Programming Assignment № 2

CS 1181, Idaho State University 08/27/2018

Description

In this assignment you will create a rectangle calculator.

The user will provide a length and width to the program via input controls. Then the user will click a control on the form and your code will calculate the perimeter, area and diagonal length of the rectangle. Finally your program will output those values to the user.

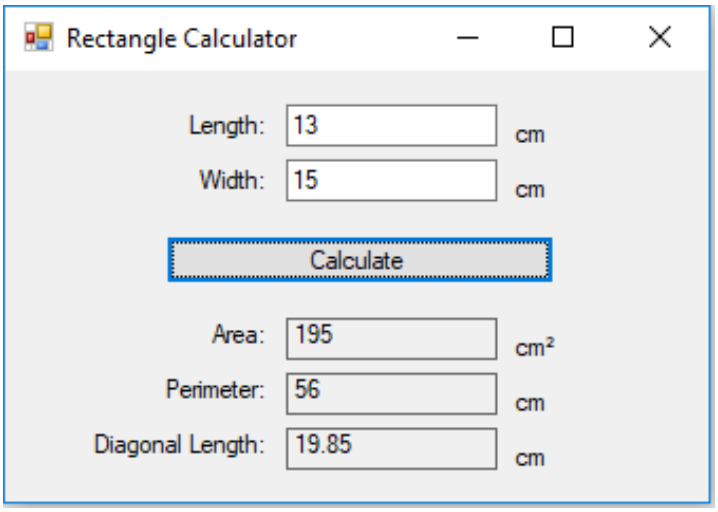

Figure 1: Finished Application

Required Components

These are all required components in your program. Please note this is not a complete listing of everything your program will need to operate, simply things that are being specified as required for full credit.

If a name, control type or data type is specified here, it is required you implement it with that name, control type, data type, etc in your application. If it is not specified, then it is left to you to either determine the proper type or decide what will work best for you.

- Your form should be named *frmRectangleCalculator*
- You will need 2 input controls that accept *integer* inputs. One to input the length in whole centimeters. One to input the width in whole centimeters.
- You will need 3 output controls that can display text output to the user. One should hold the perimeter in centimeters, one should hold the area in centimeters and one should hold the diagonal length of the rectangle in centimeters. (hint: you need to determine the data type of each output. Consider if it is possible to have only whole number outputs or if a fractional part is possible).
- You must have an element on the form that can be clicked to start the calculator and produce the results.
- Any *double* outputs should be displayed out to 2 places and include comma seperators at the thousands places.

WOW Factor Ideas

The WOW Factor is worth 5% of the grade for all assignments. Below are simply some possible ideas, you can choose to do other things or even look ahead and implement a feature that requires next weeks material.

The WOW Factor is your chance to explore the material on your own and discover new things in the material, experiment with something new, utilize new events or control types, etc.

The WOW Factor should reflect a challenge for the current section of the course. In the beginning of the course these will be simple, but as you progress through the class they should grow progressively more ambitious if you want to continue to get the full 5%

Your WOW Factor must be described in your comment header in order to get credit for it and you cannot negate or eliminate required functionality or components when building your WOW Factor.

- Implement another event to trigger your calculator (such as a key press or leaving focus from an element).
- Give your input elements to one background color and your output elements to another.
- Use different controls to input the length and width. This will mean you must retrieve the data from the form in different ways.

Sample Inputs and Outputs

Length	Width	Area	Perimeter	Diagonal Length
3	4	12	14	5.00
13	15	195	56	19.85
22	34	748	112	40.50
15	6	90	42	16.16
19	62	1178	162	64.85

Grading Rubric

This is the grading rubric. This defines how much each portion of the program is worth.

- Program compiles without errors. - 10%
- Code follows the proper style and naming conventions. - 10%
- Program has 2 input controls that accept integer. 5%
- Program has 3 output controls (one for each of area, perimeter and diagonal length). 5%
- Program has 1 control to trigger an OnClick event. 5%
- Accurately calculates and outputs the area for the user provided inputs. 20%

- Accurately calculates and outputs the perimeter for the user provided inputs. 20%
- Accurately calculates and outputs the diagonal length for the user provided inputs. 20%
- WOW Factor. 5%