NAME: VARSHA D KULKARNI   SRN: PES1UG19EC339

OS-LAB-WEEK-5

1. **Write a C program to implement Round Robin scheduling algorithm**

PROGRAM:

```
#include<stdio.h>
#include<stdlib.h>
void round_robin(int * burst,int n,int tq,int * processor){
  int *remaining_times = (int *)malloc(sizeof(int) * n);
int *wait= (int *)malloc(sizeof(int) * n);
int *turn= (int *)malloc(sizeof(int) * n);
int remaining_processes = n, time = 0, process_number = 0, flag = 1;
 float total_wait_time = 0;

 for (int i = 0; i < n; i++)
     remaining_times[i] = burst[i];

   while (1)
   {
     flag = 1;
     for (int i = 0; i < n; i++)
     {
       if (remaining_times[i] > 0)
       {
         flag = 0;
         if (remaining_times[i] > tq)
         {
           time += tq;
           remaining_times[i] -= tq;
         }
         else
         {
           time += remaining_times[i];
           wait[i] = time - burst[i];
           remaining_times[i] = 0;
         }
       }
     }
     if (flag)
        break;
   }

   for (int i = 0; i < n; i++)
     total_wait_time += wait[i];

 float total=0;
float totalturn=0;
```

```c
        for(int i=0;i<n;i++){
                total=burst[i]+wait[i];
                turn[i]=total;
                totalturn+=turn[i];
        }
        float average_waitint_time=total_wait_time/n;
        float avaerage_turn_time=totalturn/n;


        printf("processor   burst time          waiting time        turn around time\n");
        for(int i=0;i<n;i++)
                printf("%d                %d              %d
                %d\n",processor[i],burst[i],wait[i],turn[i]);
        printf("Average waiting time is %f\nAverage turn around time is
%f\n",average_waitint_time,avaerage_turn_time);
}

int main(){
int n,i;
int tq;

int *processor = (int *)malloc(sizeof(int) * n);
int *burst= (int *)malloc(sizeof(int) * n);

printf("****Round Robin Job Scheduling****\n\n");

printf("Enter the number of processes :  \n");
scanf("%d",&n);
for(int i=0;i<n;i++){

        printf("Enter burst time of  processor %d : ",i+1);
        scanf("%d",&burst[i]);
        processor[i]=i+1;
        printf("\n");
}
printf("Enter  time quantum\n");
scanf("%d",&tq);
round_robin(burst,n,tq,processor);
}
```

OUTPUT:

Time quantum:12

```
varsha@ubuntu:~/PES1UG19EC339/os/WEEK_5$ ./a.out
****Round Robin Job Scheduling****

Enter the number of processes :
5
Enter burst time of  processor 1 : 20

Enter burst time of  processor 2 : 5

Enter burst time of  processor 3 : 17

Enter burst time of  processor 4 : 10

Enter burst time of  processor 5 : 13

Enter  time quantum
12
processor       burst time      waiting time    turn around time
1               20              39              59
2               5               12              17
3               17              47              64
4               10              29              39
5               13              52              65
Average waiting time is 35.799999
Average turn around time is 48.799999
```

Time Slice:2

```
varsha@ubuntu:~/PES1UG19EC339/os/WEEK_5$ ./a.out
****Round Robin Job Scheduling****

Enter the number of processes :
5
Enter burst time of  processor 1 : 20

Enter burst time of  processor 2 : 5

Enter burst time of  processor 3 : 17

Enter burst time of  processor 4 : 10

Enter burst time of  processor 5 : 13

Enter  time quantum
2
processor       burst time      waiting time    turn around time
1               20              45              65
2               5               18              23
3               17              46              63
4               10              33              43
5               13              43              56
Average waiting time is 37.000000
Average turn around time is 50.000000
```

Time Slice:3

```
varsha@ubuntu:~/PES1UG19EC339/os/WEEK_5$ ./a.out
****Round Robin Job Scheduling****

Enter the number of processes :
5
Enter burst time of  processor 1 : 20

Enter burst time of  processor 2 : 5

Enter burst time of  processor 3 : 17

Enter burst time of  processor 4 : 10

Enter burst time of  processor 5 : 13

Enter  time quantum
3
processor        burst time      waiting time     turn around time
1                20              45               65
2                5               15               20
3                17              46               63
4                10              38               48
5                13              45               58
Average waiting time is 37.799999
Average turn around time is 50.799999
```

Time Slice:5

```
varsha@ubuntu:~/PES1UG19EC339/os/WEEK_5$ ./a.out
****Round Robin Job Scheduling****

Enter the number of processes :
5
Enter burst time of  processor 1 : 20

Enter burst time of  processor 2 : 5

Enter burst time of  processor 3 : 17

Enter burst time of  processor 4 : 10

Enter burst time of  processor 5 : 13

Enter  time quantum
5
processor        burst time      waiting time     turn around time
1                20              43               63
2                5               5                10
3                17              48               65
4                10              30               40
5                13              45               58
Average waiting time is 34.200001
Average turn around time is 47.200001
```