

CPU Scheduling Algorithms

First Come First Serve Scheduling Algorithm

1.	Process ID	Process Name	Arrival Time	Burst Time
2.	-----	-----	-----	-----
3.	P 1	A	0	6
4.	P 2	B	2	2
5.	P 3	C	3	1
6.	P 4	D	4	9
7.	P 5	E	5	8

Solutions:-

Pro ces s ID	Arri val Tim e	Bu rst Ti me	Completi on Time	Turn Around Time	Waiti ng Time
P 1	0	6	6	6	0
P 2	2	2	8	8	6
P 3	3	1	9	9	8
P4	4	9	18	18	9
P 5	5	8	26	26	18

Shortest Job First CPU Scheduling Algorithm

1.	Process ID	Arrival Time	Burst Time
2.	-----	-----	-----
3.	P0	1	3
4.	P1	2	6
5.	P2	1	2
6.	P3	3	7

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7. P4 2 4
8. P5 5 5

Solution:-

Process ID	Arrival Time	Burst Time	Completion Time	Turn Around Time TAT = CT - AT	Waiting Time WT = CT - BT
P0	1	3	5	4	1
P1	2	6	20	18	12
P2	0	2	2	2	0
P3	3	7	27	24	17
P4	2	4	9	7	4
P5	5	5	14	10	5

Priority CPU Scheduling

1.	S. No	Process ID	Arrival Time	Burst Time	Priority
2.	---	---	---	---	---
3.	1	P 1	0	5	
4.	2	P 2	1	6	
5.	3	P 3	2	2	
6.	4	P 4	3	1	
7.	5	P 5	4	7	
8.	6	P 6	4	6	

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in this problem the priority number with highest number is least prioritized.

S. No	Process Id	Arrival Time	Burst Time	Priority	Completion Time Turn Around Time TAT = CT - AT	Waiting Time WT = TAT - BT	
1	PP 1	P0	P5	P5	P5	P5	P0
2	PP 2	P1	P6	P4	P27	P26	P20
3	PP 3	P2	P2	P0	P7	P5	P3
4	PP 4	P3	P1	P2	P15	P12	P11
5	PP 5	P4	P7	P1	P14	P10	P3
6	P 6	P4	P6	P3	P21	P17	P11

Round Robin CPU Scheduling

Process ID	Arrival Time	Burst Time
P0	1	3
P1	0	5
P2	3	2
P3	4	3
P4	2	1

Time:-1

Process ID	Arrival Time	Burst Time	Completion Time	Turn Around Time	Waiting Time
P0	1	3	5	4	1
P1	0	5	14	14	9

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P2	3	2	7	4	2
P3	4	3	10	6	3
P4	2	1	3	1	0

- Which of the following is the primary goal of a scheduling algorithm in operating systems?
a. Minimize turnaround time b. Maximize throughput c. Minimize waiting time d. All of the above
- The scheduling algorithm that selects the task that has the shortest total processing time is known as: a. First-Come-First-Serve (FCFS) b. Shortest Job Next (SJN) c. Round Robin d. Priority Scheduling
- In Round Robin scheduling, each process is assigned a fixed time unit known as: a. Quantum b. Burst time c. Turnaround time d. Waiting time
- The scheduling algorithm that assigns priority levels to tasks and selects the task with the highest priority is called: a. Round Robin b. Priority Scheduling c. Shortest Job Next (SJN) d. Multilevel Queue Scheduling
- Which scheduling algorithm is susceptible to the "convoy effect"? a. First-Come-First-Serve (FCFS) b. Round Robin c. Priority Scheduling d. Shortest Job Next (SJN)
- The time-sharing systems use which scheduling algorithm to provide interactive user responsiveness? a. Round Robin b. Priority Scheduling c. Multilevel Queue Scheduling d. FCFS
- Which scheduling algorithm may lead to starvation? a. Round Robin b. Priority Scheduling c. First-Come-First-Serve (FCFS) d. Shortest Job Next (SJN)
- The concept of aging is associated with which scheduling algorithm? a. Round Robin b. Priority Scheduling c. Multilevel Queue Scheduling d. First-Come-First-Serve (FCFS)
- In Multilevel Queue Scheduling, how are processes categorized? a. Based on burst time b. Based on priority c. Based on arrival time d. Based on memory size
- Which scheduling algorithm allows a process to hold the CPU indefinitely? a. First-Come-First-Serve (FCFS) b. Round Robin c. Priority Scheduling d. Shortest Job Next (SJN)
- What is the drawback of using Shortest Job Next (SJN) scheduling algorithm? a. It may lead to starvation. b. It is computationally expensive. c. It may not be preemptive. d. It may not be optimal for interactive systems.

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12. Which scheduling algorithm aims to balance the load among multiple processors in a multiprocessor system? a. First-Come-First-Serve (FCFS) b. Round Robin c. Load Balancing d. Priority Scheduling
13. Which scheduling algorithm dynamically adjusts the priority of a process based on its waiting time? a. Round Robin b. Priority Scheduling c. Multilevel Queue Scheduling d. Aging Scheduling
14. Which scheduling algorithm is not suitable for real-time systems? a. First-Come-First-Serve (FCFS) b. Priority Scheduling c. Round Robin d. Earliest Deadline First (EDF)
15. In Priority Scheduling, how is priority usually assigned to processes? a. Randomly b. Based on burst time c. Based on arrival time d. Explicitly by the system or user
16. What is the purpose of a time slice in Round Robin scheduling? a. To define the priority of a process b. To prevent priority inversion c. To set the maximum time a process can run before being interrupted d. To determine the turnaround time of a process
17. Which scheduling algorithm is most suitable for real-time systems where meeting deadlines is critical? a. First-Come-First-Serve (FCFS) b. Priority Scheduling c. Round Robin d. Earliest Deadline First (EDF)
18. What is the main disadvantage of First-Come-First-Serve (FCFS) scheduling? a. It may lead to starvation. b. It does not consider the burst time. c. It may result in a long waiting time. d. It is complex to implement.
19. Which scheduling algorithm is based on the concept of dynamically adjusting priorities to avoid aging-related issues? a. Round Robin b. Priority Scheduling c. Multilevel Queue Scheduling d. Aging Scheduling
20. In Multilevel Queue Scheduling, how are processes moved between queues? a. Based on burst time b. Based on priority c. Based on CPU usage d. Based on the number of I/O operations performed
21. d. All of the above
22. b. Shortest Job Next (SJN)
23. a. Quantum
24. b. Priority Scheduling
25. a. First-Come-First-Serve (FCFS)
26. a. Round Robin
27. b. Priority Scheduling
28. d. First-Come-First-Serve (FCFS)
29. b. Based on priority
30. a. First-Come-First-Serve (FCFS)
31. a. It may lead to starvation.
32. c. Load Balancing
33. d. Aging Scheduling
34. a. First-Come-First-Serve (FCFS)
35. d. Explicitly by the system or user
36. c. To set the maximum time a process can run before being interrupted
37. d. Earliest Deadline First (EDF)

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- 38. c. It may result in a long waiting time.
- 39. d. Aging Scheduling
- 40. c. Based on CPU usage