Homework 4 Select and Highlight

Due: Friday, October 26, 2012

This is an expansion from the previous homework assignment. The GUI interface allows user selection of a specific shape object and highlight it as shown in the following examples.

![Figure 1. Selecting various types of shape objects by mouse clicking in ShapeSplashApp.](image)

(a) selecting a Shape object  
(b) selecting a Circle object  
(c) selecting a Triangle object  
(d) selecting a Rectangle object

The solution of HW3 is provided on the course website with some changes in the Shape class to support the new task. Your development task is to modify ShapeFactory and ShapeSplashApp to support the new feature of shape selection and highlighting.

Details of the submission requirements are as follows:

1) Submit ShapeSplashApp.java. The Java interface MouseListener can be used to user action of mouse clicking on a JPanel object. It contains the following methods:
public void mousePressed(MouseEvent e);
public void mouseReleased(MouseEvent e);

The MouseEvent class provides the methods of int getX() and int getY() which return the location of the mouse when the event is triggered.

2) Submit updated ShapeFactory.java. The class needs to support the search of a Shape object given a mouse location. Design a search method to return the first Shape object that covers a given mouse location (x, y). Design a data structure so the search result can be presented in the painting procedure to highlight the selected one. Make sure you add a block of header comment to describe the changes you have made to the class. The comment will be graded.

Extra credit challenge: Make the selected shape object follow the mouse when it is dragged. The Java built-in interface of MouseMotionListener supports dragging operation.