Spencer Lott September 25, 2014

GNG1106 Lab 1

Compute the Area of a Triangle

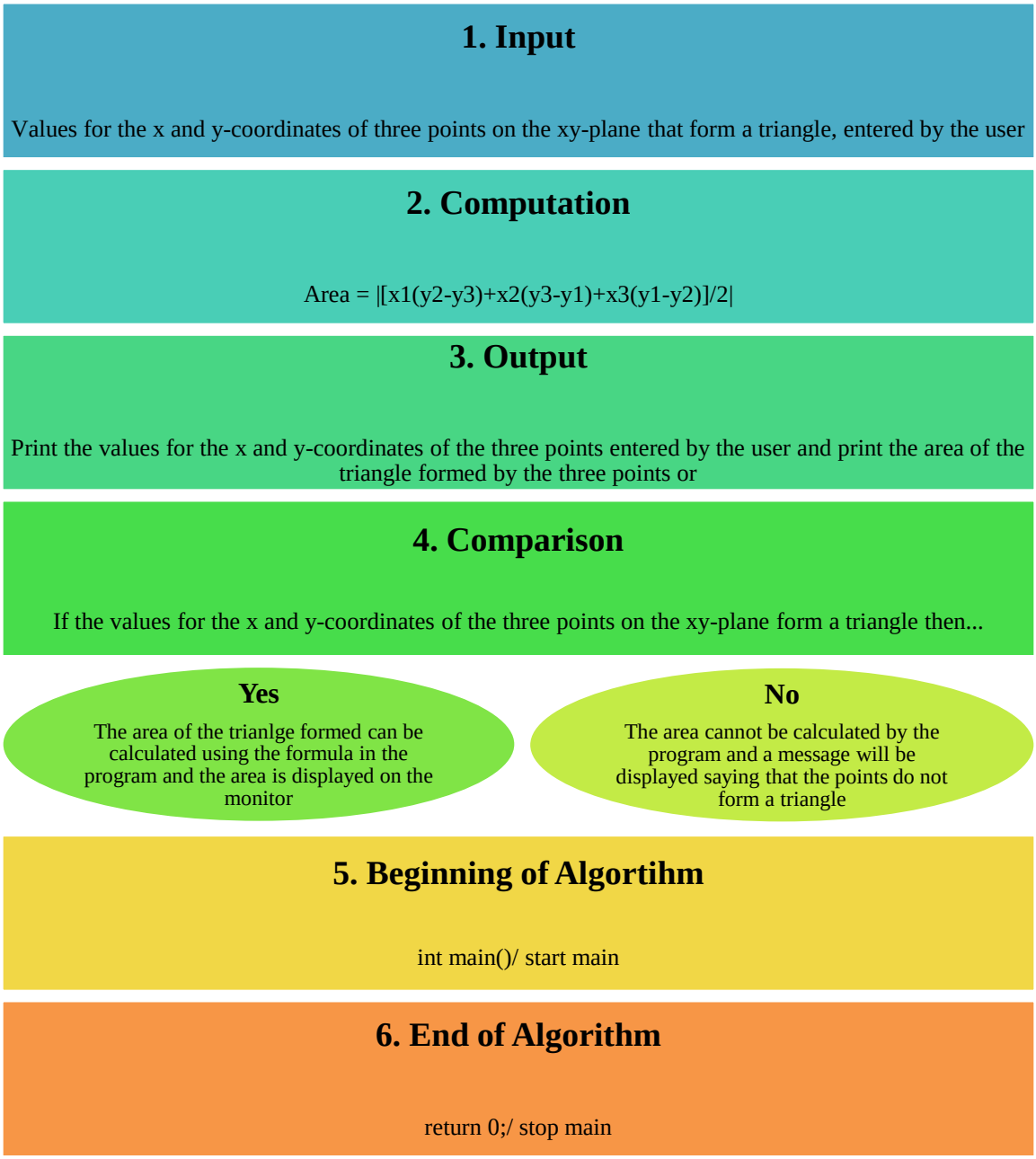
1. **Problem:**

The problem for this lab is to write a program using C code that computes or outputs the area of a triangle when given the x and y-coordinates of three points on the xy-plane as the input.

2. **Input/ Output Description:**

- **Input-** The input for this problem is the values for x and y-coordinates of three points on the xy-plane that form a triangle. These values are inputted by the user through the keyboard.
- **Output-** The output for this problem is the display on the monitor of the values inputted by the user as well as the display of the final area of the triangle created by the three points, or in the case where the three points do not form a triangle a message is displayed saying that the area cannot be computed.

3. **Flowchart:**

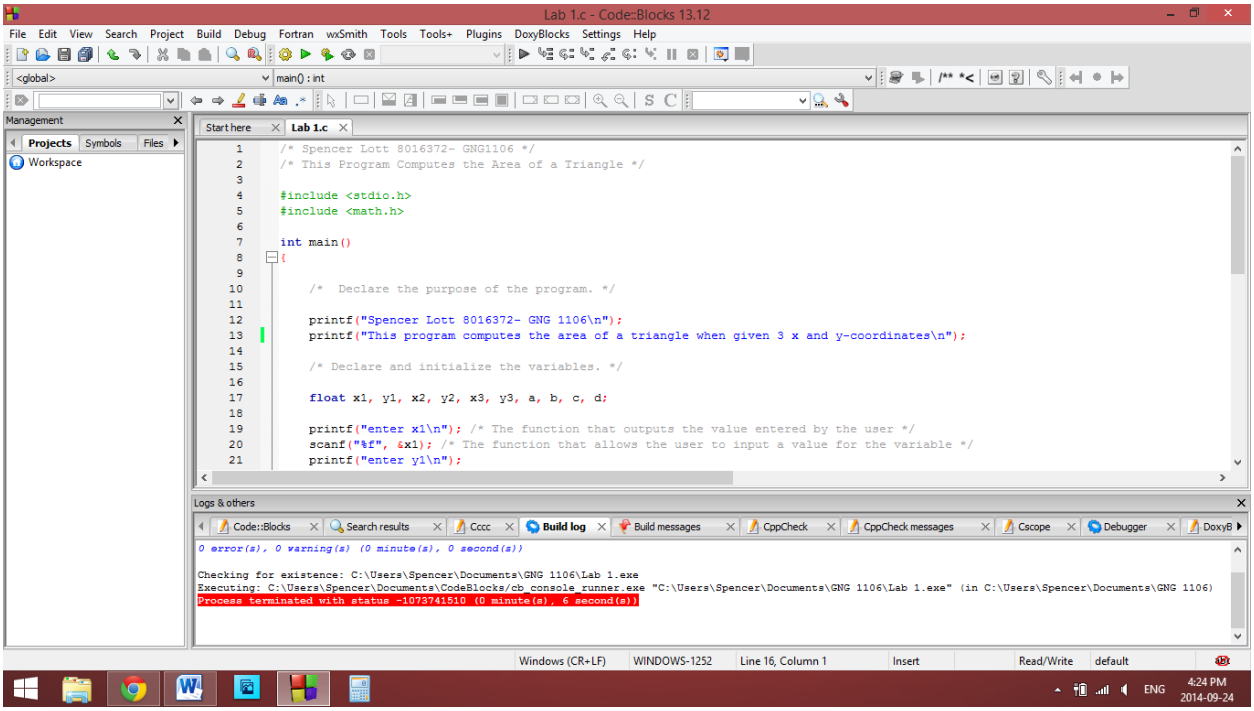


4. **Writing the C code in CodeBlocks:**

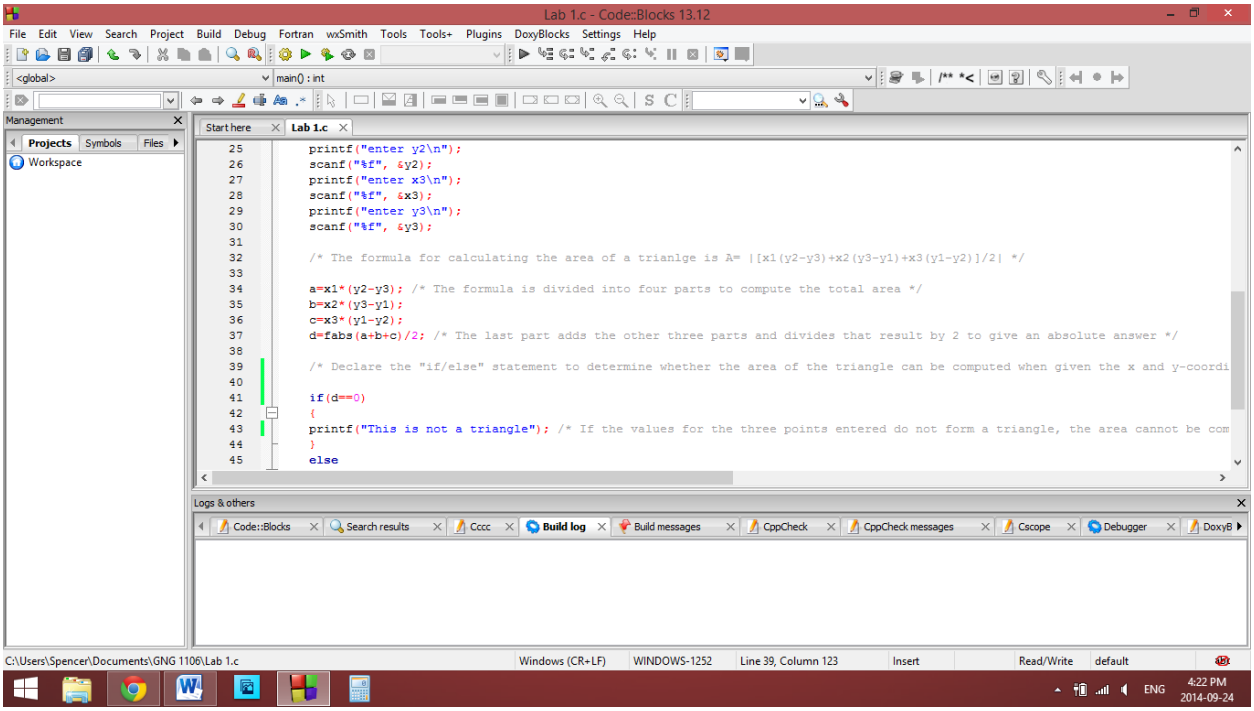
The C source file is attached

5. **Testing the Program:**

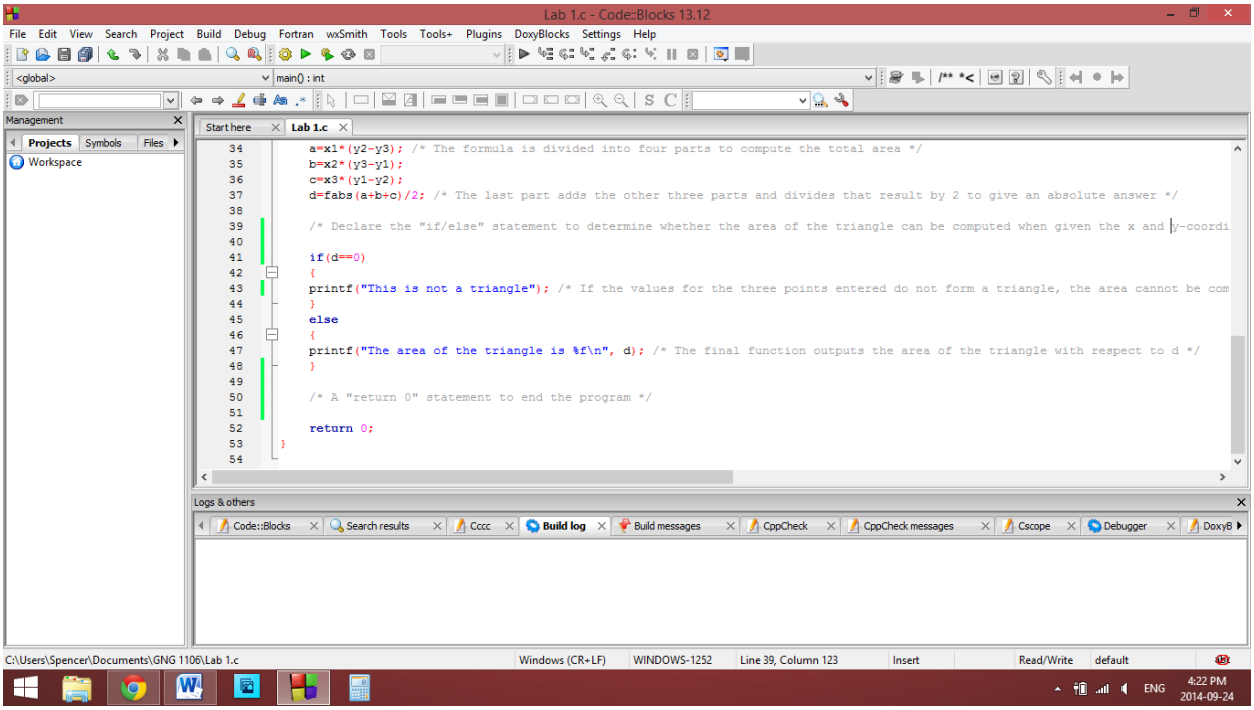
- The beginning of the program in CodeBlocks



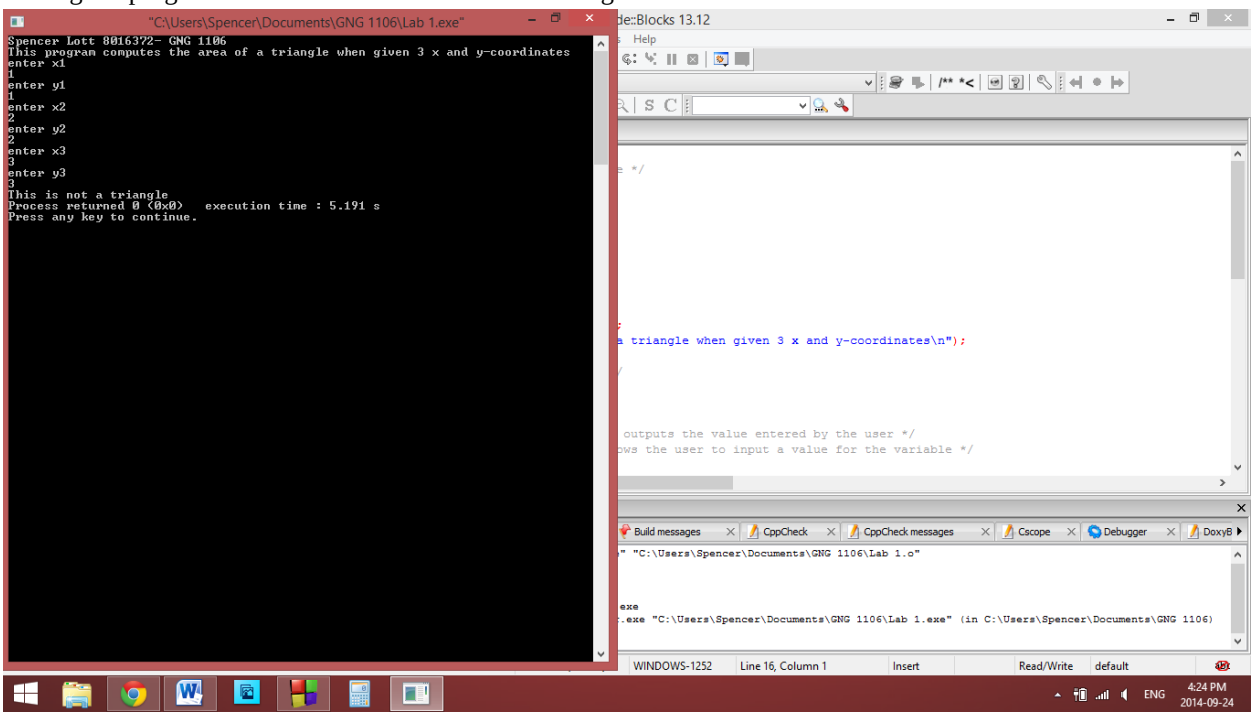
- The middle of the program in CodeBlocks



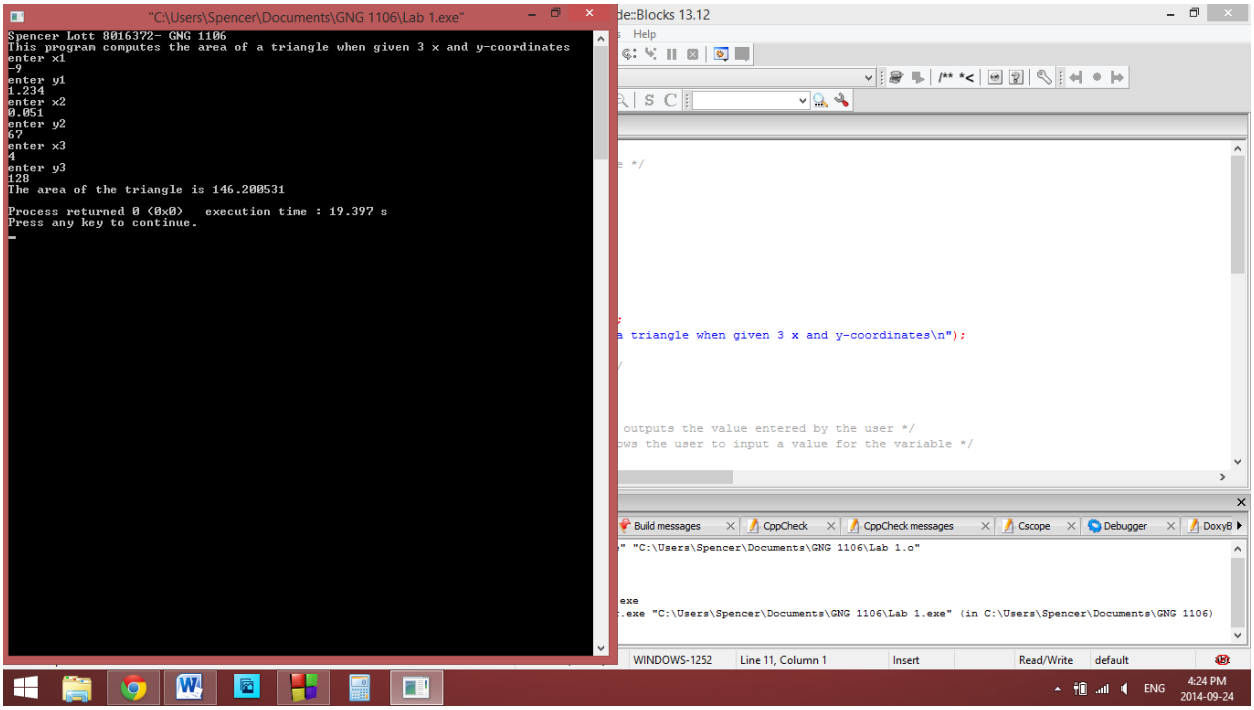
- The end of the program in CodeBlocks



- Testing the program with values that do not form a triangle



- Testing the program with values that do form a triangle



6. **Complications and Solutions for the Lab:**

- The first complication that I encountered while writing this program was the choosing of an appropriate formula for calculating the area of a triangle when given the x and y-coordinates of three points on the xy-plane. I solved this issue by researching possible formulae and choosing one that I felt I could appropriately and correctly incorporate into my program on CodeBlocks.
- The next obstacle that I overcame during this lab was writing code to allow a user to input values for the x and y-coordinates of the three points of the triangle and having those values displayed on the monitor. I solved this obstacle by reading the textbook and reviewing my lecture notes to determine how to use the "printf()" and "scanf()" functions.
- Another problem that I came across during the writing of my program was how to implement my chosen formula in CodeBlocks. I overcame this issue by breaking the formula into four parts and having each aspect of the formula computed separately and relating each variable to the final answer of the formula, being the area of the triangle.
- The final problem that I had to work with while completing this lab was how to write an "if/ else statement". I used the textbook and trial and error to figure out how to write my "if statement" and compute the response as well as writing the "else statement" and computing the response to that statement too.
- Throughout this lab I learned many things about the CodeBlocks program and about writing C code. I learned how to implement a formula in multiple parts as a code, I learned how to correctly use the "printf()" and "scanf()"functions, and I also learned how to properly write an "if/ else statement".