0;i<n;i++)
    tot=tot+et[i];
  while(x!=tot)
  {
    for(i=0;i<n;i++)
    {
      if(et[i]>ts)
      {
            x=x+ts;
            printf("\n %s -> %d",pn[i],ts);
            et[i]=et[i]-ts;
      }
      else if((et[i]<=ts)&&et[i]!=0)
      {
            x=x+et[i];
            printf("\n %s -> %d",pn[i],et[i]);
            et[i]=0;
      }
    }
  }
  printf("\n Total Estimated Time:%d",x);
}
```


nauman@localhost:~/Desktop/RoundRobin
File Edit View Terminal Help
[nauman@localhost RoundRobin]$ gcc -o RR RoundRobin.c
[nauman@localhost RoundRobin]$ ./RR
Enter the no of processes:3
Enter the time quantum:2
enter process name & estimated time:P1 3
enter process name & estimated time:P2 6
enter process name & estimated time:P3 4
The processes are:
process 1: P1
process 2: P2
process 3: P3
P1 -> 2
P2 -> 2
P3 -> 2
P1 -> 1
P2 -> 2
P3 -> 2
P2 -> 2
Total Estimated Time:13
[nauman@localhost RoundRobin]$

LAB TASK: Now write add code in the provided code to calculate wait time for each process and calculate average wait time



Outputs and Comparisons:

Time Slice = 4

Job Arrival Sequence	**Length**	**Waiting Time R.R**
1	22	93
2	12	57
3	12	61
4	16	78
5	27	95
6	5	48
7	9	73
8	19	94
Average Waiting Time		74.875

```
Enter the no of processes:8
Enter the time quantum:4
enter process name & estimated time:p1 22
enter process name & estimated time:p2 12
enter process name & estimated time:p3 12
enter process name & estimated time:p4 16
enter process name & estimated time:p5 27
enter process name & estimated time:p6 5
enter process name & estimated time:p7 9
enter process name & estimated time:p8 19
The processes are:
process 1: p1
process 2: p2
process 3: p3
process 4: p4
process 5: p5
process 6: p6
process 7: p7
process 8: p8

 p1 -> 4
 p2 -> 4
 p3 -> 4
 p4 -> 4
 p5 -> 4
 p6 -> 4
 p7 -> 4
 p8 -> 4
 p1 -> 4
 p2 -> 4
 p3 -> 4
 p4 -> 4
 p5 -> 4
 p6 -> 1
 p7 -> 4
 p8 -> 4
 p1 -> 4
 p2 -> 4
 p3 -> 4
 p4 -> 4
 p5 -> 4
 p7 -> 1
 p8 -> 4
 p1 -> 4
 p4 -> 4
 p5 -> 4
 p8 -> 4
 p1 -> 4
 p5 -> 4
 p8 -> 3
 p1 -> 2
 p5 -> 4
 p5 -> 3
 Total Estimated Time:122

 Process BrustTime WaitTime
  p1         22         93
  p2         12         57
  p3         12         61
  p4         16         78
  p5         27         95
  p6          5         48
  p7          9         73
  p8         19         94
 Average Wait Time = 74.875000
```

Job Arrival Sequence	Length	Priority	Waiting Time			
			FCFS	SJF	Priority	Round Robin
1	22	3	0	73	52	93
2	12	4	22	14	74	57
3	12	2	34	26	21	61
4	16	0	46	38	0	78
5	27	4	62	95	86	95
6	5	1	89	0	16	48
7	9	5	94	5	113	73
8	19	2	103	54	33	94
Average Waiting Time			56.25	38.125	49.375	74.875