Ex. No.: 6a)
Date: 20.02.2025

FIRST COME FIRST SERVE

Aim:

To implement First-come First- serve (FCFS) scheduling.

Program:

```
#include <stdio.h>
int main() {
   int n,i,j,bt[10],wt[10],tat[10],total_wt=0,total_tat=0;
   printf("Enter the number of processes: ");
   scanf("%d",&n);
   printf("Enter the burst time of the processes: ");
   for(i=0;i<n;i++) scanf("%d",&bt[i]);
   wt[0]=0;
   for(i=1;i<n;i++) wt[i]=bt[i-1]+wt[i-1];
   for(i=0;i<n;i++) tat[i]=bt[i]+wt[i];
   printf("Process\tBurst Time\tWaiting Time\tTurnaround Time\n");
   for(i=0;i<n;i++) printf("%d\t%d\t\t%d\t\t%d\n",i,bt[i],wt[i],tat[i]);
   for(i=0;i<n;i++) {
      total_wt+=wt[i];
      total_tat+=tat[i];
   }
   printf("Average waiting time is: %.2f\n",(float)total_wt/n);
   printf("Average Turnaround Time is: %.2f\n",(float)total_tat/n);
   return 0;
}
```

Output:

```
Enter the number of processes: 3
Enter the burst time of the processes: 24 3 3
Process Burst Time  Waiting Time    Turnaround Time
    0       24          0               24
    1       3           24              27
    2       3           27              30
Average waiting time is: 17.00
Average Turnaround Time is: 27.00
```

Result:

The program implements the First-Come-First-Serve (FCFS) scheduling technique, calculating the waiting time, turnaround time, and averages and executed successfully.

Ex. No.: 6b)
Date: 26.02.2025

SHORTEST JOB FIRST

Aim:

To implement the Shortest Job First (SJF) scheduling.

Program:

```
#include <stdio.h>
#include <stdlib.h>
int main(){
   int n,i,j;
   printf("Enter the number of processes: ");
   scanf("%d",&n);
   int burst_time[n],waiting_time[n],turnaround_time[n],pid[n];
   int total_wt=0,total_tat=0;
   printf("Enter the burst time of the processes: ");
   for(i=0;i<n;i++){
      pid[i]=i;
      scanf("%d",&burst_time[i]);
      waiting_time[i]=0;
      turnaround_time[i]=0;
   }
   for(i=0;i<n-1;i++){
      for(j=i+1;j<n;j++){
         if(burst_time[i]>burst_time[j]){
            int temp=burst_time[i];
            burst_time[i]=burst_time[j];
            burst_time[j]=temp;
            temp=pid[i];
            pid[i]=pid[j];
            pid[j]=temp;
         }
      }
   }
   for(i=1;i<n;i++){
      waiting_time[i]=burst_time[i-1]+waiting_time[i-1];
   }
   for(i=0;i<n;i++){
      turnaround_time[i]=burst_time[i]+waiting_time[i];
   }
   printf("Process\tBurst Time\tWaiting Time\tTurnaround Time\n");
   for(i=0;i<n;i++){
      printf("%d\t%d\t\t%d\t\t%d\n",pid[i],burst_time[i],waiting_time[i],turnaround_time[i]);
   }
   for(i=0;i<n;i++){
      total_wt+=waiting_time[i];
      total_tat+=turnaround_time[i];
   }
   printf("Average waiting time is: %.2f\n",(float)total_wt/n);
   printf("Average Turnaround Time is: %.2f\n",(float)total_tat/n);
   return 0;
}
```

Output:

```
Enter the number of processes: 4
Enter the burst time of the processes: 8 4 9 5
Process Burst Time  Waiting Time    Turnaround Time
    1       4           0               4
    3       5           4               9
    0       8           9               17
    2       9           17              26
Average waiting time is: 7.50
Average Turnaround Time is: 14.00
```

Result:

The program implements the Shortest Job First (SJF) scheduling technique, calculating the waiting time, turnaround time, and averages, and executed successfully.

Ex. No.: 6c)
Date: 27.02.2025

PRIORITY SCHEDULING

Aim:

To implement priority scheduling technique.

Program:

```
#include <stdio.h>
int main(){
   int n,i,j;
   printf("Enter the number of processes: ");
   scanf("%d",&n);
   int bt[n],wt[n],tat[n],p[n],pri[n],total_wt=0,total_tat=0;
   printf("Enter the burst time of the processes: ");
   for(i=0;i<n;i++){
      scanf("%d",&bt[i]);
      p[i]=i;
   }
   printf("Enter the priority of the processes: ");
   for(i=0;i<n;i++) scanf("%d",&pri[i]);
   for(i=0;i<n-1;i++){
      for(j=i+1;j<n;j++){
         if(pri[i]>pri[j]){
            int temp=pri[i];pri[i]=pri[j];pri[j]=temp;
            temp=bt[i];bt[i]=bt[j];bt[j]=temp;
            temp=p[i];p[i]=p[j];p[j]=temp;
         }
      }
   }
   wt[0]=0;
   for(i=1;i<n;i++) wt[i]=bt[i-1]+wt[i-1];
   for(i=0;i<n;i++) tat[i]=bt[i]+wt[i];
   printf("Process\tBurst Time\tWaiting Time\tTurnaround Time\n");
   for(i=0;i<n;i++){
      printf("%d\t%d\t\t%d\t\t%d\n",p[i],bt[i],wt[i],tat[i]);
      total_wt+=wt[i];
      total_tat+=tat[i];
   }
   printf("Average waiting time is: %.2f\n",(float)total_wt/n);
   printf("Average Turnaround Time is: %.2f\n",(float)total_tat/n);
   return 0;
}
```

Output:

```
Enter the number of processes: 4
Enter the burst time of the processes: 8 4 9 5
Enter the priority of the processes: 3 1 4 2
Process Burst Time  Waiting Time    Turnaround Time
    1       4           0               4
    3       5           4               9
    0       8           9               17
    2       9           17              26
Average waiting time is: 7.50
Average Turnaround Time is: 14.00
```

Result:

The program implements the Priority Scheduling technique, calculating waiting time, turnaround time, and averages, and executed successfully.

Ex. No.: 6d)
Date: 26.03.2025

ROUND ROBIN SCHEDULING

Aim:

To implement the Round Robin (RR) scheduling technique.

Program:

```
#include <stdio.h>
int main(){
   int n,i,tq;
   printf("Enter the number of processes: ");
   scanf("%d",&n);
   int bt[n],wt[n],tat[n],rem_bt[n],p[n];
   printf("Enter the burst time of the processes: ");
   for(i=0;i<n;i++){
      scanf("%d",&bt[i]);
      rem_bt[i]=bt[i];
      p[i]=i;
   }
   printf("Enter the time quantum: ");
   scanf("%d",&tq);
   int t=0,done;
   while(1){
      done=1;
      for(i=0;i<n;i++){
         if(rem_bt[i]>0){
            done=0;
            if(rem_bt[i]>tq){
               t+=tq;
               rem_bt[i]-=tq;
            }else{
               t+=rem_bt[i];
               wt[i]=t-bt[i];
               rem_bt[i]=0;
            }
         }
      }
      if(done==1) break;
   }
   int total_wt=0,total_tat=0;
   for(i=0;i<n;i++){
      tat[i]=bt[i]+wt[i];
      total_wt+=wt[i];
      total_tat+=tat[i];
   }
   printf("Process\tBurst Time\tWaiting Time\tTurnaround Time\n");
   for(i=0;i<n;i++) printf("%d\t%d\t\t%d\t\t%d\n",p[i],bt[i],wt[i],tat[i]);
   printf("Average waiting time is: %.2f\n",(float)total_wt/n);
   printf("Average Turnaround Time is: %.2f\n",(float)total_tat/n);
   return 0;
}
```

Output:

```
Enter the number of processes: 4
Enter the burst time of the processes: 8 4 9 5
Enter the time quantum: 3
Process Burst Time  Waiting Time    Turnaround Time
    0       8           15              23
    1       4           12              16
    2       9           17              26
    3       5           16              21
Average waiting time is: 15.00
Average Turnaround Time is: 21.50
```

Result:

The program implements the Round Robin Scheduling technique, calculates waiting time, turnaround time, averages, and executed successfully.