Autograder Results

Note: The autograder is only responsible for grading a portion of this project. Because we are using a statistic-based testing method, your submission may pass certain algorithms without proper implementations. The TAs will be manually grading the remaining portion of this project.

PS 1 Processor(s) (3.0/3.0)

```
Of the 25 runs...
- Average # of Context Switches: 169.00 (expecting μ = 168.64, Δ = 2.49)
- Average Total Execution Time: 68.60 (expecting μ = 68.79, Δ = 2.30)
- Average Total Wait Time: 138.30 (expecting μ = 138.48, Δ = 2.40)
```

PS 2 Processor(s) (3.0/3.0)

```
Of the 25 runs...
- Average # of Context Switches: 174.24 (expecting μ = 170.26, Δ = 12.92)
- Average Total Execution Time: 40.30 (expecting μ = 38.91, Δ = 6.16)
- Average Total Wait Time: 26.54 (expecting μ = 33.69, Δ = 16.52)
```

PS 4 Processor(s) (3.0/3.0)

```
Of the 25 runs...
- Average # of Context Switches: 183.96 (expecting μ = 183.82, Δ = 4.48)
- Average Total Execution Time: 33.48 (expecting μ = 33.31, Δ = 3.50)
- Average Total Wait Time: 1.05 (expecting μ = 0.22, Δ = 5.04)
```

FCFS 1 Processor(s) (4.0/4.0)

```
Of the 25 runs...
- Average # of Context Switches: 99.00 (expecting μ = 98.87, Δ = 1.34)
- Average Total Execution Time: 67.60 (expecting μ = 67.60, Δ = 0.41)
- Average Total Wait Time: 389.90 (expecting μ = 389.94, Δ = 1.34)
```

FCFS 2 Processor(s) (4.0/4.0)

```
Of the 25 runs...
- Average # of Context Switches: 108.68 (expecting μ = 108.75, Δ = 10.75)
- Average Total Execution Time: 35.80 (expecting μ = 35.87, Δ = 0.76)
- Average Total Wait Time: 90.02 (expecting μ = 87.90, Δ = 33.30)
```

FCFS 4 Processor(s) (3.0/3.0)

```
Of the 25 runs...
- Average # of Context Switches: 181.12 (expecting μ = 181.94, Δ = 5.86)
- Average Total Execution Time: 33.38 (expecting μ = 33.33, Δ = 1.07)
- Average Total Wait Time: 0.29 (expecting μ = 0.52, Δ = 1.40)
```

Files Submitted Properly (1.0/1.0)

RR 1 Processor(s) 200 ms Timeslice (3.0/3.0)

```
Of the 25 runs...
- Average # of Context Switches: 362.00 (expecting μ = 361.95, Δ = 1.22)
- Average Total Execution Time: 67.50 (expecting μ = 67.52, Δ = 1.24)
- Average Total Wait Time: 285.20 (expecting μ = 285.09, Δ = 5.51)
```

RR 1 Processor(s) 400 ms Timeslice (3.0/3.0)

```
Of the 25 runs...
- Average # of Context Switches: 203.00 (expecting μ = 202.92, Δ = 1.27)
- Average Total Execution Time: 67.60 (expecting μ = 67.60, Δ = 1.21)
- Average Total Wait Time: 298.80 (expecting μ = 298.93, Δ = 5.84)
```

RR 1 Processor(s) 800 ms Timeslice (3.0/3.0)

```
Of the 25 runs...
- Average # of Context Switches: 136.00 (expecting μ = 135.96, Δ = 1.20)
- Average Total Execution Time: 67.60 (expecting μ = 67.60, Δ = 1.11)
- Average Total Wait Time: 325.40 (expecting μ = 325.47, Δ = 5.42)
```

RR 2 Processor(s) 200 ms Timeslice (3.0/3.0)

```
Of the 25 runs...
- Average # of Context Switches: 382.28 (expecting μ = 381.02, Δ = 12.15)
- Average Total Execution Time: 36.30 (expecting μ = 36.32, Δ = 0.59)
- Average Total Wait Time: 43.37 (expecting μ = 44.66, Δ = 10.79)
```

RR 2 Processor(s) 400 ms Timeslice (3.0/3.0)

```
Of the 25 runs...
- Average # of Context Switches: 222.92 (expecting μ = 222.68, Δ = 9.77)
- Average Total Execution Time: 36.58 (expecting μ = 36.56, Δ = 0.67)
- Average Total Wait Time: 40.30 (expecting μ = 40.31, Δ = 13.66)
```

RR 2 Processor(s) 800 ms Timeslice (3.0/3.0)

```
Of the 25 runs...
 - Average # of Context Switches: 150.48 (expecting μ = 149.20, Δ = 13.77)
 - Average Total Execution Time: 35.82 (expecting μ = 35.92, Δ = 0.93)
 - Average Total Wait Time: 49.40 (expecting μ = 49.24, Δ = 19.12)
```

RR 4 Processor(s) 200 ms Timeslice (3.0/3.0)

```
Of the 25 runs...
 - Average # of Context Switches: 447.00 (expecting μ = 444.32, Δ = 6.65)
 - Average Total Execution Time: 33.23 (expecting μ = 33.22, Δ = 1.18)
 - Average Total Wait Time: 0.01 (expecting μ = 0.42, Δ = 0.84)
```

RR 4 Processor(s) 400 ms Timeslice (3.0/3.0)

```
Of the 25 runs...
 - Average # of Context Switches: 287.08 (expecting μ = 286.46, Δ = 5.83)
 - Average Total Execution Time: 33.40 (expecting μ = 33.22, Δ = 0.48)
 - Average Total Wait Time: 0.30 (expecting μ = 0.38, Δ = 1.08)
```

RR 4 Processor(s) 800 ms Timeslice (3.0/3.0)

```
Of the 25 runs...
 - Average # of Context Switches: 218.00 (expecting μ = 219.56, Δ = 3.70)
 - Average Total Execution Time: 32.73 (expecting μ = 33.24, Δ = 0.51)
 - Average Total Wait Time: 0.30 (expecting μ = 0.74, Δ = 1.27)
```

FCFS Race Conditions (4.0/4.0)

PS Race Conditions (4.0/4.0)

RR Race Conditions (4.0/4.0)

STUDENT

Eric Anders Gustafson

AUTOGRADER SCORE

60.0 / 60.0

PASSED TESTS

PS 1 Processor(s) (3.0/3.0)
PS 2 Processor(s) (3.0/3.0)
PS 4 Processor(s) (3.0/3.0)
FCFS 1 Processor(s) (4.0/4.0)
FCFS 2 Processor(s) (4.0/4.0)
FCFS 4 Processor(s) (3.0/3.0)
Files Submitted Properly (1.0/1.0)
RR 1 Processor(s) 200 ms Timeslice (3.0/3.0)
RR 1 Processor(s) 400 ms Timeslice (3.0/3.0)
RR 1 Processor(s) 800 ms Timeslice (3.0/3.0)
RR 2 Processor(s) 200 ms Timeslice (3.0/3.0)
RR 2 Processor(s) 400 ms Timeslice (3.0/3.0)
RR 2 Processor(s) 800 ms Timeslice (3.0/3.0)
RR 4 Processor(s) 200 ms Timeslice (3.0/3.0)
RR 4 Processor(s) 400 ms Timeslice (3.0/3.0)
RR 4 Processor(s) 800 ms Timeslice (3.0/3.0)
FCFS Race Conditions (4.0/4.0)
PS Race Conditions (4.0/4.0)
RR Race Conditions (4.0/4.0)

QUESTION 2

Manual Grading   **14.0** / 14.0 pts

✔ − 0 pts	Correct
− 7 pts	Used broadcast instead of signal
− 7 pts	Didn't place Cond_wait inside a while loop
− 14 pts	Blank/Empty

QUESTION 3.1

FCFS Scheduler   **5.0** / 5.0 pts

QUESTION 3.2

Round Robin   **5.0** / 5.0 pts
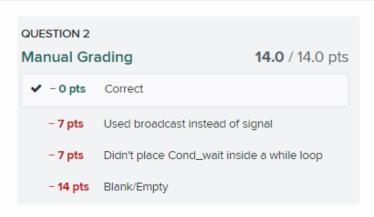
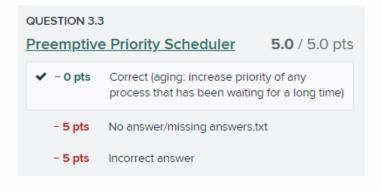**QUESTION 3.3**
Preemptive Priority Scheduler   **5.0** / 5.0 pts

QUESTION 3.4
Priority Inversion Problem   **10.0** / 10.0 pts

QUESTION 4
Demo   **1.0** / 1.0 pts

QUESTION 2
Manual Grading   **14.0** / 14.0 pts

✔	− 0 pts	Correct
	− 7 pts	Used broadcast instead of signal
	− 7 pts	Didn't place Cond_wait inside a while loop
	− 14 pts	Blank/Empty

QUESTION 3.1
FCFS Scheduler   **5.0** / 5.0 pts

✔	− 0 pts	Correct
	− 2 pts	Does not identify that the relationship is not linear
	− 2 pts	Incorrect justification (CPUs idling while waiting for processes to come off of I/O)
	− 5 pts	No answer/missing answers.txt
	− 5 pts	Incorrect answer

QUESTION 3.2
Round Robin   **5.0** / 5.0 pts

✔	− 0 pts	Correct
	− 2 pts	Does not identify that the waiting time decreases with smaller timeslices
	− 2 pts	Incorrect reasoning for shortest timeslice in real OS (overhead associated with context switching in a real OS resulting in thrashing & not a lot of work being done)
	− 5 pts	No answer/missing answers.txt
	− 5 pts	Incorrect answer

QUESTION 3.3
Preemptive Priority Scheduler   **5.0** / 5.0 pts

✔	− 0 pts	Correct (aging: increase priority of any process that has been waiting for a long time)
	− 5 pts	No answer/missing answers.txt
	− 5 pts	Incorrect answer

QUESTION 3.4
Priority Inversion Problem   **10.0** / 10.0 pts

✔	− 0 pts	Correct (temporarily change window manager's priority to the same as the high priority process's priority)
	− 5 pts	Didn't specify how much to increase the window manager's priority (needs to be the same as the process that depends on it)
	− 10 pts	No answer/missing answers.txt
	− 10 pts	Incorrect answer

QUESTION 4
Demo   **1.0** / 1.0 pts

✔	− 0 pts	Correct
💬	100%	