

CSSE 220 Day 4

Introduction to Java Graphics

Check out *IntroToJavaGraphics* from SVN

Questions?

Viewing Grader Comments in Eclipse

- ▶ Open your homework project
- ▶ Right-click and choose Team → Update
- ▶ Configure Eclipse to show task tags for:
 - **TODO, FIXME, and CONSIDER**
- ▶ Here's how:
 - Window → Preferences
 - Java → Compiler → Task Tags
 - Use New... button to add missing task tags
 - Exit preferences, may need to rebuild project
- ▶ Now Task View shows graders comments!

Today

- ▶ Basics of Java graphics
- ▶ Mostly live coding
 - Follow along in your own Eclipse
 - You'll need the examples for homework
 - Stop me if I'm going to fast
 - This isn't a typing speed contest

Simplest Java Graphics Program

```
import javax.swing.JFrame;
/**
 * From Ch 2, Big Java.
 * @author Cay Horstmann
 */
public class EmptyFrameViewer {
    /**
     * Draws a frame.
     * @param args ignored
     */
    public static void main(String[] args) {
        JFrame frame = new JFrame();
        frame.setSize(300,400);
        frame.setTitle("An Empty Frame");
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setVisible(true);
    }
}
```

This code is already in your project for today

Creates a graphics frame object

Configures it

Display the frame

Tells Java to exit program when user closes the frame

Live Coding

- »» MyViewer and MyComponent
(Based on RectangleViewer
and RectangleComponent
from Big Java)

Other Shapes

- ▶ `new Ellipse2D.Double(double x, double y, double w, double h)`
- ▶ `new Line2D.Double(double x1, double y1, double x2, double y2)`
- ▶ `new Point2D.Double(double x, double y)`
- ▶ `new Line2D.Double(Point2D p1, Point2D p2)`

- ▶ Try these!
 - Add an ellipse and both kinds of lines to `MyComponent`

Interlude

- ▶ Ivan Sutherland's Sketchpad
 - 1962
 - The first GUI?
 - The first object-oriented system
- ▶ Alan Kay narrating video of Sketchpad:
 - <http://www.youtube.com/watch?v=495nCzxM9PI>

Adding Text

- ▶ To add some text to a component:
 - `graphics2.drawString("some text", x, y);`
- ▶ You can change the font *before* drawing the text:
 - `Font f = new Font("Times New Roman",
Font.PLAIN, 72);
graphics2.setFont(f);`

Style. Other alternatives are:
Font.BOLD,
Font.ITALIC, and
Font.BOLD | Font.ITALIC

Font size in
points

Colors

- ▶ To change the Graphics2D object's "pen" color:
 - `Color c = ...; // see below
graphics2.setColor(c);`
- ▶ Lots of colors:
 - `new Color(red, green, blue)`, all from 0 to 255
 - `Color.RED`, `Color.WHITE`, etc. (see Javadocs)
 - `new Color(red, green, blue, alpha)`, all from 0 to 255. *alpha* is transparency
- ▶ To fill interior of shape:
 - `graphics2.fill(box);`

Work Time

- »» Get started on homework for next time.
I expect CircleOfCircles to be more challenging