CSC 230: Elementary Data Structures and Algorithms

Homework One

<u>Objectives:</u>

To create an UML diagram
To create a class based on the UML
To execute the class

Assignment:

Part 1

Use Word, PowerPoint, Excel, or any other program you would like to create an UML diagram for a class called **Rectangle** that will have 2 data items, length and width, and 5 worker methods called setLength(), setWidth(), getLength(), getWidth(), and getArea(). The class and methods are public, and the fields are private. All data are doubles. The methods setLength and setWidth are void and the other three methods are doubles. There will be 1 constructor, the no-arg default one.

Once you have created the UML, save it as a PDF called **LastnameFirstInitalUMLpdf.** (Mine would be called KikuchiCUMLpdf

Part 2

Use Netbeans to create the class based on the UML. Use the instructions for **How to Have One Package with Multiple Classes** in the *Using Setter & Getter Methods and Building a Package with More Than One Class* mini lecture to create a package that holds both the Rectangle class and a main class. The package's name will be called Rectangle.

Hint: Look in your book in Revel to see Code Animation 9.1.

In the main class:

1. Above the class header, write a javadoc comment containing the integrity policy statement. Under the statement, but still in the block, type your first and last name for the signature, press Tab and type the date. You will not need to use underlining. You can see the integrity policy statement by going to Canvas: **Modules: Help Files> Integrity Policy Statement**.
2. Under the integrity statement, add comments on your program that show the title of the program (Rectangle), your first and last name, and the course name (CSC 230, Sec #). You may choose to use single line comments or a multiline docstring. Sec # will be your section #.
3. As the first print lines for your program under the main method, make sure that the run screen also prints the title of the program (Rectangle), your first and last name, and the course name (CSC 230, Sec #), and the program information as shown in the sample run screen.
4. When you call setLength() and setWidth() in the main program, use the arguments of **2.5** and **5.2,** respectively.
5. **Your program must compile**. Programs that do not compile will not be accepted.

To Submit this homework:

Go to your project folder, find the folder called Rectangle, and zip it.
Turn in, **via the Assignments area**:

1. The UML called LastnameFirstInitalUMLpdf
2. The Rectangle.zip file

SAMPLE RUN SCREEN (Variable values are shown as bold italics)

Rectangle
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CSC 230, Sec #

This program creates and uses a class called Rectangle.
The Rectangle class has one constructor and 5 other methods.
The setLength() method will set the length to 2.5.
The setWidth() method will set the width to 5.2.
The getLength() method will return the length.
The getWidth() method will return the width of the rectangle.
The getArea() method will return the length * width.

The rectangle's length is *2.5*
The rectangle's width is *5.2*
The rectangle's area is *13.0*