Report

1. Introduction

   We simulated and evaluated three scheduling algorithms: external priority algorithm, round robin scheduling, and external priority round robin scheduling algorithm. Compare the performance of three algorithms by calculating throughput, average waiting time, and average turnaround time based on the output after running.

2. Results

   External Priority

Case	Throughput	Average waiting time	Average turnaround time
1	0.1	0	10
2	0.09	0	11
3	0.13	3.5	11
4	0.14	1.5	9.5

   Round Robin

Case	Throughput	Average waiting time	Average turnaround time
1	0.1	0	10
2	0.09	0	11
3	0.13	3.5	11
4	0.14	1.5	9.5

   External Priority + Round Robin

Case	Throughput	Average waiting time	Average turnaround time
1	0.1	0	10
2	0.09	0	11
3	0.13	3.5	11
4	0.14	1.5	9.5

3. Analysis

   These three algorithms are different scheduling strategies, but I use the test input provided by the professor to test and get the same data. The main reason is that the time slot set by the round robin scheduling algorithm is too large, which makes it almost impossible to use the round robin scheduling algorithm. At this point, the round robin scheduling algorithm will degenerate into a non-preemptive first in first out algorithm.

4. Conclusion

   Although the test results show that these three algorithms perform the same, it does not mean that the logic of the three algorithms is the same. In more complex work, the round robin scheduling algorithm has a relatively uniform waiting time and turnaround time, and will not starve certain processes. External priority algorithms tend to favor high priority processes, while some low priority processes may experience starvation. The external priority + round robin scheduling algorithm ensures that low priority processes are not left idle and important high priority processes can be run first.