Lab Exercise # 5
Event Handling
Computer Science 2334

Due by:  Friday, March 13, 2009, 2:00 pm

Members:

Learning Objectives:

- Demonstrate your understanding of event handling in Java by completing a distance calculation program. The program takes as input latitudes and longitudes for two points and calculates the distance between them using the ‘Haversine’ formula.

- Modify a class such that it implements and uses ActionListener as the event listener on multiple GUI components.

- Implement actionPerformed() to handle multiple events from multiple components.

- Work with an appropriate data model for the program.

Instructions:

This lab exercise requires a laptop with an Internet connection. Once you have completed the exercises in this document, your group will submit it for grading. All group members should legibly write their names at the top of this lab handout.

Make sure you read this handout and look at all of the source code posted on the class website for this lab exercise before you begin working.

1. Review the source code for the CalculateDistance class. This class is the data model for the distance calculation program and you will use methods provided in this class to complete the Lab5Driver class.

2. Read through the source code of Lab5Driver.java and note the comments provided in the source code that give hints as to what needs to be done in the program. What is the name of the class that will be used to implement ActionListener in this program?
3. Label each component of the GUI below with the corresponding code variables from Lab5Driver.java.

![GUI Diagram]

4. Register the class that will serve as an ActionListener with the required components. This means that you need to “connect” the ActionListener objects to the objects that are listening for events.

5. Add an actionPerformed() method to the class that serves as your ActionListener (the class that implements the ActionListener interface). This method should handle the events specified in the source code of Lab5Driver.java.

6. Test your program by filling in the following table:

<table>
<thead>
<tr>
<th></th>
<th>Latitude</th>
<th>Longitude</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point #1</td>
<td>-10</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Point #2</td>
<td>4</td>
<td>-4</td>
<td></td>
</tr>
<tr>
<td>Point #1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Point #2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Point #1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Point #2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7. Submit the project archive following the steps given in the Submission Instructions by 2:00 pm, Friday March 13, 2009.

8. Turn in this lab handout to your lab instructor.