Name_____ Score_____

(Rectangle Class) Create a class ***Rectangle*** with attributes *length* and *width*, each of which defaults to 1.0. Provide methods that calculate the rectangle's perimeter and area. It has *set* and *get* methods for both *length* and *width*. It also has **two** constructors: one with no argument and another one that takes two arguments (i.e., the length and width). The set methods and constructors should verify that length and width are each floating-point numbers larger than 1.0 and less than 20.0 (otherwise, the default value should be used instead). You must also provide a *toString* method that clearly displays the rectangle's length, width, perimeter, and area.

Then write a program to test class *Rectangle* (this program should be implemented in another class) in which you create 2 rectangles (*Rectangle* instances) with its 2 different constructors (your program must prompt the user for the length and width inputs for one of the constructor). The program will display the information about the two rectangles (with use of *toString* method). Then choose one of the rectangles and change its width and length with a negative number and a number larger than 20.0, display the information about this rectangle again.

You must draw a UML class diagram for Rectangle (in the following space).

Over➔

How to Grade the Project (full score: **30** points):

- I'll use the following table to grade different portions of your program.
- If *I cannot compile your project successfully, the Implementation Total scores will be cut by half* (i.e., **multiplied by 0.5**).

UML diagram (**4 points**)	
Java Code Convention (**4 points**)	
Implementation (total **22 points**):	
constructors (**5 points**)	
set methods (**4 points**)	
get methods (**2 points**)	
toString method (**3 points**)	
calculatePerimeter and *calculateArea* methods (**3 points**)	
Rectangle testing class (**5 points**)	
Implementation total score:	
Compiled successfully?	

(**Bonus 6 points**) Add another constructor that receives a reference to another *Rectangle* object and test this constructor in the program..