Ex. No.: 6b)
Date: 26.2.25

SHORTEST JOB FIRST

Aim:

To implement the Shortest Job First (SJF) scheduling technique

Algorithm:

1. Declare the structure and its elements.
2. Get number of processes as input from the user.
3. Read the process name, arrival time and burst time
4. Initialize waiting time, turnaround time & flag of read processes to zero. 5. Sort based on burst time of all processes in ascending order 6. Calculate the waiting time and turnaround time for each process. 7. Calculate the average waiting time and average turnaround time. 8. Display the results.

Program Code:

```
#include <stdio.h>
int main()
{
  int n, ar;
  printf("Enter the no. of proceses : ");
  scanf("%d", &n);
  printf("Enter the arrival time for all : ");
  scanf("%d", &ar);
  printf("Enter the burst times for all :");
  for(int i=0; i<n; i++)
  {
    scanf("%d", &b[i]);
  }
for(int i=0; i<n; i++) {
    printf("%d\n", b[i]);
}
```

```
for (int i=0 ; i<n-1; i++){
    for (int j=1 ; j<n ; j++){
        if (b[i] > b[j]){
            int  s = b[i];
            b[i] = b[j];
            b[j] = s;
        }
    }
}
for (int i=0; i<n ; i++)
{   if (i==0) {
        c[i] = b[i];
    }
    else {
        c[i] = c[i-1] + b[i];
    }
}
for (int i=0; i<n ; i++)
{   ta[i] = c[i] - a[i];
}
float sum1 = 0;
for (int i=0; i<n; i++){
        sum1 = sum1 + ta[i]; }.
float avg_ta = sum1/n;
for (int i=0; i<n; i++) {
        w[i] = ta[i] - b[i]; }
float sum2 = 0;
for (int i=0; i<n; i++){ sum2 = sum2 + w[i]; }
float avg_w = sum2/n;
printf("Process \t Burst Time \t WaitingTime \t TurnAround \n
```

```
for (int i=0; i<n; i++)
{
    printf("%d \t %d \t %d \t %d \n", i, b[i], w[i],
                                        ta[i]);
}
printf("The average waiting time is : %.2f \n",
                                    avg_w);
printf("The average Turnaround time is : %.2f",
                                    avg_ta);
}.
```

Input:

Enter the no. of processes : 4.

Enter the arrival time for all processes : 0.

Enter the burst times for all processes : 6 8 7 3

Burst time:

3
6
7
8.

Process	Burst time (ms)	Waiting time (ms)	Turnaround Time (ms)
0	3	0	3
1	6	3	9
2	7	9	16
3	8	16	24

Average waiting time : 7.0 ms

Average Turnaround time : 13.0 ms

Sample Output:

Enter the number of process:

4

Enter the burst time of the processes:

8 4 9 5

Process	Burst Time	Waiting Time	Turn Around Time
2	4	0	4
4	5	4	9
1	8	9	17
3	9	17	26

Average waiting time is: 7.5

Average Turn Around Time is: 13.0

Result:

Thus the Shortest Job First algorithm is executed.