121 Discussion 4/26/2010

Announcements: Final: 5/13;
4/26-tonight- OWL assignment #12 due
4/28 - embedded 13 due
5/3 - OWL assignment #13 due

Topics from last week: more on the event model –
action listeners, and mouse listeners. How about
this example:

import java.awt.*; import javax.swing.*;
import java.awt.event.*;

public class LineClicker extends JPanel implements MouseListener{
    private int newX = 0;
    private int newY = 0;
    private int gap = 5;

    public LineClicker(){
        setPreferredSize(new Dimension(600,600));
        addMouseListener(this);
    }
    public void paintComponent(Graphics g){
        super.paintComponent(g);
        int y = 0;
        while (y < newY){
            g.drawLine(0,0,newX,y);
            g.drawLine(600,0,newX,y);
            y = y + gap;
        }
    }
    public void mouseClicked(MouseEvent e){
        newX = e.getX(); newY = e.getY();
        repaint();
    }
    public void mouseEntered(MouseEvent e){}
    public void mouseExited(MouseEvent e){}
    public void mousePressed(MouseEvent e){}
    public void mouseReleased(MouseEvent e){}
}
With this driver:

```java
import java.awt.*;
import javax.swing.*;
import java.io.*;

public class ClickTester{

    public static void main(String[] args)
    {
        try{
            DisplayWindow display = new DisplayWindow();
            LineClicker w = new LineClicker();
            display.add(w);
            display.showFrame();
        }
        catch(Exception e)
        {
            e.printStackTrace();
        }
    }
}

Questions:
1) What kind of thing is MouseListener?
2) Who listens for mouse clicks?
3) Why the four funny methods at the end of the LineClicker definition?
4) In the MouseClicked method, what kind of object is e?
5) What does this application do? (what happens when you click in the window)?
6) If you click a second time in the window, what happens?
7) What role does the variable gap play – and could gap be defined locally inside paintComponent?
8) What roles do newX and newY play – and could they be defined locally inside paintComponent?
9) How would you set the background color to green?
10) How would you add a quit button to the application?
11) How would you add a (swing) mechanism for altering the value of gap?
```

Revised LineClicker code with new elements..
import java.awt.*; import javax.swing.*
import java.awt.event.*;

public class LineClicker extends JPanel implements MouseListener, ActionListener{
    private int newX = 0;
    private int newY = 0;
    private int gap = 5;
    private JTextField gapVal = new JTextField(15);
    JButton quit = new JButton("Quit");

    public LineClicker(){
        setPreferredSize(new Dimension(600,600));
        this.add(gapVal); this.add(quit);
        quit.addActionListener(this);
        addMouseListener(this);
    }

    public void paintComponent(Graphics g){
        super.paintComponent(g);
        int y = 0;
        while (y < newY){
            g.drawLine(0,0,newX,y);
            g.drawLine(600,0,newX,y);
            y = y + gap;
        }
    }

    public void mouseClicked(MouseEvent e){
        newX = e.getX(); newY = e.getY();
        String s = gapVal.getText();
        if(s.length() > 0){
            try{
                gap = Integer.parseInt(s);
            }
            catch(Exception ex){System.out.println(s + " not an int: try again");}
        }
        repaint();
    }

    public void actionPerformed(ActionEvent e){
        if(e.getSource() == quit) System.exit(0);
    }
}
public void mouseEntered(MouseEvent e) {} 
public void mouseExited(MouseEvent e) {} 
public void mousePressed(MouseEvent e) {} 
public void mouseReleased(MouseEvent e) {}
}