Sprint #0 Report

Instructions

Objectives
- Make decisions on the SOS software development project.
- Learn unit testing and GUI programming in the language of your choice.

Deliverables and Grading Policy

Read the "CS 449 Homework Overview" document **carefully** and make the key decisions for the software development. Use the following template to complete your report.

1. **Key Decisions of the SOS Project (2 points)**

|	
Object-oriented programming language	Java
GUI library (strongly encouraged)	Swing
IDE (Integrated Development Environment)	VS Code
xUnit framework (e.g., JUnit for Java)	Junit 4
Programming style guide (must read it carefully)	Google Java Style Guide
Project hosting site	Github.com
Other decisions if applicable	

Sample programming style guides:

- Google Java Style Guide: https://google.github.io/styleguide/javaguide.html
- Google C++ Style Guide: https://google.github.io/styleguide/cppguide.html
- Google Python Style Guide: https://google.github.io/styleguide/pyguide.html

Github Link(Sprint0 Source Code): https://github.com/Tarycx/CS449ProjectSprint0

2. **Unit testing (4 points)**

Find a tutorial on the unit test framework you have chosen and write at least two xUnit tests of a program you have written or found elsewhere. Attach here (1) the screenshot of your program execution and (2) the source code of your program.

1) Screenshot:
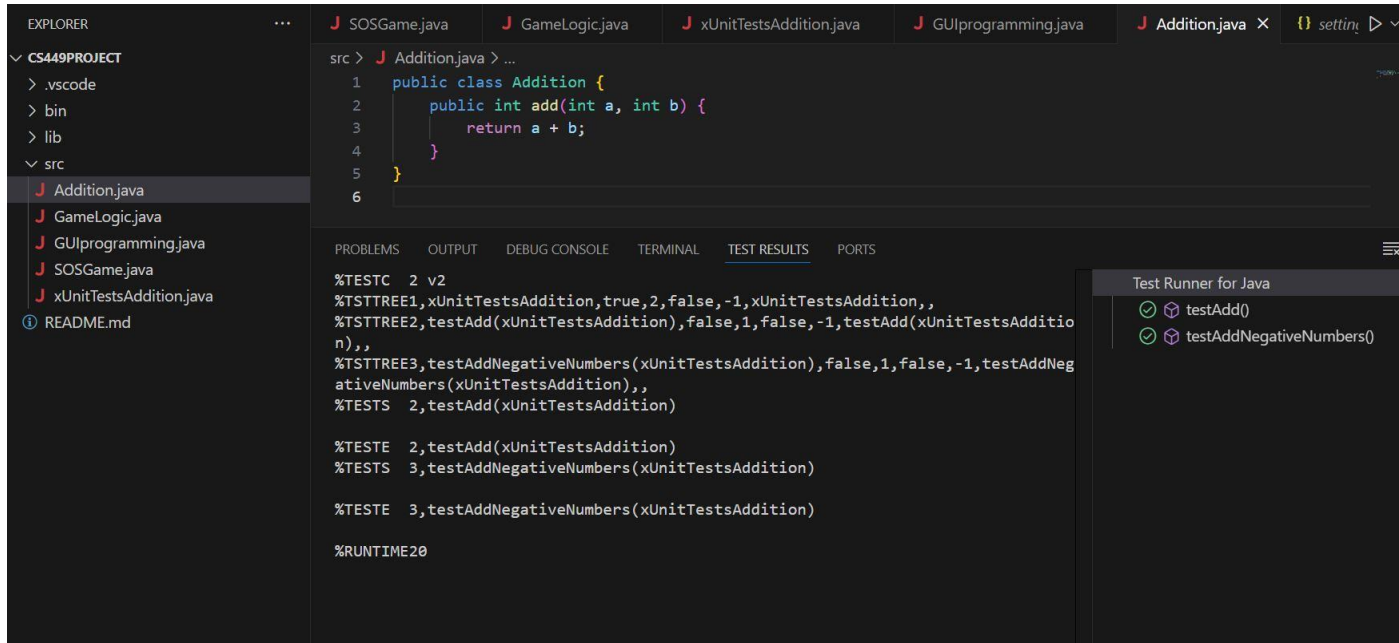
2) Source Code:

```java
//Simple Addition Program
public class Addition {
    public int add(int a, int b) {
        return a + b;
    }
}



//Unit Testing File
    import org.junit.Before;
    import org.junit.Test;
    import static org.junit.Assert.assertEquals;

    public class xUnitTestsAddition { //Test File Using JUnit 4

        private Addition addition;

        @Before
        public void setUp() {
            addition = new Addition();
        }

        @Test //JUnit Test 1
        public void testAdd() {
            int result = addition.add(2, 3);
            assertEquals(5, result);
        }

        @Test //JUnit Test 2
```

```
    public void testAddNegativeNumbers() {
        int result = addition.add(-2, -3);
        assertEquals(-5, result);
    }
}
```
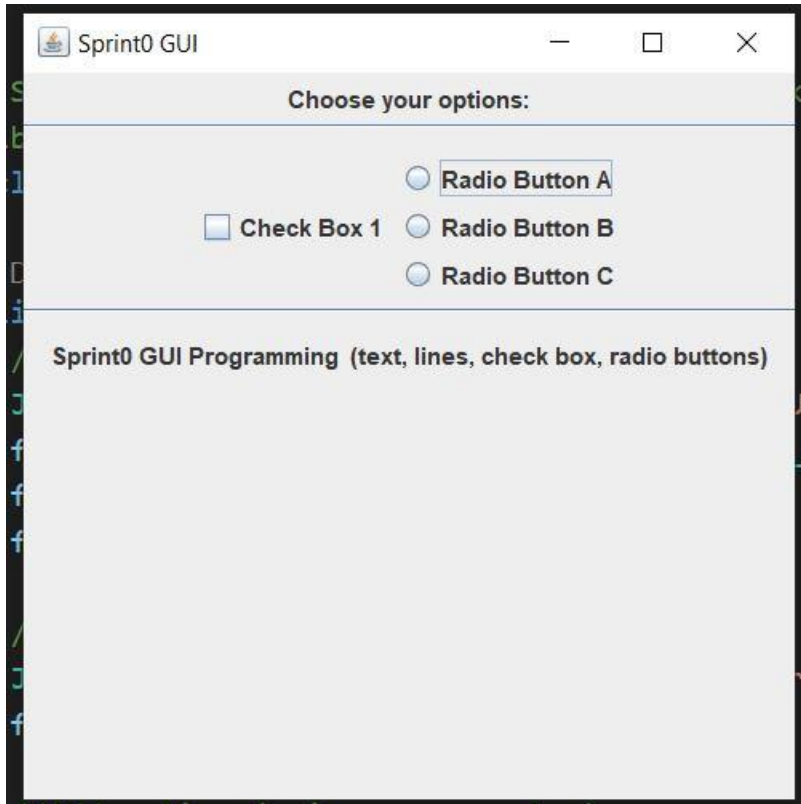
3. GUI programming (4 points)

Write a GUI program in the language you have chosen for your SOS project. The GUI of your program must include text, lines, a check box, and radio buttons. While you are recommended to consider the GUI for the SOS game board, it is not required. In this assignment, any GUI program of your own work is acceptable.

Attach here (1) the screenshot of your program execution and (2) the source code of your program.

1) Screenshot:

2) **Source Code:**

```
3)  import javax.swing.*;
4)  import java.awt.*;
5)
6)  //CS449 Sprint0 GUI Programming: text, lines, check box, radio buttons
7)  //GUI Library: Swing
8)  public class Sprint0GUIProgram {
9)
10)     public static void main(String[] args) {
11)         //Create the main frame
```

```java
12)         JFrame frame = new JFrame("Sprint0 GUI");
13)         frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
14)         frame.setLayout(new FlowLayout());
15)         frame.setSize(400, 400);
16)
17)         //Add a text label
18)         JLabel label = new JLabel("Choose your options:");
19)         frame.add(label);
20)
21)         //Add a line (using a separator)
22)         JSeparator separator = new JSeparator();
23)         separator.setPreferredSize(new Dimension(400, 10));
24)         frame.add(separator);
25)
26)         //Add a check box
27)         JCheckBox checkBox = new JCheckBox("Check Box 1");
28)         frame.add(checkBox);
29)
30)         //Add radio buttons
31)         JPanel radioPanel = new JPanel();
32)         radioPanel.setLayout(new GridLayout(3, 1)); //3 rows, 1 column
33)
34)         JRadioButton radioButton1 = new JRadioButton("Radio Button A");
35)         JRadioButton radioButton2 = new JRadioButton("Radio Button B");
36)         JRadioButton radioButton3 = new JRadioButton("Radio Button C");
37)
38)         //Group radio buttons so only one can be selected at a time
39)         ButtonGroup group = new ButtonGroup();
40)         group.add(radioButton1);
41)         group.add(radioButton2);
42)         group.add(radioButton3);
43)
44)         //Add radio buttons to panel
45)         radioPanel.add(radioButton1);
46)         radioPanel.add(radioButton2);
47)         radioPanel.add(radioButton3);
48)
49)         frame.add(radioPanel);
50)
51)         //Bottom Line
52)         JSeparator separator2 = new JSeparator();
53)         separator2.setPreferredSize(new Dimension(400, 10));
54)         frame.add(separator2);
55)
56)         //End Text
57)         JLabel label2 = new JLabel("Sprint0 GUI Programming");
58)         JLabel label3 = new JLabel( "(text, lines, check box, radio buttons)");
59)         frame.add(label2);
60)         frame.add(label3);
61)
```

```
62)          //Display the frame
63)          frame.setVisible(true);
64)     }
65)}
66)
```