

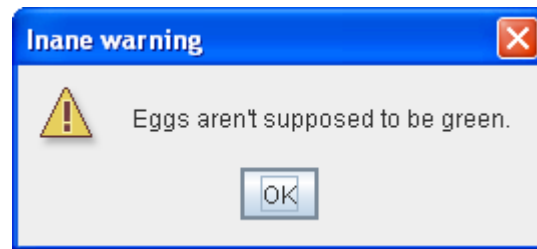
CS251: Project 5

Swing Tutorial

Pseudocode for MapEditor, MapViewer

Dialog Box

- For most simple modal dialogs, you create and show the dialog using one of JOptionPane's showXxxDialog methods.
- Example:



```
//custom title, warning icon
JOptionPane.showMessageDialog(frame,
    "Eggs are not supposed to be green.",
    "Inane warning",
    JOptionPane.WARNING_MESSAGE);
```

Filechooser

- The JFileChooser API makes it easy to bring up open and save dialogs

- Example:



The call to `showOpenDialog` appears in the `actionPerformed` method of the Open a File button's action listener:

```
public void actionPerformed(ActionEvent e) {
    //Handle open button action.
    if (e.getSource() == openButton) {
        int returnVal = fc.showOpenDialog(FileChooserDemo.this);

        if (returnVal == JFileChooser.APPROVE_OPTION) {
            File file = fc.getSelectedFile();
            //This is where a real application would open the file.
            log.append("Opening: " + file.getName() + "." + newline);
        } else {
            log.append("Open command cancelled by user." + newline);
        }
    } ...
}
```

Labels

- With the JLabel class, you can display unselectable text and images
- Example:



```
ImageIcon icon = createImageIcon("images/middle.gif");  
.  
.  
.  
label1 = new JLabel("Image and Text",  
                    icon,  
                    JLabel.CENTER);  
//Set the position of the text, relative to the icon:  
label1.setVerticalTextPosition(JLabel.BOTTOM);  
label1.setHorizontalTextPosition(JLabel.CENTER);  
  
label2 = new JLabel("Text-Only Label");  
label3 = new JLabel(icon);
```

Menu

- A menu provides a space-saving way to let the user choose one of several options. Other components with which the user can make a one-of-many choice include combo boxes, lists, radio buttons, spinners, and tool bars.
- Example:

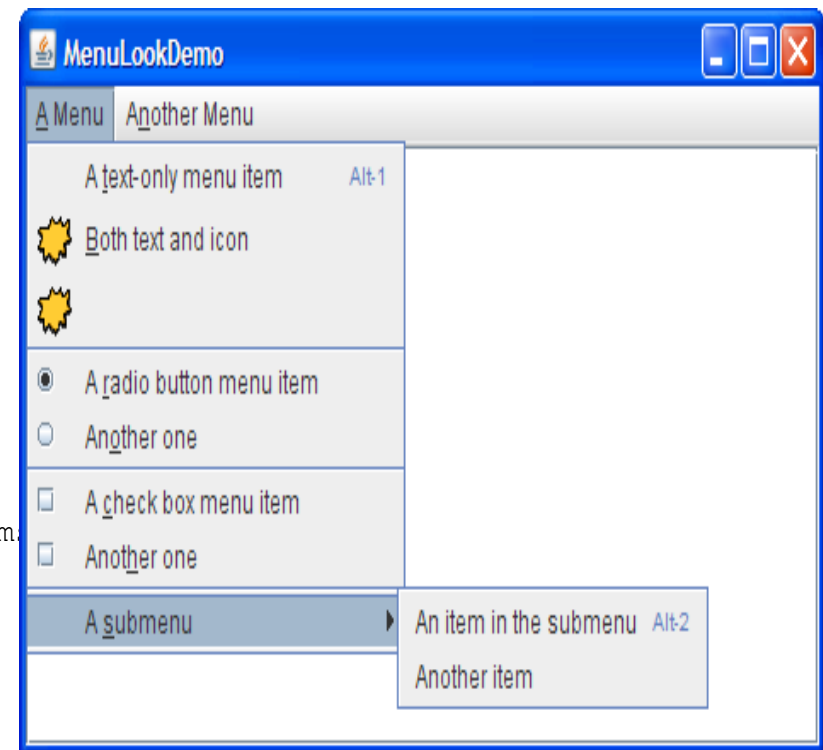
```
//Where the GUI is created:
```

```
JMenuBar menuBar;  
JMenu menu, submenu;  
JMenuItem menuItem;
```

```
//Create the menu bar.  
menuBar = new JMenuBar();
```

```
//Build the first menu.  
menu = new JMenu("A Menu");  
menu.setMnemonic(KeyEvent.VK_A);  
menu.getAccessibleContext().setAccessibleDescription(  
    "The only menu in this program that has menu items");  
menuBar.add(menu);
```

```
//Build second menu in the menu bar.  
menu = new JMenu("Another Menu");  
menu.setMnemonic(KeyEvent.VK_N);  
menu.getAccessibleContext().setAccessibleDescription(  
    "This menu does nothing");  
menuBar.add(menu);
```



Writing Event Listeners

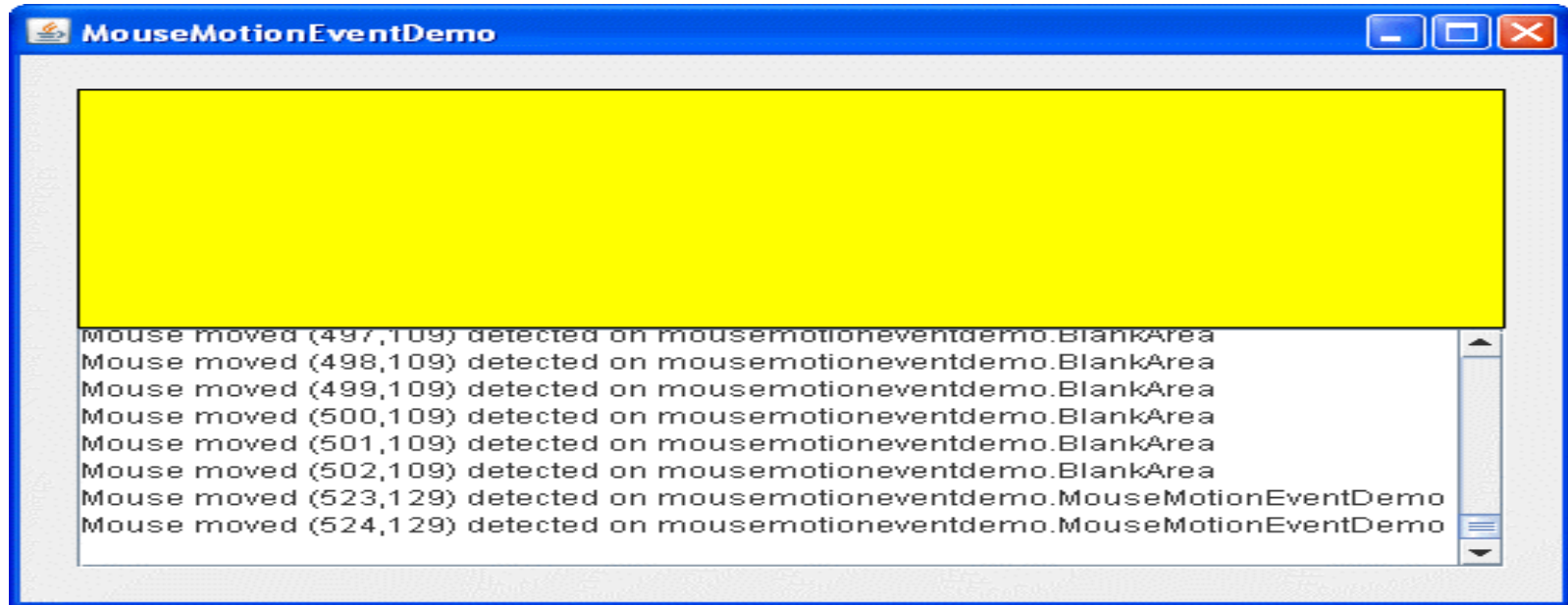
- Once the Beeper has been registered using the Button addActionListener method, the Beeper's actionPerformed method is called every time the button is clicked.
- Example:



```
public class Beeper ... implements ActionListener {  
    ...  
    //where initialization occurs:  
    button.addActionListener(this);  
    ...  
    public void actionPerformed(ActionEvent e) {  
        ...//Make a beep sound...  
    }  
}
```

Writing Event Listeners- Mouse-Motion Listener

- Example:



```
public class MouseMotionEventDemo extends JPanel
    implements MouseMotionListener {

    //...in initialization code:
    //Register for mouse events on blankArea and panel.
    blankArea.addMouseMotionListener(this);
    addMouseMotionListener(this);
    ...
}

public void mouseDragged(MouseEvent e) {
    saySomething("Mouse dragged", e);
}

void saySomething(String eventDescription, MouseEvent e) {
    textArea.append(eventDescription + " (" + e.getX() + "," + e.getY() + ") "
        + " detected on "
        + e.getComponent().getClass().getName()
        + newline);
}
}
```

MapEditor - Summary

- Add File Menu items.
- XML format saving of maps.
- Class/Access methods to hold locations/paths.
- Keep track of current modes and incoming events
- Zoom options

MapView - Summary

- Open saved XML Files.
- Shortest path implementation and graphical representation.
- MST implementation and graphical representation.

More Sample Codes. Explore!

- <http://docs.oracle.com/javase/tutorial/uiswing/painting/step3.html>
- <http://docs.oracle.com/javase/tutorial/uiswing/components/scrollpane.html>
- <http://docs.oracle.com/javase/tutorial/2d/basic2d/index.html>