

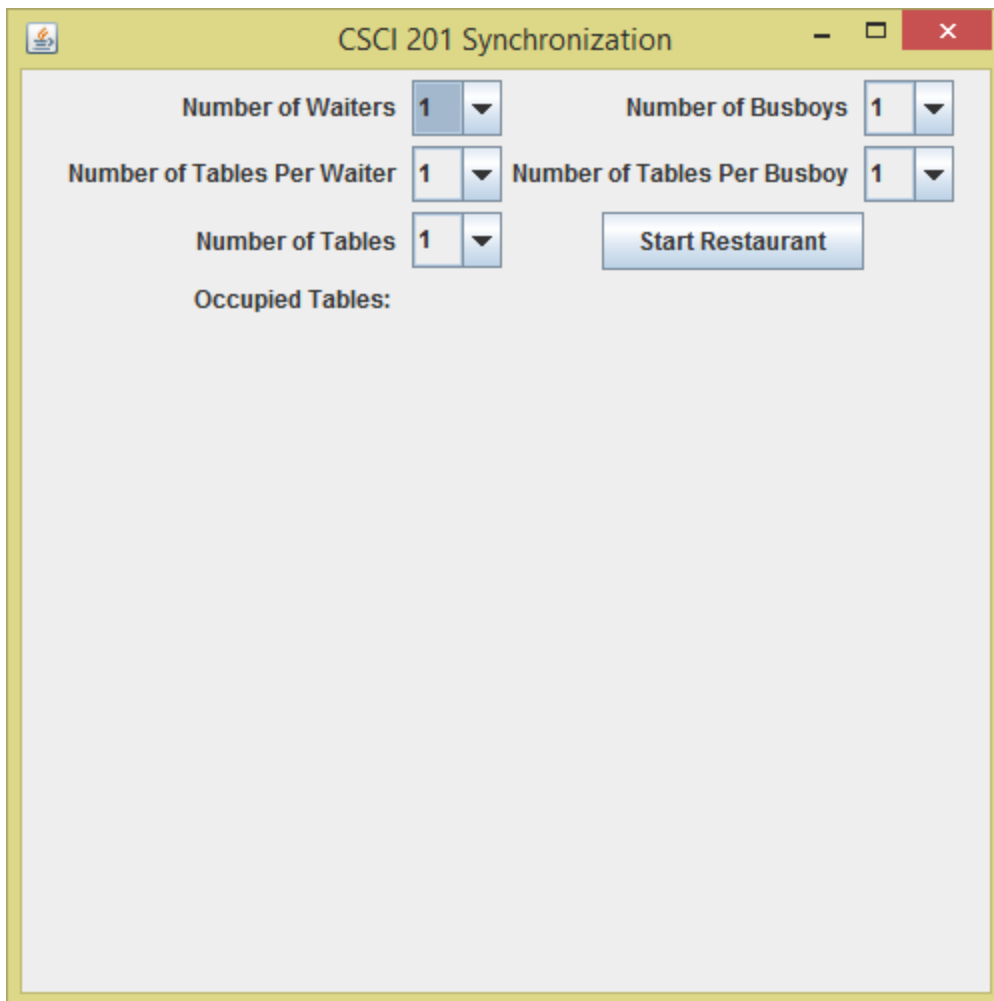
**CSCI 201L Spring 2014 – Section 2**  
**Final - Programming**  
**12.0% of course grade**

For this program, you will use the Restaurant code that we went over in class. You can get the latest version of the code from the Lectures page of the course web site under the Final Exam day. That code will be the starting point to add the features included in this exam.

The current codebase implements multiple waiters, multiple tables per waiter, and multiple tables in the restaurant. We will add to this functionality.

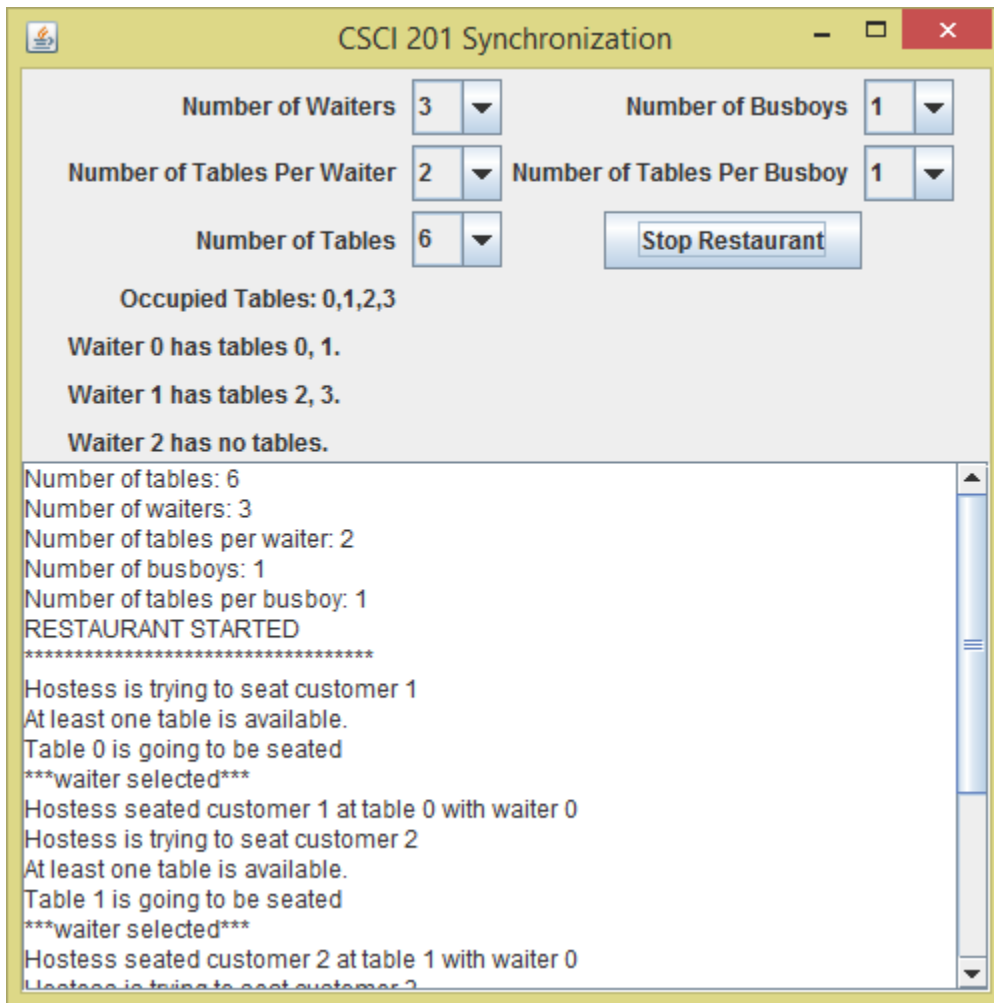
**Part 1**

There is a JLabel to represent the tables that are currently occupied. Add another JLabel for each waiter when the “Start Restaurant” button is clicked. These JLabels should be placed below the “Occupied Tables” JLabel. Here is how the GUI should look initially:



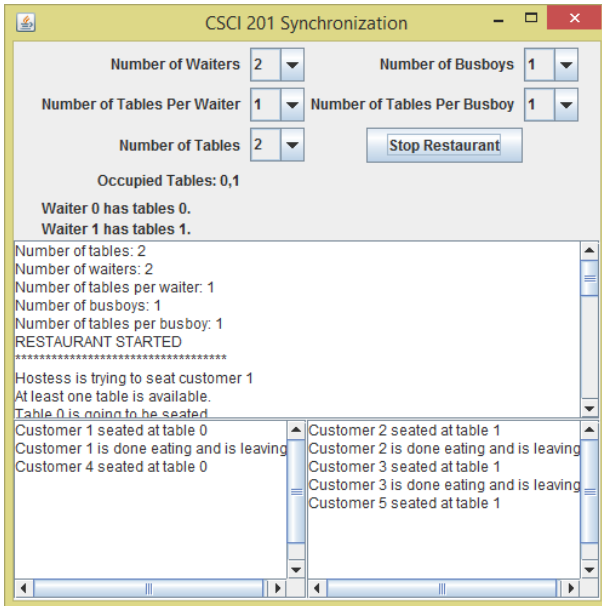
## Part 2

Add code to populate the JLabels for each waiter with the table numbers that waiter is servicing. If you prefer, you can write the messages to the command line instead, though to get full credit you need to write into the JLabels. Here is an example of the GUI with three waiters.

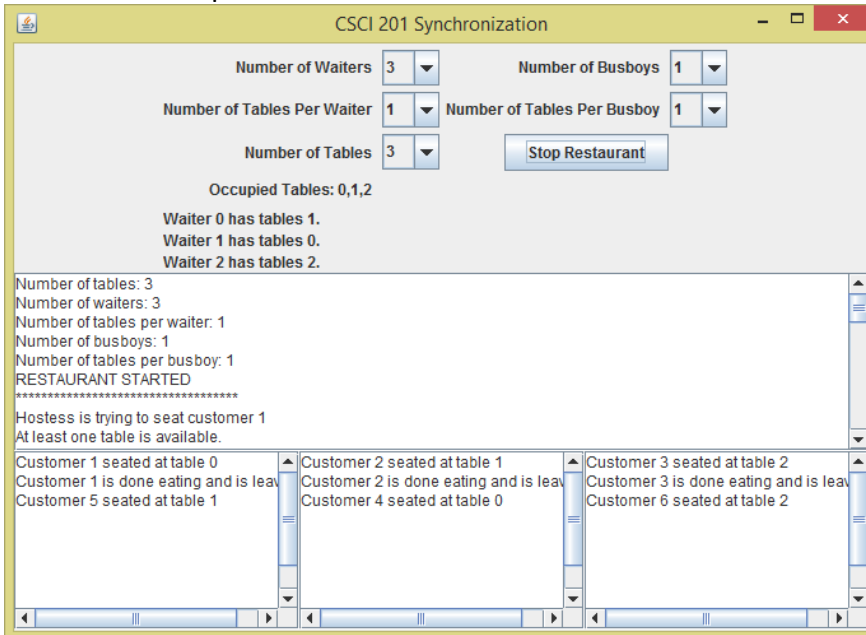


### Part 3

Modify the GUI so it does not just have a single text area for the entire restaurant, but instead has a text area for the hostess and one text area for each waiter. Generate these text areas when the "Start Restaurant" button is clicked. The center area of the GUI should have the hostess text area at the top and the waiter text areas next to each other on the bottom. Here is an example of the GUI with two waiters:



Here is an example of the GUI with three waiters:



#### Part 4

The hostess should output all of the messages that are currently displayed in the GUI. Each waiter will only output two messages – when a customer is seated and assigned to the waiter, and when a customer assigned to that waiter leaves. The message should be displayed as shown in the above GUI.

If you do not have the GUI portion working, you can accomplish this part by outputting to the command line. If you are outputting to the command line, you should prepend the message with “WAITER <waiterNumber>”, substituting the actual waiter number in for <waiterNumber>. You do not have to do this if you have the messages printing in the GUI. Here is an example of the output on the command line:

```
WAITER 0: Customer 1 seated at table 0
WAITER 1: Customer 2 seated at table 1
WAITER 0: Customer 1 is done eating and is leaving.
WAITER 0: Customer 4 seated at table 0
WAITER 1: Customer 2 is done eating and is leaving.
WAITER 1: Customer 3 seated at table 2
WAITER 0: Customer 4 is done eating and is leaving.
WAITER 0: Customer 6 seated at table 0
WAITER 0: Customer 6 is done eating and is leaving.
WAITER 0: Customer 7 seated at table 0
WAITER 1: Customer 3 is done eating and is leaving.
WAITER 1: Customer 5 seated at table 1
WAITER 0: Customer 7 is done eating and is leaving.
WAITER 0: Customer 8 seated at table 0
```

#### Grading Criteria

<b>% of Final Grade</b>	<b>Criteria</b>
4.0%	Part 1
4.0%	Part 2 (3.0% max for outputting on the command line only)
4.0%	Part 3
4.0%	Part 4 (2.0% max for outputting on the command line only)