Program :-

```
#include<stdio.h>
struct sjf
{
	int pid,bt,at,ct,tt,wt;
};
void sort(struct sjf p[],int n)
{
	int i,j,temp;
	for(i=0;i<n;i++)
	{
		for(j=0;j<n-1-i;j++)
		{
			if(p[j].at>p[j+1].at)
			{
				temp=p[j].pid;
				p[j].pid=p[j+1].pid;
				p[j+1].pid=temp;

				temp=p[j].bt;
				p[j].bt=p[j+1].bt;
				p[j+1].bt=temp;

				temp=p[j].at;
				p[j].at=p[j+1].at;
				p[j+1].at=temp;
			}
		}
	}
}
void sort2(struct sjf p[],int n)
{
	int i,min,j,temp;
	for(i=0;i<n;i++)
	{
		if(i==0)
		{
			for(j=1;j<n;j++)
			{
				if(p[j].at!=p[i].at)
					break;
				if(p[j].at==p[i].at && p[j].bt<p[i].bt)
				{
					temp=p[i].pid;
					p[i].pid=p[j].pid;
					p[j].pid=temp;

					temp=p[i].at;
					p[i].at=p[j].at;
					p[j].at=temp;

					temp=p[i].bt;
					p[i].bt=p[j].bt;
					p[j].bt=temp;
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                }
            }
            p[0].ct=p[0].at+p[0].bt;
        }
        else
        {
            min=i;
            for(j=i+1;j<n;j++)
            {
                if(p[j].bt<p[min].bt && p[j].at<=p[i-1].ct)
                    min=j;
            }
            temp=p[i].pid;
            p[i].pid=p[min].pid;
            p[min].pid=temp;

            temp=p[i].at;
            p[i].at=p[min].at;
            p[min].at=temp;

            temp=p[i].bt;
            p[i].bt=p[min].bt;
            p[min].bt=temp;

            if(p[i].at>p[i-1].ct)
                p[i].ct=p[i].at+p[i].bt;
            else
                p[i].ct=p[i-1].ct+p[i].bt;
        }
    }
}
void tt(struct sjf p[],int n)
{
    int i;
    for(i=0;i<n;i++)
        p[i].tt=p[i].ct-p[i].at;
}
void wt(struct sjf p[],int n)
{
    int i;
    for(i=0;i<n;i++)
        p[i].wt=p[i].tt-p[i].bt;
}
void att(struct sjf p[],int n)
{
    int i,sum=0;
    float att;
    for(i=0;i<n;i++)
        sum+=p[i].tt;
    att=(float)sum/(float)n;
    printf("\naverage turn around time = %.2f\n",att);
}
void awt(struct sjf p[],int n)
{
    int i,sum=0;
    float awt;
    for(i=0;i<n;i++)
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            sum+=p[i].wt;
        awt=(float)sum/(float)n;
        printf("\naverage waiting time = %.2f\n\n",awt);
}
void display(struct sjf p[],int n)
{
        int i;
         printf("\n\nProcess  ID          Arrival  Time          Burst  Time          Waiting  Time
Completion Time     TurnAround Time\n");
        for(i=0;i<n;i++)
            {
                        printf("P%d\t\t", p[i].pid);
                        printf("%d\t\t", p[i].at);
                        printf("%d\t\t", p[i].bt);
                        printf("%d\t\t", p[i].wt);
                        printf("%d\t\t", p[i].ct);
                        printf("%d\t\t", p[i].tt);
                        printf("\n");
            }
}
void main()
{
        struct sjf p[50];
        int i,n;
        printf("\nEnter the number of process: ");
        scanf("%d",&n);
        printf("\nENTER THE PROCESS ID\n");
        for(i=0;i<n;i++)
        {
            printf("Enter the process id of process P%d : ",i+1);
            scanf("%d",&p[i].pid);
        }
        printf("\nENTER THE ARRIVAL TIME\n");
        for(i=0;i<n;i++)
        {
            printf("Enter the arrival time of process P%d : ",i+1);
            scanf("%d",&p[i].at);
        }
        printf("\nENTER THE BURST TIME\n");
        for(i=0;i<n;i++)
        {
            printf("Enter the burst time of process P%d : ",i+1);
            scanf("%d",&p[i].bt);
        }
        sort(p,n);
        sort2(p,n);
        tt(p,n);
        wt(p,n);
        display(p,n);
        att(p,n);
        awt(p,n);
}
```

Output :-

```
Enter the number of process: 7
ENTER THE PROCESS ID
Enter the process id of process P1 : 1
Enter the process id of process P2 : 2
Enter the process id of process P3 : 3
Enter the process id of process P4 : 4
Enter the process id of process P5 : 5
Enter the process id of process P6 : 6
Enter the process id of process P7 : 7
ENTER THE ARRIVAL TIME
Enter the arrival time of process P1 : 0
Enter the arrival time of process P2 : 1
Enter the arrival time of process P3 : 2
Enter the arrival time of process P4 : 0
Enter the arrival time of process P5 : 3
Enter the arrival time of process P6 : 4
Enter the arrival time of process P7 : 3
ENTER THE BURST TIME
Enter the burst time of process P1 : 5
Enter the burst time of process P2 : 4
Enter the burst time of process P3 : 3
Enter the burst time of process P4 : 5
Enter the burst time of process P5 : 2
Enter the burst time of process P6 : 1
Enter the burst time of process P7 : 3
```

Process ID	Arrival Time	Burst Time	Waiting Time	Completion Time	TurnAround Time
P1	0	5	0	5	5
P6	4	1	1	6	2
P5	3	2	3	8	5
P3	2	3	6	11	9
P7	3	3	8	14	11
P2	1	4	13	18	17
P4	0	5	18	23	23

average turn around time = 10.29

average waiting time = 7.00