Test ID	Description	Expected Results	Actual Results
Test #1 **testID: testAddIngredient** **Descriptions: Add an Ingredient object to the inventory.**	**Preconditions:** • The user has started the CoffeeMaker Application and selected the link to the "Add Ingredient page" • The MySQL table shows there are no ingredients in the inventory and no ingredients saved to the database **Steps:** 1. The user has started the application and gone to the "**Add Ingredient**" page 2. The user enters "**Coffee**" as the ingredient name and "**5**" as the amount 3. The user then selects the submit option 4. A success message should display at the bottom of the page 5. The fields have reset. The user enters "**Milk**" as the ingredient name and "**15**" as the amount 6. The user selects the submit option 7. The user goes to MySQL workbench and runs the following query "**SELECT * FROM coffeemaker.ingredient;**" 8. The user verifies the correct information is shown for name, amount, and the isInventory flag is set to 1	After filling in the amounts the user should see the message at the bottom of the page after both submissions "Inventory Successfully Updated. Ingredient added." The user should also SELECT the inventory table and make sure there are two entries with the correct name, flag, and amounts.	The form was submitted twice with the expected message for success. After going to MySQL, the selected table showed the correct information and flags indicating the inventory ingredients.

Test #2 **testID: testInvalidUnit** **[Invalid Unit] subflow** **Description: Make sure the user has to enter a value of 0 or more for the initial amount**	**Preconditions:** • The user has started the CoffeeMaker Application and selected the link to the "Add Ingredient page" **Steps:** 1. The user has started the CoffeeMaker Application and selected the "Add Ingredient page" 2. The user inputs for name "Sugar" and the for the amount "-1" 3. The box should turn red and the submit button should become unclickable 4. The user changes the amount entry to "0" 5. The user clicks submit and then checks the MySQL by running the following query "**SELECT * FROM coffeemaker.ingredient;"**	When the amount is -1 the box becomes yellow and tells the user the minimum amount is 0. After changing the value to 0 the box should become green and become submittable. The MySQL table should show 3 ingredients in the inventory.	The form prevented the entry of -1, but allowed the entry of 0 for the initial amount. The MySQL query showed three ingredients that were saved to the database.

Test #3 **testID: testDuplicateName** **[Duplicate Unit] subflow** **Description: Try adding an ingredient with a duplicate name**	**Preconditions:** • Test 1 has passed and saved Coffee as an ingredient **Steps:** 1. Select the "Add Ingredient" 2. Input the name "Coffee" as the ingredient name and 1 as the initial amount 3. Click submit and find the response to the action. 4. The user clicks submit and then checks the MySQL by running the following query "**SELECT * FROM coffeemaker.ingredient;**"	Adding a duplicate ingredient should show the error message "Error while updating inventory. Ingredient of the same name already exists." The MySQL table should show 3 ingredients in the inventory.	The form prevented a duplicate named ingredient from being added and the query showed only 3 ingredients were there.

Test #4 **testID: testAddRecipe** **[Add Ingredient][Edit Units]** **Description: Add a new Recipe to the database. Make sure that add ingredient and delete ingredient work too.**	**Preconditions:** Test 1 and 2 have passed and there are ingredients to add to a recipe **Steps:** 1. Select the "Add Recipe" link in the CoffeeMaker application 2. Input "Mocha" for the recipe name and "5" as the price of the recipe 3. Make sure no ingredients are selected 4. Try to select submit, but it will not be possible since the button will become unclickable because there are no ingredients 5. Select the ingredient "Coffee" from the dropdown and click the Add Ingredient button 6. Select the ingredient "Milk" from the dropdown and click the Add Ingredient button 7. Make sure the dropdown only contains Sugar 8. Input 0 in the Coffee amount field and make sure the box turns yellow and tells you the minimum amount is 1 9. Input valid amounts for the Coffee and Milk fields for this recipe 10. Select submit and check the SQL using the query "SELECT * FROM coffeemaker.recipe_ingredients" and check the number of ingredient entries found in the table	The submit button for this form should only become clickable once a valid name, price, and at least one ingredient amount is input. Selecting ingredients from the dropdown menu will remove them from the dropdown menu and move them into the form as a text field. After submission the recipe should go into the database with the correct price, name, and linked ingredients. The joined table of ingredients and recipes should contain two entries with the same recipe_id and different ingredient_ids.	The form only allowed submission once all the required fields were entered into the fields. It also prevented submission when there were no ingredients. After checking the MySQL workbench the correct amount of entries was shown with 2 matching recipe_ids and 2 different ingredient_ids.

Test #5 **testID: testAddRecipeNoIngredients** **[No Ingredients] [Remove Ingredient]** **Description: Test that submission of the form when no ingredients belong to the recipe is impossible.**	**Preconditions** • Test 1 and 2 have passed and there are ingredients to add to a recipe **Steps:** 1. Select the "Add Recipe" link in the CoffeeMaker application 2. Input "Nothing" for the recipe name and "5" as the price of the recipe 3. Make sure no ingredients are selected 4. Try to select submit, but it will not be possible since the button will become unclickable because there are no ingredients 5. Select the ingredient "Coffee" and then click the Add Ingredient button 6. Fill in the text field with the value "5" 7. The button should become clickable but do not select submit 8. Select Delete Ingredient for Coffee 9. The button will become unclickable since there are no ingredients in the recipe	The button to submit the form should become hidden when there are no ingredients selected for the recipe. The submit should become clickable when there is at least one ingredient with a valid amount for the recipe.	When adding a recipe the submit button was hidden if no ingredients were selected for the recipe. It became unhidden after selecting Coffee and putting in a valid amount for Coffee. It then became hidden again after deleting the Coffee ingredient from the recipe.