Devin Wiley

Dxw112230

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Summary

The purpose of this project allows us to get hands on experience with concurrency including: mutual exclusion, semaphores, and the possibility of deadlocks. I choose to use Java, because I have had experience in the past using concurrency in Java, also my last program written in C had an unknown attribute that didn’t run on the TA’s terminal emulator. The project also stresses the designing of the project so it will be easier to understand and to put into code.

The simulation is modeled after the DMV. A ‘customer’ enters the build and goes into a line at the information desk; assigned a number by a person sitting at the information desk; waits to be called to enter a line for the agents; called by an agent to be service, taking a photo and eye exam, and is issued a temporary license. This process was sped up by creating multiple agents to service different customers at once, instead of having a single agent doing all the jobs in a sequence. The major areas of speedup occur with 4 separate agents, each servicing an individual customer, an information desk, assigning customers numbers so that they are ready to be called, and an announcer that keeps the line to the agents full with people soon to be serviced.

I had a minor difficulty while creating the information desk class. I initially had it in such a way that customers would be assigned a number, then announce that they have been assigned a number and go sit down. This caused users to announce their numbers out of order, the only thing wrong was the order they announced their numbers in. So, I changed the information desk to assign the numbers to the customers and then handle the announcing of the assignment and signaling the announcer. The customer will then wait until they have an assigned number and then leave the line and go wait. This produced more desired results, as the assigned numbers are now announced in order.

For this assignment I learned that it is important to cause threads to wait, otherwise they will all try to do the same thing and everything will simply become a race scenario.