



Department Of Computer Science and Engineering

Course Title: Operating System Lab

Course Code: CSE 406

Title: CPU Scheduling FCFS Algorithm

Submitted To

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Submission Date: 12.2.2025

1)Problem Statement:

Input:

Process	Arrival	Burst
P0	2	5
P1	0	3
P2	4	4

Output:

Process	Arrival	Burst	Completion	Turnaround	Waiting
P1	0	3	3	3	0
P0	2	5	8	6	1
P2	4	4	12	8	4

2)Source Code:

```
1 import copy
2
3 data = []
4 backup = []
5
6 process_no = int(input("Enter No of process:"))
7
8
9 for i in range(0,process_no):
10     processID = input(f"Enter Process ID =")
11     arrival = int(input(f"Enter Arrival Time ="))
12     brust = int(input(f"Enter Brust Time of ="))
13
14     process = {
15         "process": processID,
16         "arrival": arrival,
17         "brust": brust
18     }
19     data.append(process)
20
21
22 def sort_method(process):
23     return process['arrival']
24
25 # backup process data before sorting
26 backup = copy.deepcopy(data)
27
28 # sorting process data
29 data.sort(key = sort_method)
30
31
32 cpu_execution_now = 0
33
34 #calculate completion time
35 for process in data:
36     # print("brust = ", process)
37     CT = cpu_execution_now + process['brust']
38     WT = cpu_execution_now - process['arrival']
39     cpu_execution_now = CT
40
41
42     process['CT'] = cpu_execution_now
43     process['WT'] = WT
44
45     TA = process['CT'] - process['arrival']
46     process['TAT'] = TA
47
48
49
50 # printing result in tabular form
51 print("Process\tArrival\tBrust\tCT\tWT\tTAT")
52 for process in data:
53     print(f"{process['process']}\t\t{process['arrival']}\t\t{process['brust']}\t\t{process['CT']}\t\t{process['WT']}\t\t{process['TAT']}")
54
```

[Live Link of Code](#)

3)Output Consular Picture:

```
• python -u "/home/atik/Codes/python/os/lab1/fcfs.py"  
Enter No of process:3  
Enter Process ID =po  
Enter Arrival Time =2  
Enter Brust Time of =5  
Enter Process ID =p1  
Enter Arrival Time =0  
Enter Brust Time of =3  
Enter Process ID =p2  
Enter Arrival Time =4  
Enter Brust Time of =4  
Process Arrival Brust CT WT TAT  
p1 0 3 3 0 3  
po 2 5 8 1 6  
p2 4 4 12 4 8
```

4)FCFS Algorithm:

- 1) Take input of arrival time and burst time.
- 2) Sort processes in increasing order of arrival time.
- 3) Calculate Completion Time (CT), Turnaround Time (TAT), and Waiting Time (WT).
- 4) Output the process details in a tabular format.

5)Conclusion:

The First-Come, First-Served (FCFS) scheduling algorithm was successfully implemented in this assignment. The program takes input for the number of processes along with their arrival times and burst times. It then sorts the processes based on their arrival times to ensure that the process which arrives first is executed first.

The key metrics calculated include:

- Completion Time (CT): The time at which a process completes its execution.
- Turnaround Time (TAT): The total time taken from the arrival of the process to its completion.
- Waiting Time (WT): The time a process spends waiting in the queue before it starts executing.

The output clearly shows the details of each process, including its arrival time, burst time, completion time, turnaround time, and waiting time. The results demonstrate that the FCFS algorithm executes processes in the order they arrive, leading to straightforward but potentially inefficient scheduling in scenarios where shorter processes arrive later but have to wait for longer processes that arrived earlier.