CSC120  
Homework 9  
Due Thursday, 11/29/2018

Part 1: Implement a Rectangle Class (i.e. write Rectangle.java program)

Implement a complete class called Rectangle which represents a rectangle.

Here are the specifications:

**Instance Variables (data members):** The class has two instance variables.

- length: an int representing the length of the rectangle.
- width: an int representing the width of the rectangle.

**Methods you must implement:**

- Default Constructor: Define a constructor with NO parameter and initializes the instance variables to default values.

- Two parameter Constructor: Define a constructor that takes two parameters (length and width) and initializes the instance variables accordingly.

- Copy Constructor

- Accessor methods (get methods)

- Mutator methods (set methods)

- area: This method should return the area of the rectangle.

- merge: This method takes a Rectangle type parameter. The method will create a new Rectangle object whose length is the sum of length of the calling object and the length of the parameter. Similarly, the width of the new Rectangle object is the sum of width of the calling object and the width of the parameter. A reference to the new Rectangle object should be returned. The calling object and the parameter object should not be modified.

- toString: Write the toString method associated with this class. The returned String has to be in the following form: “length : [length value here], width: [width value here]”.

- totalArea: This is a static method that takes an array of Rectangles as a parameter. The method returns the sum of the areas of the rectangles in the array.
Part 2: Write a driver to test All the methods defined in the above Rectangle class (i.e. write RectangleDemo.java program). Please give a sample output for your driver.