

Slide 1

Administrivia

- Quiz 5 moved to next week.
- Due date for Homework 5 moved to Thursday.
- More GUI examples on “sample programs” Web page.
- My course next term (CSCI 3294, “Unix Power Tools”) — for more information, check syllabus/notes from previous years under “Old course materials” on Web page.

Slide 2

Miscellaneous Hints and Tips

- `instanceof` operator can be used to check whether an object is an instance of a particular class (or interface). Can “cast” to tell compiler to treat object as specified type.
- Classes-within-classes should often be private. When should they be static? when they don’t need access to variables of object. E.g., in list classes, class for list nodes should probably be static, but class for iterator over list probably shouldn’t be.

Graphics in Java — Custom Components

Slide 3

- Predefined components (`JButton`, etc.) do a lot, but what if you want something that's not provided? in particular, you want to control the image yourself?
- Make a custom component — define a subclass of a component that provides some of the needed functionality, and override the method that defines what's displayed.
E.g., subclass `JPanel` and override `paintComponent`, to include your code to "paint" the panel.
- Call `repaint` when ready to redisplay.

Custom Painting

Slide 4

- Method to override is

```
public void paintComponent(Graphics g).
```

`g` is a "graphics context" that you can draw on. (Actually it's a `Graphics2D`.) Tutorial recommends calling `super.paintComponent(g)` before doing anything else.
- Can get dimensions of panel with `getSize`, `getHeight`, `getWidth`, `getInsets`.
- Can set colors, draw shapes, lines, text, etc., etc. — see `Graphics` and `Graphics2D` class. Coordinate system is similar to what you're using in your game. See code in `BasicBlock` for simple example.

Custom Painting, Continued

- General advice — look over the methods of `Graphics` and `Graphics2D`; if confused, follow links to tutorial(s) and look for a suitable example to adapt.
- Let's look at example(s) ...

Slide 5

Minute Essay

- In the example shown in class (`ShowImageFromFile` on sample programs page), what would you put in `paintComponent` in `ImagePanel` to fill the panel with a white rectangle with an outline of a red rectangle inside?

Slide 6

Minute Essay Answer

- You could do something like the following:

```
g.setColor(Color.white);  
g.fillRect(0, 0, getWidth(), getHeight());  
g.setColor(Color.red);  
g.drawRect(20, 20, getWidth()-40, getHeight()-40);
```

Slide 7