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HW7 - Scheduling Algorithm Report

Adding more kinds of scheduling algorithms offered some insight into my event/task structure

and the algorithms themselves. With the round robin algorithm, the response time was very

favorable because tasks weren't using the cpu for too long. Round robin utilization was rather

low, I suspect it was because there were a lot of IO rounds that were getting interrupted by

round robin scheduling. Shortest Job first offered favorable utilization. Approximate Shortest

job first did not end up producing favorable results, perhaps because the average times of

previous tasks were not overly representative of the future tasks.

Below is a sample run result from which I based my conclusion:


Creating a simulator, CPUs: 4, IOs: 5, context switch cost: 3.3, task mix: 40, frequency of job
creation: 2.1
Now running FIFO:
response time: avg: 102.016144
response time: std dev: 55.674325
response time: min: 17.702204
response time: max: 176.174891
latency: avg: 541.592593
latency: std dev: 151.377762
latency: min: 262.926826
latency: max: 738.639123
utilization: 96.796226%
throughput: 0.025281tasks/unit time

done with simulation

Now running Round Robin
response time: avg: 79.471949
response time: std dev: 45.557712
response time: min: 5.616122
response time: max: 165.034829
latency: avg: 519.314700

latency: std dev: 132.562101
latency: min: 244.985261
latency: max: 692.265530
utilization: 94.061458%
throughput: 0.027316tasks/unit time

done with simulation

Now running Shortest Job First
response time: avg: 105.373898
response time: std dev: 58.505419
response time: min: 5.965520
response time: max: 206.073933
latency: avg: 533.200851
latency: std dev: 194.564412
latency: min: -25.930484
latency: max: 785.589641
utilization: 97.931903%
throughput: 0.024077tasks/unit time

done with simulation

Now running Approx Shortest Job First
response time: avg: 100.515753
response time: std dev: 61.247873
response time: min: 6.707949
response time: max: 197.516031
latency: avg: 633.117401
latency: std dev: 162.459399
latency: min: 386.717697
latency: max: 852.291421
utilization: 97.307021%
throughput: 0.022232tasks/unit time

done with simulation