OS LAB MANUAL

(CS23431)

Lab:3

Roll No:230701263

EX.NO:6b

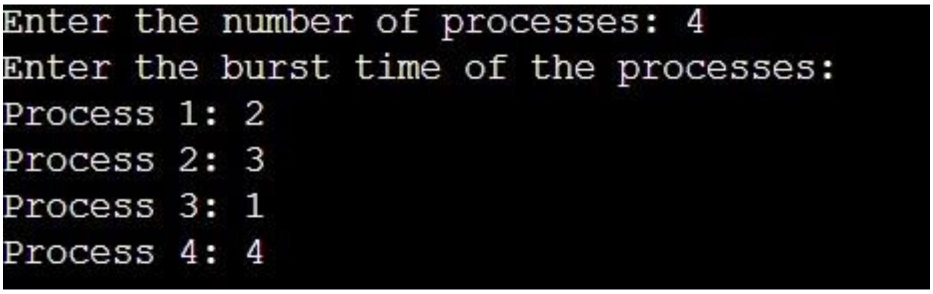
SHORTEST JOB FIRST

Aim: To implement the Shortest Job First (SJF) scheduling technique

Program:
```
#include
<stdio.h>     struct
Process {
   int id;
   int   burst_time;   int
   waiting_time;       int
   turnaround_time;
};
void sortProcesses(struct Process p[], int n) { struct
    Process temp;
   for (int i = 0; i < n - 1; i++) {
       for (int j = i + 1; j < n; j++) {
           if (p[i].burst_time > p[j].burst_time) { temp
               = p[i];
               p[i] = p[j];
               p[j] = temp;
           }
       }
   }
}
int main() {
   int n;

   struct   Process   p[10];   int   total_waiting_time   =   0,

   total_turnaround_time = 0; printf("Enter the number

   of  processes:  ");  scanf("%d",  &n);  printf("Enter  the

   burst time of the processes:\n");

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

       printf("Process  %d:  ",  i  +  1);

       scanf("%d", &p[i].burst_time);

       p[i].id = i + 1;

       p[i].waiting_time = 0; p[i].turnaround_time

       = 0;

   }

   sortProcesses(p, n);

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

       (i == 0) {

           p[i].waiting_time = 0;

       } else {

           p[i].waiting_time = p[i - 1].waiting_time + p[i - 1].burst_time;

       }

       p[i].turnaround_time = p[i].waiting_time + p[i].burst_time;

       total_waiting_time                +=                p[i].waiting_time;

       total_turnaround_time += p[i].turnaround_time;

   }

   printf("\nProcess\tBurst Time\tWaiting Time\tTurn Around Time\n");

   for (int i = 1; i < n; i++) {

       printf("%d\t%d\t\t%d\t\t%d\n", p[i].id, p[i].burst_time, p[i].waiting_time,
p[i].turnaround_time);

   }
```

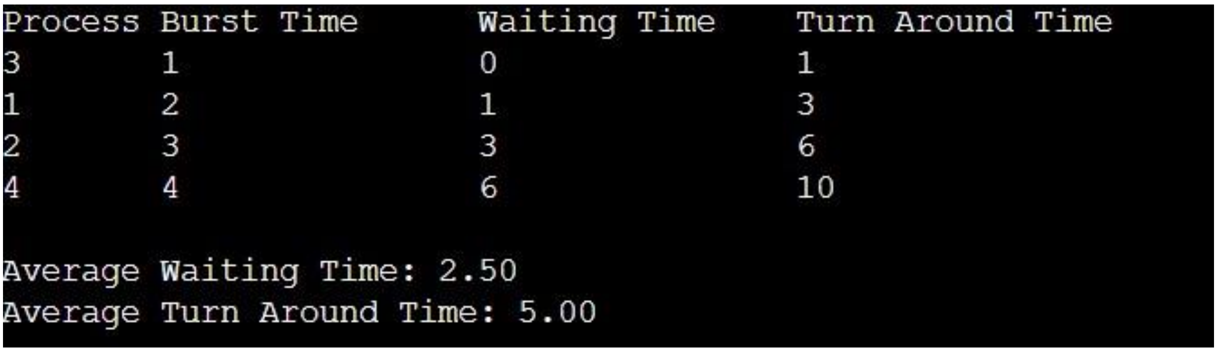
```
    printf("\nAverage waiting time is: %.2f", (float)total_waiting_time / n); *printf("\nAverage

    Turn Around Time is: %.2f\n", (float)total_turnaround_time / n); return 0;

}
```

Input:



```
Enter the number of processes: 4
Enter the burst time of the processes:
Process 1: 2
Process 2: 3
Process 3: 1
Process 4: 4
```

OUTPUT:



```
Process Burst Time      Waiting Time    Turn Around Time
3       1               0               1
1       2               1               3
2       3               3               6
4       4               6               10

Average Waiting Time: 2.50
Average Turn Around Time: 5.00
```