CSE 4361/5322: SOFTWARE DESIGN PATTERNS

Spring 2020

Homework 2 12%

Due: 04/30/2020 11:59PM

1 What To Do

This homework requires the student to design and implement in Java a simple application and apply the following patterns:

1. Controller
2. Expert
3. Observer (e.g., Java ActionListener API)
4. Adaptor
5. Iterator
6. Composite
7. Command

When the application starts, it displays a window containing four buttons and a drawing area called canvas. The buttons are labeled "Line," "Box," "Undo" and "Redo," respectively. When any of the shape buttons is clicked, and then the mouse is pressed in the canvas, the corresponding shape is drawn in the canvas at the location clicked. When the Undo or Redo button is clicked, the last shape is removed or redrawn. Figure 1 shows a sample window with a box and a circle created.

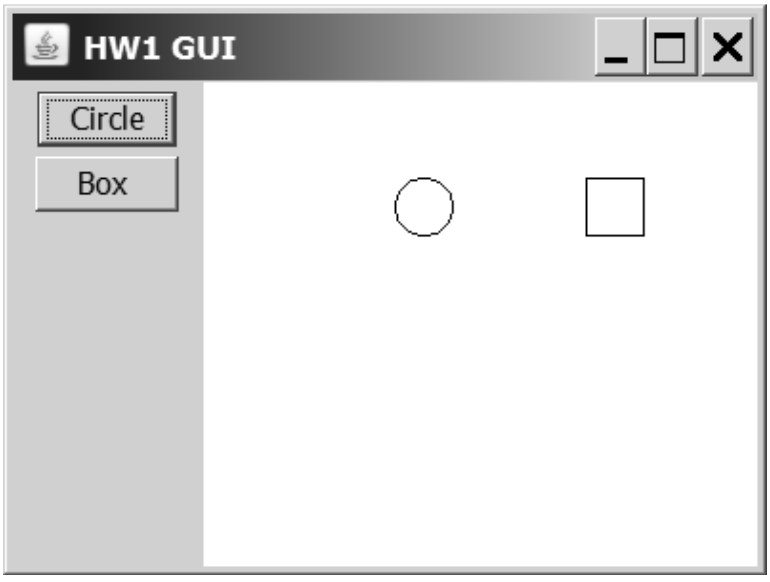

Figure 1: Sample window with a circle and box created

2 What to Produce and Submit

The student is required to produce and submit the following:

1. Produce and submit a design class diagram for the simple application. Use UML stereotype or UML note to indicate the patterns applied.
2. Implement the design in Java. You may use Swing or AWT, whichever you prefer. Provide comments in your code to show the patterns you apply.

   To save your effort, partial code that implements the GUI will be provided on Canvas. You can reuse this code or write your own code.
3. Compile and run your application. Add two circles and two boxes, some of these must overlap (which can be the same shape or a different shape). Produce and submit screen shots to show the shapes, as well as illustrate the working of the Undo and Redo buttons.

3 How To Submit

Submit the design class diagram, Java source code, executable byte code and screen shuts according to instructions given by the TA before the deadline.