

Scheduling Algorithms

List Pros and Cons for each of the three scheduler types listed below.

First In First Out (FIFO)

Pros:

Cons:

Round Robin Scheduler (RR):

Pros:

Cons:

Shortest Job First (SJF):

Pros:

Cons:

Shortest Remaining Time First (SRTF):

Pros:

Cons:

True or False: Operating Systems which want a fast response time shouldn't use SRTF.

True or False: Lottery scheduling can be used to implement any other scheduling algorithm.

Explain what a multi-level feedback scheduler is and why it approximates SRTF.

True or False: If a user knows the length of a CPU time-slice and can determine precisely how long his process has been running, then he can cheat a multi-level feedback scheduler

Here is a table of processes and their associated arrival and running times.

PID	Arrival Time	CPU Running Time
1	0	2
2	1	6
3	4	1
4	7	4
5	8	3

Show the scheduling order for these processes under the specified policies. The processor has a time-slice of 1. Assume no context-switch overhead and that new processes are added to the head of the queue except for FCFS, where they are added to the tail.

Time Slot	FIFO	SRTF	RR
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

Specify the average wait time and total run time for each process:

Scheduler	Process 1	Process 2	Process 3	Process 4	Process 5
FIFO Wait					
FIFO TRT					
SRTF Wait					
SRTF TRT					
RR Wait					
RR TRT					

Also specify the average wait time and total run time for each type of scheduler:

What would be the optimal average wait time, and which of the above three schedulers would come closest to optimal? Explain.