

CPU Scheduling Algorithms

First Come First Serve Scheduling Algorithm

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|----|------------|--------------|--------------|------------|
| 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 |

Shortest Job First CPU Scheduling Algorithm

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|----|------------|--------------|------------|
| 1. | Process ID | Arrival Time | Burst Time |
| 2. | ----- | ----- | ----- |
| 3. | P0 | 1 | 3 |
| 4. | P1 | 2 | 6 |
| 5. | P2 | 1 | 2 |
| 6. | P3 | 3 | 7 |
| 7. | P4 | 2 | 4 |
| 8. | P5 | 5 | 5 |

Priority CPU Scheduling

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

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

Round Robin CPU Scheduling

| Process ID | Arrival Time | Burst Time |
|------------|--------------|------------|
| P0 | 1 | 3 |
| P1 | 0 | 5 |

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| | | |
|----|---|---|
| P2 | 3 | 2 |
| P3 | 4 | 3 |
| P4 | 2 | 1 |

Time:-1

1. 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
2. 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
3. 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
4. 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
5. 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)
6. 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
7. Which scheduling algorithm may lead to starvation? a. Round Robin b. Priority Scheduling c. First-Come-First-Serve (FCFS) d. Shortest Job Next (SJN)
8. 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)
9. 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
10. 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)
11. 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