**Programming** **Lab Exercise 7c**

Before you start:

Create a folder called l**ab7** inside your personal **java** folder you created at the start. Save all your work for lab 7 in this folder. As usual name your files according to the question e.g. **lab7cq1.java** unless otherwise requested in the question.

Using eclipse:

Your understanding of the concept of classes and methods are examined here, in particular:

1. Writing class definitions
2. Creating instances of classes
3. Calling object methods
4. Accessing data belonging to an object instance

Complete each question (successfully!) before you move on to the next one.

**Exercises:**

**Q1**.

Develop a java class called Rectangle. The class has attributes length and width, each of which defaults to 1 in the constructor. It has set and get methods for both length and width. The set methods should verify that length and width are each numbers larger than 0.0 and less than or equal to 40.0. Lastly, the class should have a toString() method which will return a string like the following:

"Length = 5, Width = 10”

Write a suitable driver program to test each of your methods in class Rectangle.

**Q2:**

Extend your Rectangle class in Q1 by adding two new methods getArea() and getPerimeter() that calculate the area and perimeter of the rectangle respectively. Test these by calling the new methods from your driver program.

**Q3:**

Extend your Rectangle class in Q1 by adding a new method printRectangle() which will draw the rectangle object by printing “\*” to delineate the edges.

e.g. if you create a rectangle object with width = 5 and length = 7 and call the printRectangle() method you should get the following output:

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Similarly, an object with width = 10 and length = 4, should output:

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