Ex. No.: 6b)
Date: 22/2/2025

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:

```
import array
num = int(input("Enter number of process : "))
P = array.array('i', range(1, num+1))
bt = array.array('i', map(int, input("Enter burst time of process : ").split()))
n = sorted(range(num), key = lambda i = bt[i])
bt = array.array('i', [bt[i] for i in n])
P = array.array['i', P[i] for i in n])
at = array.array['i', [0]*num)
Wt = array.array('i', [0]*num]
ctat = array.array('i', [0]*num]
```

```
tat = array.array('i', [0]*num)
ct = [0]
bt = [0]
for i in range(1, num):
    ct[i] = ct[i-1] + bt[i]
for i in range(num):
    wt = [i] = tat[i] - bt[i]
avg_wt = sum(wt/num)
avg_tat = sum(tat)/num
print("\n process\t Burst time\t arrival time\t
  completion time\t waiting time\t turnaround time")
for i in range(num):
    print(f"{P[i]}\t{bt[i]}\t\t{at[i]}\t\t
          {ct[i]}\t\t{wt[i]}\t\t{tat[i]}")
print(f"\n average waiting time {avg_wt:.2f}")
print(f"Average turnaround time : {avg_tat:.2f}")
```

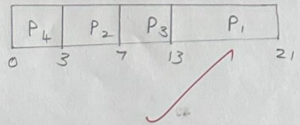
Output:

Enter number of process: 4
Enter burst time of process: 8463

Process	Arival time (ms)	Burst time (ms)	Completion time (ms)	Waiting time (ms)	Turnaround time (ms)
4	0	3	3	0	3
2	0	4	7	3	7
3	0	6	13	7	13
1	0	8	21	13	21

Average waiting time: 5.75 ms
Average turnaround time: 11.00 ms

The grantt chart for schedule is



Sample Output:
Enter the number of process:
4
Enter the burst time of the processes:
8495

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 program for shortest job first scheduling algorithm have been executed successfully

8.11.25