Lab 02 - Array Counting Problems

Direction: Submit typed work in the Labs directory of your github repository and/or dropbox. Each part should be a separate files. The files named should be `"lab2A.cpp"` and `"lab2B.h"` respectively. Do not inlude any additional libraries than the ones included in the accompanying `"Shapes.h"`.

Part A: In class

Your objective is to write a program that defines the following function

- ☐ Define an int function named `Occurrences()` that takes a double array parameter, an int parameter and a double parameter respectively. Given that the int parameter represents the size of the array parameter, the function returns the total number of occurrences of the double parameter.

Part B: Take home

Your objective is to define the class named **RightTriangle** that publicly inherits the **Shape** interface from the accompanying header file `Shape.h`. For the class, you must include the following:

- ☐ A private double array field for each of the sides of the triangle.
- ☐ A public default constructor that assigns 1 to each element that does not represent the hypotenuse and $\sqrt{2}$ to the element the represents the hypotenuse of the field.
- ☐ A public overloaded constructor that takes two double parameters. It assigns the parameters to the elements that do not represent the hypotenuse and it calculates and assigns the hypotenuse to the element that represents the hypotenuse of the field.
- ☐ A public copy constructor.
- ☐ A public assignment operator.
- ☐ A public empty destructor.
- ☐ A public overridden `Perimeter()` method. It returns the perimeter of the triangle.
- ☐ A public overridden `Area()` method. It returns the area of the triangle.
- ☐ A public overridden `ToString()` method. It returns a string of all the sides enclosed in curly braces. The sides most have two decimal places.
- ☐ A friend overloaded ostream operator. It displays the elements of the field in the same format as `ToString()`.