

1.

```
#include<stdio.h>
int main()
{
    int bt[20],p[20],wt[20],tat[20],i,j,n,total=0,pos,temp;
    float avg_wt,avg_tat;
    printf("Enter number of process:");
    scanf("%d",&n);

    printf("\nEnter Burst Time:n");
    for(i=0;i<n;i++)
    {
        printf("p%d:\n",i+1);
        scanf("%d",&bt[i]);
        p[i]=i+1;
    }

    //sorting of burst times
    for(i=0;i<n;i++)
    {
        pos=i;
        for(j=i+1;j<n;j++)
        {
            if(bt[j]<bt[pos])
                pos=j;
        }

        temp=bt[i];
        bt[i]=bt[pos];
        bt[pos]=temp;

        temp=p[i];
        p[i]=p[pos];
        p[pos]=temp;
    }

    wt[0]=0;

    for(i=1;i<n;i++)
    {
        wt[i]=0;
        for(j=0;j<i;j++)
            wt[i]+=bt[j];

        total+=wt[i];
    }
```

```

avg_wt=(float)total/n;
total=0;

printf("\nProcess\tBurst Time\tWaitTime\tTurnaround Time");
for(i=0;i<n;i++)
{
    tat[i]=bt[i]+wt[i];
    total+=tat[i];
    printf("\np%d\t\t %d\t\t %d\t\t%d",p[i],bt[i],wt[i],tat[i]);
}

avg_tat=(float)total/n;
printf("\n\nAverage Waiting Time=%f",avg_wt);
printf("\n\nAverage Turnaround Time=%f\n",avg_tat);
}

```

```

(kali㉿kali)-[~]
$ ./a.out
Enter number of process:2

Enter Burst Time:np1:
2
p2:
1

Process Burst Time      WaitTime      Turnaround Time
p2          1          0          1
p1          2          1          3

Average Waiting Time=0.500000
Average Turnaround Time=2.000000

(kali㉿kali)-[~]
$ 

```

2.

```
#include <stdio.h>
int main()
{
    int pid[15];
    int bt[15];
    int n;
    printf("Enter the number of processes: ");
    scanf("%d",&n);

    printf("Enter process id of all the processes: ");
    for(int i=0;i<n;i++)
    {
        scanf("%d",&pid[i]);
    }

    printf("Enter burst time of all the processes: ");
    for(int i=0;i<n;i++)
    {
        scanf("%d",&bt[i]);
    }

    int i, wt[n];
    wt[0]=0;

    //for calculating waiting time of each process
    for(i=1; i<n; i++)
    {
        wt[i]= bt[i-1]+ wt[i-1];
    }

    float twt=0.0;
    float tat= 0.0;
    for(i=0; i<n; i++)
    {
        printf("Process:%d\n", pid[i]);

        printf("burst time:%d\n", bt[i]);
        printf("waiting time:%d\n", wt[i]);

        //calculating and printing turnaround time of each process
        printf("turnaround time:%d\n", bt[i]+wt[i]);
        printf("\n");

        //for calculating total waiting time
        twt += wt[i];

        //for calculating total turnaround time
```

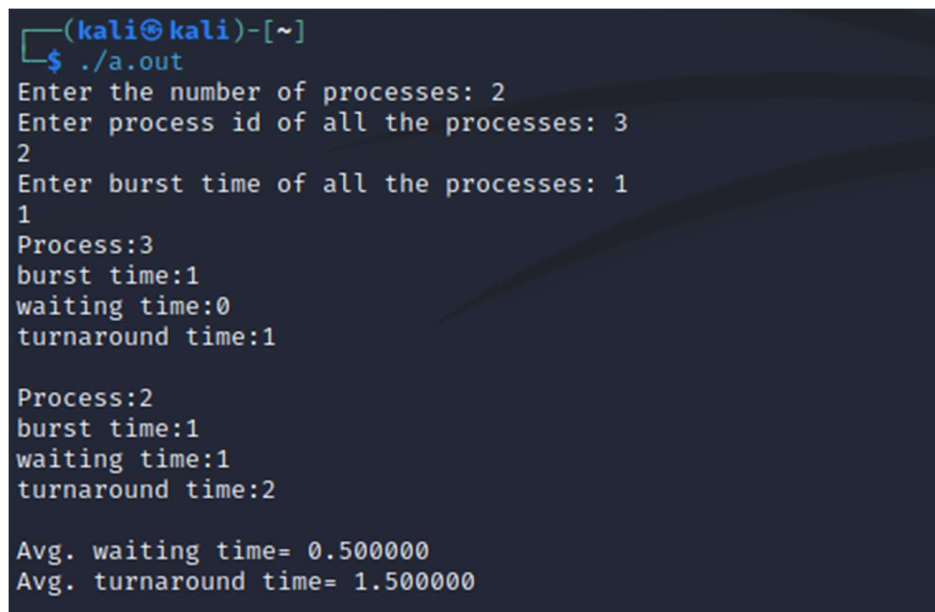
```

    tat += (wt[i]+bt[i]);
}
float att,awt;

//for calculating average waiting time
awt = twt/n;

//for calculating average turnaround time
att = tat/n;
printf("Avg. waiting time= %f\n",awt);
printf("Avg. turnaround time= %f",att);
}

```



```

(kali㉿kali)-[~]
$ ./a.out
Enter the number of processes: 2
Enter process id of all the processes: 3
2
Enter burst time of all the processes: 1
1
Process:3
burst time:1
waiting time:0
turnaround time:1

Process:2
burst time:1
waiting time:1
turnaround time:2

Avg. waiting time= 0.500000
Avg. turnaround time= 1.500000

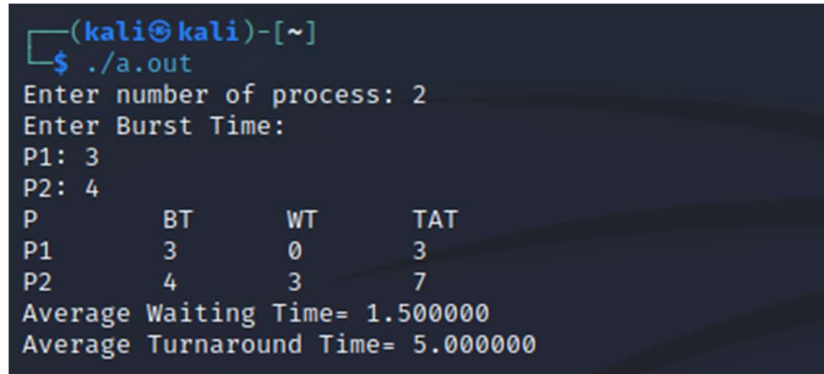
```

3.

```
#include <stdio.h>
int main()
{
    int A[100][4]; // Matrix for storing Process Id, Burst
    // Time, Average Waiting Time & Average
    // Turn Around Time.
    int i, j, n, total = 0, index, temp;
    float avg_wt, avg_tat;
    printf("Enter number of process: ");
    scanf("%d", &n);
    printf("Enter Burst Time:\n");
    // User Input Burst Time and allotting Process Id.
    for (i = 0; i < n; i++) {
        printf("P%d: ", i + 1);
        scanf("%d", &A[i][1]);
        A[i][0] = i + 1;
    }
    // Sorting process according to their Burst Time.
    for (i = 0; i < n; i++) {
        index = i;
        for (j = i + 1; j < n; j++)
            if (A[j][1] < A[index][1])
                index = j;
        temp = A[i][1];
        A[i][1] = A[index][1];
        A[index][1] = temp;

        temp = A[i][0];
        A[i][0] = A[index][0];
        A[index][0] = temp;
    }
    A[0][2] = 0;
    // Calculation of Waiting Times
    for (i = 1; i < n; i++) {
        A[i][2] = 0;
        for (j = 0; j < i; j++)
            A[i][2] += A[j][1];
        total += A[i][2];
    }
    avg_wt = (float)total / n;
    total = 0;
    printf("P      BT      WT      TAT\n");
    // Calculation of Turn Around Time and printing the
    // data.
    for (i = 0; i < n; i++) {
        A[i][3] = A[i][1] + A[i][2];
        total += A[i][3];
        printf("P%d      %d      %d      %d\n", A[i][0],
```

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A[i][1], A[i][2], A[i][3]);  
}  
avg_tat = (float)total / n;  
printf("Average Waiting Time= %f",avg_wt);  
printf("\nAverage Turnaround Time= %f",avg_tat);  
}
```

A terminal window with a dark background and light blue text. The prompt is '(kali㉿kali)-[~]'. The user enters './a.out'. The program prompts for the number of processes (2) and burst times (3 for P1, 4 for P2). It then displays a table with columns P, BT, WT, and TAT. The values are: P1 (3, 0, 3) and P2 (4, 3, 7). Finally, it prints the average waiting time (1.500000) and average turnaround time (5.000000).

```
(kali㉿kali)-[~]  
$ ./a.out  
Enter number of process: 2  
Enter Burst Time:  
P1: 3  
P2: 4  
P      BT      WT      TAT  
P1     3       0       3  
P2     4       3       7  
Average Waiting Time= 1.500000  
Average Turnaround Time= 5.000000
```