To start up and test our system's workflow properly, one should perform the actions on the specified GUIs in the order described below:

- Customer GUI – The Customer(s) can view a dynamic list of menu items, select items to order, and submit his order(s). This order deducts the appropriate amount of each ingredient from the ingredient inventory and is queued in the Order Queue in the Chef GUI.
- Chef GUI – The Chef views each order in the Order Queue and selects which one(s) to cook. Each selected order is then placed in the Cook Queue. When the Chef is done cooking, he flags the order as "done" by selecting it in the Cook Queue.
- Waiter GUI – The Waiter views completed orders in the Delivery Queue and selects which one(s) to deliver. The Waiter then flags the order as "delivered" by selecting it to remove it from the Delivery Queue.
- Manager GUI – The Manager can view the ingredients and their current stock levels. The Manager can also add menu items by entering the relevant information. This will cause a new button to appear on the menu list of a Customer GUI that is launched after this update (or for an existing Customer GUI once they click "Get Updated Menu").

Customer GUI

When the Customer GUI is launched, its Table ID will be set to a default value of 50. To simulate multiple customer groups, launch another instance of the Customer GUI and change the Table ID another number. In the first instance of the Customer GUI, select your desired menu items and submit the order using "Place Order FIFO". This option will allow the customer to receive his order as it is finished cooking, rather than wait for his entire group's orders to finish. In the second instance of the Customer GUI, select your desired menu items and submit the order using "Place Order as Group". This option tells the system to hold off the delivery of orders until all orders belonging to that group order are finished cooking. Orders submitted from the Customer GUI are displayed in the Order Queue of the Chef GUI, described next.

Chef GUI

The Chef GUI contains two different queues. The Order Queue contains a queue of orders submitted by customers. The orders in this queue are grouped by menu item, so that the Chef can cook multiple items of the same type simultaneously to reduce Customer waiting times. The other queue is the Wait Queue, which contains a list of items that the Chef is currently cooking. Both of these queues have two rows of buttons. The buttons in the bottom row are used to view information about the order, and the top row will be used to select items. This implementation was used solely for demonstration purposes because we had difficulty integrating these two functions into a single button. It is not how we envision the system to be in the future. Orders selected by the Chef in the Order Queue are removed and placed in the Wait Queue, where it will be used to display cooking information. Once the Chef has completed an order, he will select it in the Wait Queue to remove it and place it in the Ready Queue of the Waiter GUI, described next.

Waiter GUI

When the Waiter GUI is launched, it will display the Ready Queue, which contains buttons for each completed order received from the Chef GUI. The Waiter GUI will also display pop-up notifications for customers who have requested assistance. These notifications will display the Table ID for ease of locating the customer in need. In the Ready Queue, menu items that were placed by the customer as “FIFO” will have individual orders appear as they are completed. If the orders were placed by customer as a group, then the button will not show up on the waiter’s ready queue until all the menu items have finished being prepared. When all orders for the group are completed, a button displaying all the orders in the group will appear. In the Ready Queue, the Waiter can select orders to deliver, which will remove them from the list.

Manager GUI

When the Manager GUI is launched, it will display two different forms, as well as a chart of the current inventory of ingredients. The Manager can add items to the current menu by specifying the item information and clicking “Add Item to Menu”. This will update the menu, and Customers who retrieve the menu list from then on would be able see the new menu item. For example, if the Manager adds “spaghetti” from the GUI, it will be added to the menu. Now, if a Customer refreshes his menu list, a new button will dynamically spawn with “spaghetti” as its name. The Manager also has the ability to add ingredients to the inventory. As Customers place their orders, the appropriate amount of ingredients that is used in these orders is deducted from the current inventory.

Log

In order to keep track of our system’s actions, we implemented a logger, which documents our system transactions in a text file. A transaction occurs when a message needs to be passed, which occurs when the different GUIs interact with each other. The logger records a summary of what the transaction was, and if it was successful or not. Each transaction is stored in the “Log.txt” file. This file can be viewed by the system administrator or manager for troubleshooting purposes or inspection of system usage history.