Criterion C - Development

Introduction

For this Java program, I have utilized Netbeans, which I was most familiar with and Graphical User Interface (GUI) for the application could be easily created using Swing tools. This application is a recipe organizer, which keeps track of all the client's recipes and additional information that helps the user in a convenient manner while cooking.

Summary List of All Techniques
- For loops
- ArrayList
- Arrays (of Objects/Strings)
- A method returning a value
- Encapsulation
- If statement
- Searching
- Sorting
- Error handling
- Use of a flag value
- Java GUI Techniques: Textfield.setText(), ComboBox.getSelectedItem(), etc.
- Get and Set method
- Use of ||, &&, ^, !, .equals() on conditionals

Structure of the Program

Figure 1:

As shown in Figure 1, the main class is a GUI class that works as a root of the program. It interacts with the user and allows the user to input the data, retrieve data and organize according to the user's preference.

Figure 2:

According to Figure 2, a Recipe object template class was made to store recipe data in an organized way. The remaining class is created for searching and sorting the recipes. There are in total 2 methods to sort recipes according to the recipe name or the data added and there are 2 methods of searching the recipes using the keywords

a recipe or recorded date. Using these classes and Object-Oriented programming, encapsulation, contractors and abstractions usage, it allowed the programmer to have efficient handle error handling problems and coding.

Data Structure Used

1) ArrayList

```
ArrayList<RecipeClass> recipes = new ArrayList<RecipeClass>();
```

ArrayLists were used to store elements of objects and strings. In specific, the Arraylist of recipes object contains multiple attributes, which is the basic information of the recipes, such as ingredients, instructions, and time required to cook the food.
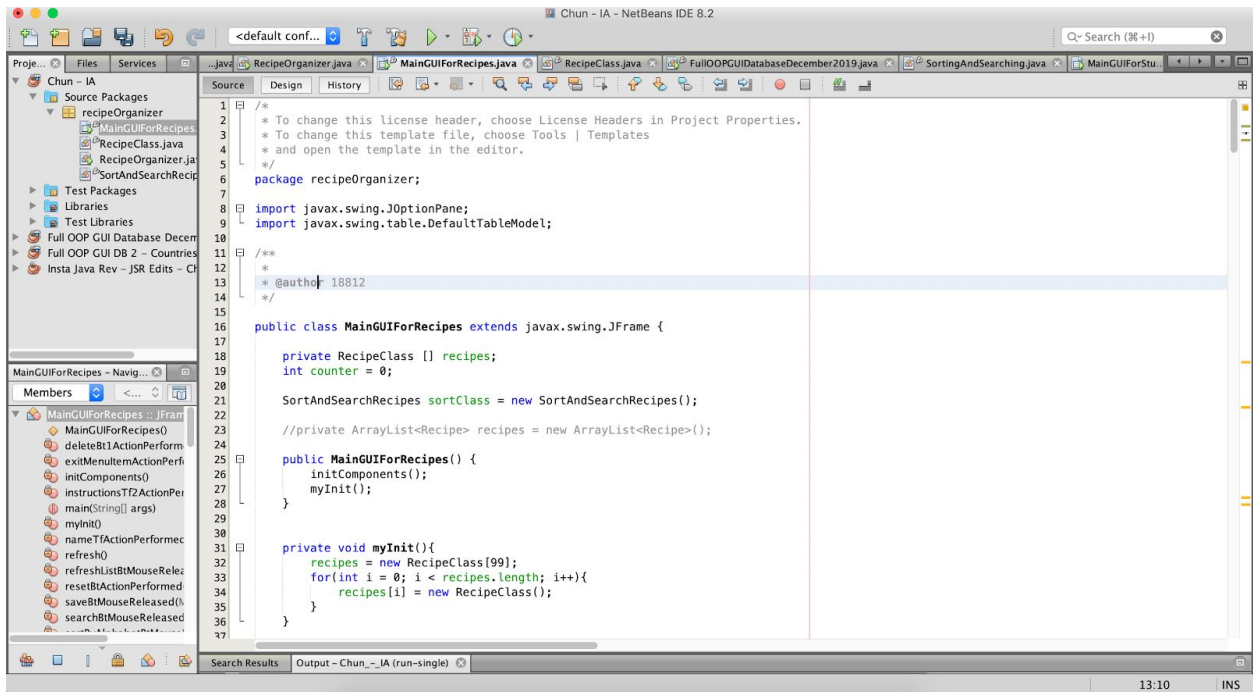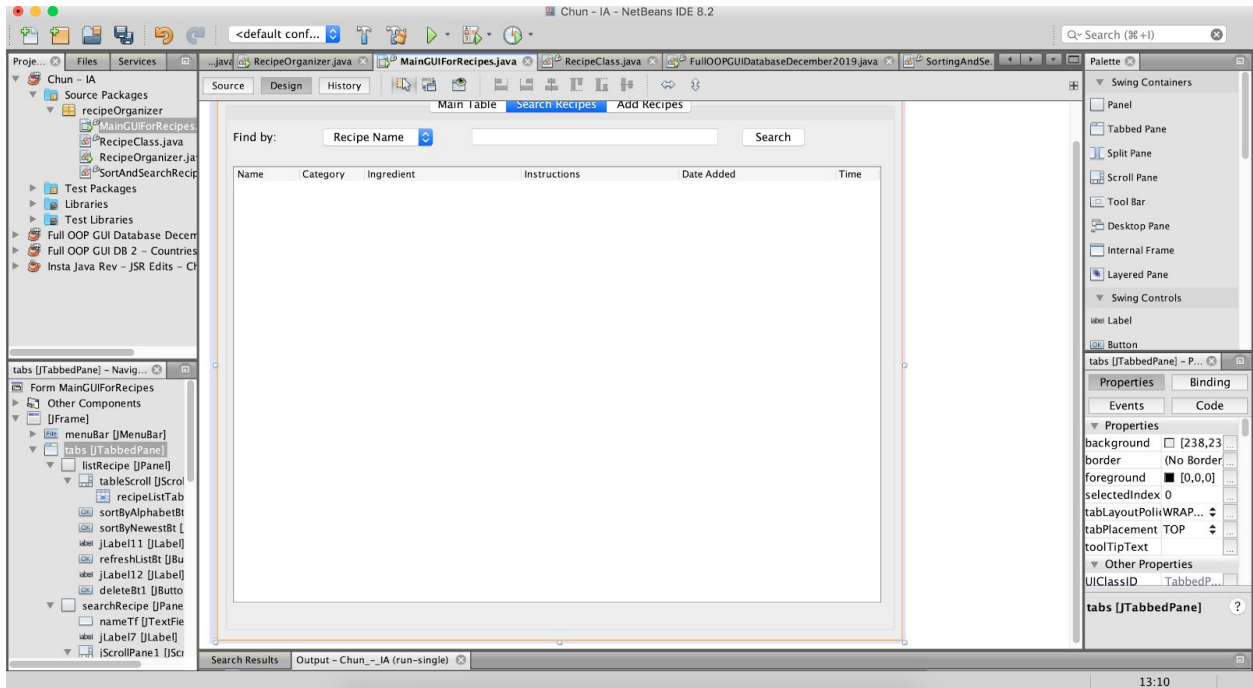
User Interface / GUI Works

In general, for users to interact with the program, I have used server GUI components:

- JTextfiellds: Textbox for users to enter String type of data
- JComboBox: To select information on the list
- JButtons: Select/Check the box to input data
- JLabels: To guide users on how to use GUI component
- JTable: To organize the data used
- JRadioButton: Select/Check the box to input data
- JTabbedPane: Separate tabs depending on the function.

Software Tools Used

NetBeans was the main software tool used to develop and code this program. As stated above, it is a software that I was familiar with and contains numerous GUI interfaces that could be simply used for the program.

```java
/*
 * To change this license header, choose License Headers in Project Properties.
 * To change this template file, choose Tools | Templates
 * and open the template in the editor.
 */
package recipeOrganizer;

import javax.swing.JOptionPane;
import javax.swing.table.DefaultTableModel;

/**
 *
 * @author 18812
 */

public class MainGUIForRecipes extends javax.swing.JFrame {

    private RecipeClass [] recipes;
    int counter = 0;

    SortAndSearchRecipes sortClass = new SortAndSearchRecipes();

    //private ArrayList<Recipe> recipes = new ArrayList<Recipe>();

    public MainGUIForRecipes() {
        initComponents();
        myInit();
    }

    private void myInit(){
        recipes = new RecipeClass[99];
        for(int i = 0; i < recipes.length; i++){
            recipes[i] = new RecipeClass();
        }
    }
```

Word Count: 406