OS LAB

```c
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;
```

```c
        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];
```

```c
        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("\nAverage Turnaround Time=%f\n",avg_tat);
}
```

```
File  Actions  Edit  View  Help
└$ nano osQ1.c

┌(kali⊛kali)-[~]
└$ gcc osQ1.c

┌(kali⊛kali)-[~]
└$ ./a.out osQ1.c
Enter number of process:12

Enter Burst Time:np1:
30
p2:
30
p3:
30
p4:
30
p5:
20
p6:
20
p7:
2
p8:
2
p9:
2
p10:
2
p11:
2
p12:
2

Process Burst Time      WaitTime        Turnaround Time
p7              2               0               2
p8              2               2               4
p9              2               4               6
p10             2               6               8
p11             2               8               10
p12             2               10              12
p5              20              12              32
p6              20              32              52
p3              30              52              82
p4              30              82              112
p1              30              112             142
p2              30              142             172
Average Waiting Time=38.500000
Average Turnaround Time=52.833332
```

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: ");

```c
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]);
```

```c
        //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);
}
```

```
┌──(kali㊉kali)-[~]
└─$ nano osQ2.c

┌──(kali㊉kali)-[~]
└─$ gcc osQ2.c

┌──(kali㊉kali)-[~]
└─$ ./a.out osQ2.c
Enter the number of processes: 2
Enter process id of all the processes: 12
2
Enter burst time of all the processes: 22
22
Process:12
burst time:22
waiting time:0
turnaround time:22

Process:2
burst time:22
waiting time:22
turnaround time:44

Avg. waiting time= 11.000000
Avg. turnaround time= 33.000000
```

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 alloting Process Id.

    for (i = 0; i < n; i++) {

```c
        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
```

```c
// 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],
                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);
}
```



```
┌──(kali㊙kali)-[~]
└─$ nano osQ3.c
┌──(kali㊙kali)-[~]
└─$ gcc osQ3.c

┌──(kali㊙kali)-[~]
└─$ ./a.out osQ3.c
Enter number of process: 4
Enter Burst Time:
P1: 22
P2: 22
P3: 33
P4: 33
P         BT      WT      TAT
P1        22      0       22
P2        22      22      44
P3        33      44      77
P4        33      77      110
Average Waiting Time= 35.750000
Average Turnaround Time= 63.250000
```

DONE BY:

GUNDALA KUSHAL BHAVANI REDDY

CB. EN. U4CYS21021