**CSCI 245 Project #3**

**(Total possible points: 80)**

**Due: 11:30 am, April 7th, 2020**  
**Late submission will result in penalty, please refer to the course syllabus about this.**

This project will give you chance to further understand JavaScript, DOM and Prototype library, and implement the technics introduced in class. You will be required to realize a triangle tester. After the user input 3 integer values as the length of 3 sides of a triangle, the webpage should be able to:

(1) Display all test options

(2) Test whether three sides can form a triangle:

Given any triangle, if a, b, and c are the lengths of the sides, the following triangle inequality theorem is always true:

a + b > c  
  
a + c > b  
  
b + c > a  
  
The triangle inequality theorem is very useful when one needs to determine if any 3 given sides will form of a triangle or not. In other words, if the 3 conditions above are not met, you can immediately conclude that it is not a triangle.

(3) Test whether three sides can form a right triangle:

When the square of the length of one side is equal to the sum of the squares of the lengths of the other two sides, then we can say these three sides can form a right triangle.

(4) Test both (2) and (3)

(5) Clear result

You will receive full credit for simply achieving the following minimum criteria:

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| A) Create one html file and one external JavaScript file (originally notepad files), and also attach prototype.js file to the html file.   * Use text boxes to accept input of three integer values as the length of the three sides of a triangle, and use one button to accept user interaction (mouse click) to show all test options:      * Once three integer values are input into the text, if we click the button “Show all test options”, 4 additional buttons show up as in the following picture: (this is realized by creating new button objects, connect them to existing DOM tree object)      * If we click the first button “(1) Test whether these three sides can form a triangle”, the result should be displayed:      * If we click the fourth button “(4) Clear Result!”, the result should be cleared:      * If we change the input and click the second button “(2) Test whether these three sides can form a right triangle”, the result should be displayed:      * If we click the fourth button “(4) Clear Result!”, the result should be cleared:      * If we change the input again and click the third button “(3) Test both (1) and (2)”, the results should be displayed:      * If we click the fourth button “(4) Clear Result!”, the result should be cleared again:     B) Use unobtrusive JavaScript to attach event handlers in JS file, not in HTML file.  C) Use $() function rather than document.getElementById() function in your JS file  D) Create new elements in your JS file to realize all the 4 test options’ buttons  E) Do not use location. reload() function in your JS file  F) Name your html file to be project3.html, and name your JavaScript file to be project3.js, and place them in folder named as “YourFirstName\_YourLastName\_project3”.  Zip this folder and submit the zip file to blackboard. |
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