CSC 2310 – Spring 2016
Homework #1
Due 1/28/2016 11:30 pm

Submission Requirements
You must turn work at the SPECIFIED TIME so you can receive credit for Homework! Homework 1 ***must be submitted on brightspace*** *by the due date and time. Late homework will be subject to a penalty, as stated in the course grading policy. No email or hard copies of homework will be accepted.*

You may discuss the assignments with other students in the class, but (as stated in the academic honesty policy) your written answers ***must be your own****, and you must list the names of other students you discussed the assignment with.*

How to Submit

This homework has two parts - one part must be done in myprogramminglab.com *- the other part must be done in Eclipse and your .java file uploaded to brightspace. Please follow the directions carefully for each part.*
This homework is worth 2 individual grades so be prepared to spend some time on it!

Part a - MPL
Do all the questions from section 8.2 Object State and Behavior and section 8.3 Object Initialization: Constructors. Be sure to submit each of your answers. You get 3 tries, so if your answer is incorrect, you can still try again.
There are 25 questions in these sections so do not wait until the last minute!

Part b - Eclipse/Java

For this question you must write a java class called Rectangle and a client class called RectangleClient. The partial Rectangle class is given below. (For this assignment, you will have to submit 2 .java files: one for the Rectangle class and the other one for the RectangleClient class and 2 .class files associated with these .java files. So in total you will be submitting 4 files for part b of this assignment.)

```
// A Rectangle stores an (x, y) coordinate of its top/left corner, a
width and height.
public class Rectangle {
    private int x;
    private int y;
    private int width;
    private int height;

    // constructs a new Rectangle with the given x,y, width, and height
    public Rectangle(int x, int y, int w, int h)

    // returns the fields' values
    public int getX()
    public int getY()
    public int getWidth()
    public int getHeight()

    // returns a string such as {(5,12), 4x8}
    public String toString()

    ...
}
```

- Write an instance method called area that will be placed inside the Rectangle class. The method returns the area of the rectangle.
- Write another instance method called changeSize that will be placed inside the Rectangel class. This method changes the height and width of the rectangle. The method accepts newWidth and newHeight as parameters and changes the value of width and height to this new width and height.
- Write the client class RectangleClient that creates an object of class Rectangle and initializes its x coordinate, y coordinates, width and height to 5, 12, 4, and 8 respectively. Print out the x- coordinate, y-coordinate, width, height and area of this rectangle (use toString method to print the area). Then change the size of this rectangle to width = 3 and height = 10 and then print out the area again.

When you execute the RectangleClient file you result should look like:

x-coordinate : 5
y-coordinate : 12
Width : 4
Height : 8
Area : 32
Area after the size is changed : 30