Exercises: Event Handling

Try to do all of the first four. If you have time left over, pick and choose among the remaining three.

1. Make a popup window (JFrame) whose content pane (JPanel) toggles back and forth between red and blue each time you click in the window. Use a separate class as the mouse listener. Note that you don’t need to manipulate any data structures in the JPanel or call repaint (as in the more complex circle-drawing examples in the lecture). However, your mousePressed method still needs to be able to call the panel’s setBackground method (or call a custom method in the panel that uses set-Background internally).

2. Repeat the previous problem, but this time put the mousePressed method directly in the JPanel subclass.

3. Repeat the previous problem, but this time use a named inner class.

4. Repeat the previous problem, but this time use an anonymous inner class. This is simple if you start by copying and renaming your solution to problem 3.

5. Make a popup window that turns red when you press “r”, yellow when you press “y”, green when you press “g”, and blue when you press “b”. Use a KeyListener or KeyAdapter, and the keyTyped method. The notes show how to get a String from the KeyEvent. However, panels normally ignore keyboard events, so to make them respond, you must add these two lines to the constructor of your JPanel subclass:

   ```java
   setFocusable(true);
   requestFocusInWindow();
   ```

6. Make a popup window that is red when the mouse is on the left side of the window, and blue when it is on the right side of the window. Use a MouseMotionListener or MouseMotionAdapter, and the mouseMoved method. This method gets re-fired every few pixels.

7. [Harder] Copy one of my circle-drawing examples from the event-handling project. If you want the one that uses named inner classes, copy Circle, CirclePanel, CircleFrame3, and CirclePanel3. Now, update the logic in mousePressed so that it adds a circle when you left-click anywhere, but removes a circle if you right-click on top of an existing circle. Hint 1: google for “distance formula” if you don’t remember it from high school. Hint 2: Don’t worry about overlapping circles; just remove the first circle in the List that contains the (x,y) point of the right-mouse click.