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| --- | --- | --- |
| CPU Scheduling Algorithm | Average turnaround time | Average waiting time |
| First-In-First\_Out (FIFO) | 27 | 17 |
| Shortest Remaining Time First (SRTF) | 13 | 7 |
| Round Robin (RR) | 15.67 | 5.67 |
| Priority Scheduling | 10 | 6.2 |
| Multilevel Feedback Queue | 9.60 | 5.8 |

CPU Scheduling Algorithm Analysis:  
**First-In-First-Out (FIFO):**

Average Turnaround Time: 27

Average Waiting Time: 17

FIFO is a non-preemptive scheduling algorithm where processes are executed in the order they arrive. It suffers from poor performance regarding turnaround and waiting times, as older processes may have to wait for extended periods, leading to higher average waiting and turnaround times.

**Shortest Remaining Time First (SRTF):**

Average Turnaround Time: 13

Average Waiting Time: 7

SRTF is a preemptive scheduling algorithm that selects the process with the shortest remaining burst time. It optimizes turnaround and waiting times by minimizing the time each process spends in the ready queue. Consequently, it achieves significantly lower average turnaround and waiting times compared to FIFO.

**Round Robin (RR):**

Average Turnaround Time: 15.67

Average Waiting Time: 5.67

RR is a preemptive scheduling algorithm that allocates a fixed time slice to each process in a cyclic manner. While it ensures fairness and prevents starvation, it may lead to higher average turnaround times than SRTF due to context switching overhead. However, its average waiting time is still lower than FIFO due to its preemptive nature.

**Priority Scheduling:**

Average Turnaround Time: 10

Average Waiting Time: 6.2

Priority scheduling assigns priorities to processes, where the highest priority process is executed first. While it minimizes average turnaround time by favoring high-priority processes, it may result in higher average waiting times for low-priority processes, as they could suffer from starvation.

**Multilevel Feedback Queue:**

Average Turnaround Time: 9.60

Average Waiting Time: 5.80

This algorithm employs multiple queues with different priority levels and dynamically adjusts process priorities based on their behavior. It achieves the lowest average turnaround and waiting times among the presented algorithms by effectively prioritizing short jobs and providing fair execution to all processes.  
  
Comment:  
The choice of CPU scheduling algorithm significantly impacts system performance metrics such as average turnaround and waiting times.  
While simple algorithms like FIFO exhibit higher turnaround and waiting times, more sophisticated algorithms like SRTF and Multilevel Feedback Queue offer substantial performance improvements.  
SRTF and Multilevel Feedback Queue stand out as highly efficient algorithms in terms of both average turnaround and waiting times, making them suitable choices for real-time and general-purpose systems where responsiveness and resource utilization are critical.