C++ Randy's Rectangle Calculator

Time required: 60 minutes

- Comment each line of code as shown in the tutorials and other code examples.

- Follow all directions carefully and accurately.

- Think of the directions as minimum requirements.

Pseudocode

1. Write pseudocode for the exercise

2. Save it in a document

3. Submit with the assignment

Requirements

The program will ask the user to enter the width and length of a rectangle, then display the rectangle's area and perimeter.

1. Create a C++ program named **rectangle_calculator.cpp**

2. Area of a rectangle: **Area = length * width**

3. Perimeter of a rectangle: **Perimeter = 2 (length + width)**

4. Ask the user for the length and the width of a rectangle as a double.

5. Calculate the area.

6. Calculate the perimeter.

7. Display the area.

8. Display the perimeter.

TODO Outline of Program

You can use the following TODO outline to get started with your program.

```cpp
/*
 *    Filename: rectangle_calculator.cpp
 *    Author:
 *    Created:
 *    Purpose: Create a program that gets the length and
 *    width of a rectangle from the user and calculates
 *    the area and perimeter
 */
#include <iostream>
// Include for printf
#include <cstdio>
// Include for thousands separator
#include <locale.h>
int main(){
    // TODO: Set the locale for thousands separator
    setlocale(LC_ALL, "");

    // TODO: Declare variables for input and output

    // TODO: Print nice program title

    // TODO: Get user input for length and width as double

    // TODO: Calculate area of rectangle Math formula: a = lw

    // TODO: Calculate perimeter of rectangle Math formula: p = 2(l+w)

    // TODO: Echo user input

    // TODO: Display results
    // Use printf to format float to 2 decimal places
    // Use apostrophe ' to show comma , as a 1,000's separator
```

printf Formatting Example

printf does not provide a line return. Put a \n to move to the next line.

Thousand's formatting requires the extra setup as shown above in the TODO. Use an apostrophe instead of a comma as shown below.

```cpp
printf("\n Perimeter: %'.2f", perimeter);
```

```
% The variable after the comma replaces the % sign
: indicates formatting codes are coming up
' apostrophe formats 1,000 separators
.2f formats a float to 2 decimal places
```

Example run:

```
--------------------------------------------------
|       Randy's Rectangle Calculator in C++       |
| Calculate the area and perimeter of a Rectangle |
--------------------------------------------------
Enter length: 201.56
Enter width: 250.123
You entered: length 201.56 - width 250.123
Area:      50,414.79
Perimeter: 903.37
```

Assignment Submission

1. Attach the pseudocode.

2. Attach the program files.

3. Attach screenshots showing the successful operation of the program.

4. Submit in Blackboard.