



Java2D Graphics

3/13/2008





Opening Discussion

- Let's look at solutions to the interclass problem.
- Do you have any questions about the assignment?
- Do you have any questions about the reading?





Midterm Results

- Here's the distribution:

- A – 6
- B – 4
- C – 3
- D – 2
- F – 1

- Question #7 was very frustrating to grade. It was a restatement of one of the quiz questions.

Everyone should have aced it, but many lost lots of points.





- You can do lots of things with the standard GUI elements in Swing. We've been able to set up quite a bit of a GUI using that. However, no GUI can predict everything that you will want to do and we want to be able to add custom drawing to our application.
- For this we will rely on the Java2D library. Java2D was added about the same time Swing was and it is fundamentally based on the Graphics2D class. There is also a Graphics class that provides more basic custom graphics capabilities. Graphics2D inherits from Graphics so it can do all the same things and more.

Making Custom Drawn Components

- There are three steps to making a component class that we can do custom drawing to.
 - ◆ Make a new class and have it inherit from JComponent or a subtype of it. We'll use JPanel.
 - ◆ Override the paintComponent method in your class.
 - ◆ Draw with the Graphics object that was passed into the paintComponent method.
- Let's look a bit at the Graphics2D class to see what some of the possibilities might be for what we can draw.
- Now we can do these steps in our program to make a central panel we can draw to.

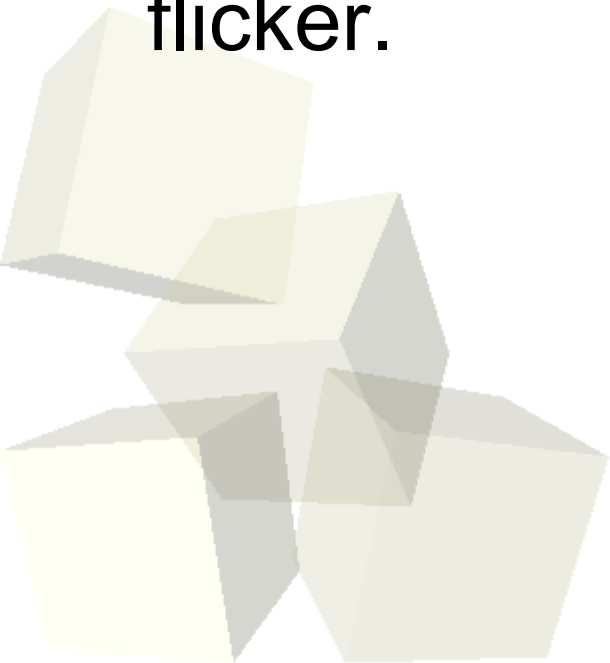


- There are several things that we can set on the Graphics2D object that are used when we draw things. Here are some:
 - ◆ Paint – could be a color, but there are also gradients and textures
 - ◆ Stroke – determines how lines are drawn
 - ◆ Font – how you want text to appear
 - ◆ Transform – AffineTransform allows translate, rotate, scale, or shear
 - ◆ Composite – how colors combine when you draw over old stuff
 - ◆ Clip – where your drawings will appear
 - ◆ Render hints – other things like antialiasing



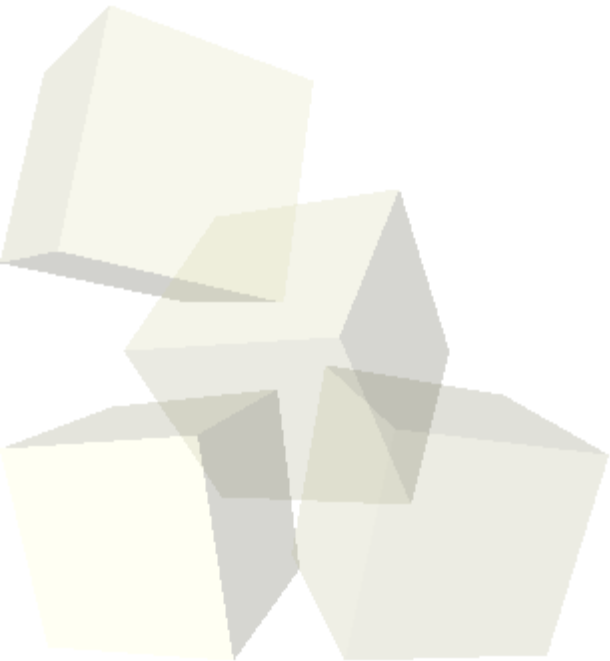
More General Drawing

- Of course, Graphics2D objects aren't limited to just drawing on components.
- The Image class (and its subtype BufferedImage) will let you get Graphics objects that you can draw to and what you draw will be on the image.
- We'll typically do this even if we are drawing to a component to implement buffering which reduces flicker.





- Let's play with our panel some to experiment with the drawing options.





- What are you going to be doing for Spring Break?
- Try not to forget too much over the break.
Remember that this is a creative venture and you need to exercise your abilities to grow them and also so they don't atrophy.
- You will have one lecture on the Tuesday after Spring Break by Dr. Massingill.
- Interclass Problem – This will be for the Tuesday in the second week after Spring Break. Write a simple drawing program similar to Paint. Use buttons for selecting at least rectangles, ellipses, and lines. Use the mouse to draw things. Have color options with JColorChooser.