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6.10

Because having I/O-bound programs spend significant time waiting to be scheduled for their brief CPU time is inefficient, and so I/O-bound programs should have priority to run over CPU bound programs.

6.13

The advantage of distinct run queues is that you don't have to worry race conditions on the queue from multiple processors accessing it. The disadvantage is that a processor could have nothing in its queue while other processors still have waiting processes.

6.22

Making sure the user's processes' CPU burst time is below the threshold to remain in queue 0 would maximize the amount of CPU time it gets.

5.20

a. One race condition could cause the `numberofprocesses` variable to be incorrect because of read-modify-write races. Another possible race condition is one thread comparing `numberofprocesses` to `maxprocesses` right before another thread increments `numberofprocesses` allowing `numberofprocesses` to exceed `maxprocesses`

c. no