### **FCFS**

```
#include<stdio.h>
#include<stdlib.h>
int cmpt[30],bt[30],at[30],tat[30],wat[30];
int n,i,sum;
void fcfs(int n,int bt[n],int at[n]){
  float avg_tat=0,avg_wat=0;
  for(i=0;i< n;i++) {
     sum+=bt[i];
     cmpt[i]=sum;
  }
  for(i=0;i< n;i++){
     tat[i]=cmpt[i]-at[i];
     wat[i]=tat[i]-bt[i];
  }
  printf("\n");
  for(i=0;i< n;i++){}
     avg_tat=avg_tat+tat[i];
     avg_wat=avg_wat+wat[i];
  }
  avg tat=avg tat/n;
  avg wat=avg wat/n;
  printf("PROCESS\t ARRIVAL TIME\t BURST TIME\t TURN AROUND TIME\t WAITING
TIME\n");
  for(i=0;i< n;i++){}
     printf("p%d\t|\t %d\t|\t %d\t|\t %d\t|\t %d\n",(i+1),at[i],bt[i],tat[i],wat[i]);
  }
  printf("\n");
  printf("Avg waiting time is:%f\n",avg_wat);
  printf("Avg turnaround time is:%f\n",avg tat);
void main(){
  printf("Enter number of processes:\n");
  scanf("%d",&n);
  if(n==0)
     printf("there are no processes in queue\n ");
     printf("Enter the arrival and burst time of the processes respectively:\n");
     for(i=0;i< n;i++){}
        printf("P%d\t",(i+1));
        scanf("%d%d",&at[i],&bt[i]);
     }
  }
```

```
fcfs(n,bt,at);
}
```

## **SHORTEST JOB FIRST**

```
#include<stdio.h>
int main() {
 int time, bt[10], at[10], sum_bt = 0, smallest, n, i;
 int sumt = 0, sumw = 0;
 printf("enter the no of processes: ");
 scanf("%d", & n);
 printf("Enter the arrival and burst time of the processes respectively:\n");
     for(i=0;i<n;i++) {
        printf("P%d\t",(i+1));
        scanf("%d%d",&at[i],&bt[i]);
        sum_bt += bt[i];
 }
 bt[9] = 9999;
 for (time = 0; time < sum_bt;) {
 smallest = 9;
 for (i = 0; i < n; i++) {
    if (at[i] <= time && bt[i] > 0 && bt[i] < bt[smallest])
     smallest = i;
  }
  printf("P%d\t|\t%d\n", smallest + 1, time + bt[smallest] - at[smallest], time - at[smallest]);
  sumt += time + bt[smallest] - at[smallest];
  sumw += time - at[smallest];
  time += bt[smallest];
  bt[smallest] = 0;
 }
 printf("\n\n average waiting time = %f", sumw * 1.0 / n);
 printf("\n\n average turnaround time = %f", sumt * 1.0 / n);
 return 0;
```

#### SHORTEST REMAINING TIME FIRST

```
#include<stdio.h>
#define MAX 9999
struct proc{
   int no,at,bt,rt,ct,tat,wt;
};
struct proc read(int i){
```

```
struct proc p;
  printf("\nProcess No: %d\n",i);
  p.no=i;
  printf("Enter Arrival Time: ");
  scanf("%d",&p.at);
  printf("Enter Burst Time: ");
  scanf("%d",&p.bt);
  p.rt=p.bt;
  return p;
int main(){
  struct proc p[10],temp;
  float avgtat=0,avgwt=0;
  int n,s,remain=0,time;
  printf("Enter Number of Processes: ");
  scanf("%d",&n);
  for(int i=0;i< n;i++)
    p[i]=read(i+1);
  for(int i=0;i< n-1;i++)
    for(int j=0;j< n-i-1;j++)
       if(p[j].at>p[j+1].at){
       temp=p[j];
       p[j]=p[j+1];
       p[j+1]=temp;
  printf("\nProcess\t\tAT\tBT\tCT\tTAT\tWT\n");
  p[9].rt=MAX;
  for(time=0;remain!=n;time++){
    s=9;
    for(int i=0;i< n;i++)
       if(p[i].at<=time&&p[i].rt<p[s].rt&&p[i].rt>0)
         s=i;
    p[s].rt--;
    if(p[s].rt==0){
       remain++;
       p[s].ct=time+1;
       p[s].tat=p[s].ct-p[s].at;
       avgtat+=p[s].tat;
       p[s].wt=p[s].tat-p[s].bt;
       avgwt+=p[s].wt;
       }
  }
  avgtat/=n,avgwt/=n;
```

}

 $printf("\\ \ NAverage\ TurnAroundTime=\%f\\ \ NAverage\ WaitingTime=\%f", avgtat, avgwt);$ 

# **OBSERVATION**

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#### **OUTPUT SCREENS**

## **FCFS**

```
Enter number of processes:
Enter the arrival and burst time of the processes respectively:
       03
P1
       16
P2
P3
       44
       6 2
P4
PROCESS ARRIVAL TIME
                      BURST TIME
                                      TURN AROUND TIME
                                                             WAITING TIME
                0
p1
                1
                               6
                                              8
                                                             2
p2
                                              9
                                                             5
p3
               4
                               4
                6
                               2
                                              9
p4
Avg waiting time is:3.500000
Avg turnaround time is:7.250000
```

## **SJF**

```
PS D:\OS\output> & .\'sjf.exe'
enter the no of processes: 4
Enter the arrival and burst time of the processes respectively:
P1
       03
       16
P2
P3
       44
P4
       6 2
P1
                               0
P2
                                2
P4
               5
P3
                11
 average waiting time = 3.000000
 average turnaround time = 6.750000
```

#### **SRTF**

```
PS D:\OS\output> & .\'srtf.exe'
Enter Number of Processes: 3
Process No: 1
Enter Arrival Time: 0
Enter Burst Time: 8
Process No: 2
Enter Arrival Time: 0
Enter Burst Time: 4
Process No: 3
Enter Arrival Time: 1
Enter Burst Time: 1
Process
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                       BT
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                                      TAT
                                              WT
P3
                                              0
P2
               0
                       4
                                              1
P1
               0
                       8
                               13
                                      13
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Average TurnAroundTime=6.333333
Average WaitingTime=2.000000
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