**Assignment 3**

The assignment is graphics-drawing program (see the screen capture below). Here is how the program is supposed to work: clicking a shape button allows drawing a *fixed-size* shape (circle, rectangle, or triangle), and then clicking the mouse on the “canvas” would draw/produce a shape at the mouse location. Note that all previously drawn shapes are always visible.

**Requirements:**

1. *Design and implement the program as specified above.*
2. *Produce a UML diagram about the relations of the classes and/or interfaces used in the program.*
3. *Briefly explain your design consideration: Is there a design goal you wanted to accomplish? Why did you create that class, and what was it good for? Is there a way that your program could have been simpler? In what aspect, if any, is the design flexible?*

**Design considerations:**

It’s possible that you may later add additional buttons for more shapes. If the method paintComponent() creates a shape before it draws it, then you would have to modify the code when changes happen. Instead, you may design a “factory” to “manufacture” a shape when mouse is clicked. When changes happen, the “factory” would have to be modified, but the middle-level code (in paintComponent()) is protected from being modified. Here might be a sequence of events:

When a button is clicked, relevant message is delivered to and stored in a factory, and repaint() is then called, which in turn calls paintComponent() method: the new shape (whatever it might be) is retrieved from the factory (Shape newShape = shapeFactory.getShape();), added to the shape collection, and then the whole collection is re-drawn.

That being said, you **feel free** to make your own design decisions, and describe it in above Requirement 3.

