**LAB 4**

**Classes – 10 points**

**Instructions:**

1. After downloading the lab assignment from Blackboard, please write the appropriate Java programs in BlueJ IDE.
2. If stuck anywhere, the instructor and the lab assistant are always there to help.
3. Lab assignments need to be uploaded onto Blackboard by the due date listed on Blackboard.
4. You would need to submit a .docx file. Copy-paste the written code and a sample run of the program.
5. Online resources can ‘definitely’ be consulted. However, please refrain from using content from the internet as-is. The mark of a good programmer is to write clean and genuine code – anytime, anywhere, and always.

Long:

1. Following the example of the Circle class in Section 9.2 from the textbook, design a class named Rectangle to represent a rectangle. The class contains: **(5 points)**
   * Two double data fields named width and height that specify the width and height of the rectangle. The default values are 1 for both width and height.
   * A no-arg constructor that creates a default rectangle.
   * A constructor that creates a rectangle with specified width and height.
   * A method named getArea() that returns the area of this rectangle.
   * A method named getPerimeter() that returns the perimeter.

Write a test program that creates two Rectangle objects – one with width 4 and height 40, and the other with width 3.5 and height 35.9. Display the width, height, area, and perimeter of each rectangle in the order stated.

1. Design a class named StopWatch. The class contains: **(5 points)**
   * Private data fields startTime and endTime.
   * A no-arg constructor that initializes startTime with the current time.
   * A method named start() that sets the startTime to the current time.
   * A method named stop() that sets the endTime to the current time.
   * A method named getElapsedTime() that returns the elapsed time for the stopwatch in milliseconds.