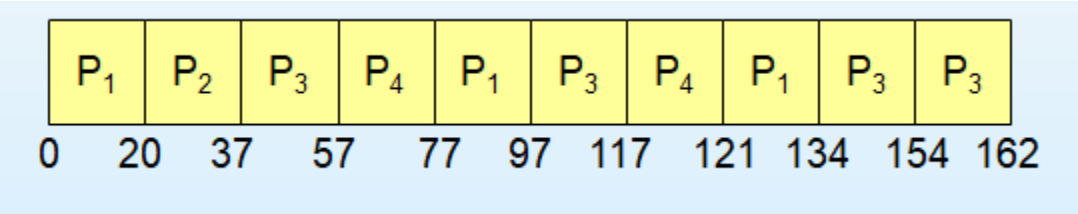
Experiment No: 05

Experiment Name: Implementation of Round Robin Algorithm for Using C/C++.

Round Robin Algorithm Theoretical Explanation:

Process	Burst Time	Time Quantum
P1	53	20
P2	17	
P3	68	
P4	24	

Round Robin Algorithm Gantt Chart



Average turn-around time = (134 + 37 + 162 + 121) / 4 = 113.5

Average waiting time

= [(134-53) + (37-17) + (162-68) + (121-24)] / 4

= (81 + 20 + 94 + 97) / 4

= 292 / 4 = 73

Round Robin Algorithm Using C++ Code:

```
#include <bits/stdc++.h>
using namespace std;
int main()
{
   int bt[100],tq,i,n,rembt[100],t=0,wt[100],c=0,p[100],tat[100];
   double total=0, avgwt=0;
   printf("Input process number.\n");
   cin>>n;
```

```
for(i=0; i<n; i++)
 {
    printf("Input burst time for process P[%d].\n",i+1);
    scanf("%d",&bt[i]);
    p[i]=i+1;
 }
 printf("Take Input time quantum.\n");
 cin>>tq;
 for(i=0; i<n; i++)
 {
    rembt[i]=bt[i];
 }
 while(c!=n)
 {
    for(i=0; i<n; i++)
    {
       if(rembt[i]>tq)
       {
          t=t+tq;
          rembt[i]=rembt[i]-tq;
       }
       else if(rembt[i]!=0)
       {
          t=t+rembt[i];
          wt[i]=t-bt[i];
          tat[i]=t;
          total=total+wt[i];
          rembt[i]=0;
          c++;
       }
    }
```

```
    }
    avgwt=total/n;
    printf("\nProcess\t    Burst Time    \tWaiting Time\tTurnaround Time");
    for(i=0; i<n; i++)
    {
        total=total+bt[i];
        printf("\nP[%d]\t\t  %d\t\t    %d\t\t\t%d",p[i],bt[i],wt[i],tat[i]);
    }
    double avgtt=total/n;
    printf("\nAverage waiting time %0.2lf\n",avgwt);
    printf("Average turn around time %0.2lf\n",avgtt);
    return 0;
}
```

Output:

```
Input process number.
4
Input burst time for process P[1].
53
Input burst time for process P[2].
17
Input burst time for process P[3].
68
Input burst time for process P[4].
24
Take Input time quantum.
20

Process     Burst Time          Waiting Time    Turnaround Time
P[1]              53                81                  134
P[2]              17                20                  37
P[3]              68                94                  162
P[4]              24                97                  121
Average waiting time 73.00
Average turn around time 113.50

Process returned 0 (0x0)   execution time : 9.526 s
Press any key to continue.
```