Assignment 9
Encapsulation

The point of this assignment is to cover a few of the basic principles of encapsulation.

Using the IDE

Remember that all code must be submitted in text format.

Initial Code & Output

Load the following code into the online compiler:

https://www.jdoodle.com/online-java-compiler/

Please copy the following code into the IDE, compile and run it.

```
// calculate area of rectangle using class in java

import java.io.*;
import java.util.Scanner;

public class EncapsulationDemo
{
  public static void main(String[] args)
  {

     // Create object of Rectangle class

     System.out.println("A09 - Written by Matt Weisfeld\n");

     Scanner console = new Scanner(System.in);

     // Input Strings
     String len=null, wid=null;
     int l=0,w=0;

     // Remove Comment to Create the Rectangle
     // Rectangle rect = new Rectangle(0, 0);

     // Begin while() loop here

     System.out.println("\nBye");
  }
}
```

This code covers a lot of programming concepts. Please take this opportunity to study the code and determine what is going on.

When you execute the code it will look something like this:

```
1  // calculate area of rectangle using class in java
2
3  import java.io.*;
4  import java.util.Scanner;
5
6  public class EncapsulationDemo
7  {
8      public static void main(String[] args)
9      {
10
11         // Create object of Rectangle class
12
13         System.out.println("A09 - Written by Matt Weisfeld\n");
14
15         Scanner console = new Scanner(System.in);
16
17         // Input Strings
18         String len=null, wid=null;
19         int l=0,w=0;
20
21         // Remove Comment to Create the Rectangle
22         // Rectangle rect = new Rectangle(0, 0);
23
24         // Begin while() loop here
25
26         System.out.println("\nBye");
27     }
28  }
```
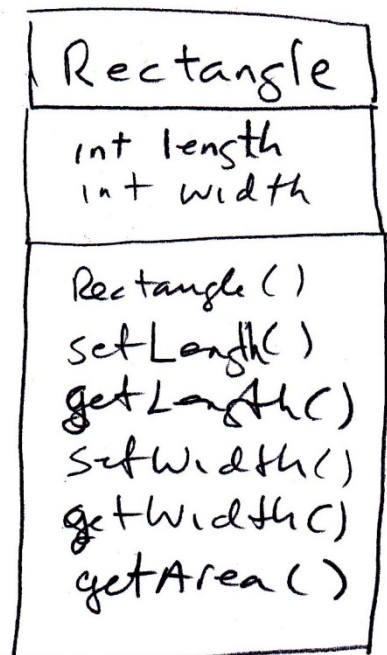
Problem

Note that this is simply a shell to get you started with a clean compile.

The task is to create a Rectangle class that follows the following UML specification.

Rectangle

int length
int width

Rectangle ( )
setLength( )
getLength( )
setWidth( )
getWidth( )
getArea ( )

Here are the constraints that you must include in your program.

1) Include an output statement at the beginning of the program with the assignment number and your name:

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2) Create a **single** Rectangle object called *rect*.
3) Implement a while() loop to accept User input for multiple area calculations (reset *rect*).
4) Implement a break statement to terminate the loop.
5) Each time through the loop, accept user input for 2 integer variables, length (*first*) and width.
6) Terminate the loop when the user enters 'x' for the length (*no need to enter width*).
7) Calculate the area of the current *rect*.
8) Print the area to the console (*using rects's getArea() method*).
9) Print out an exit greeting (Bye) when exiting the application.

Final Output

Once completed, your output (in the following test case) should look like this:

- Note the input box

What to Submit

A single Java text file should be submitted to Blackboard.