Administrivia

- Reminder: Homework 5 due this week (design today, code Thursday).

Slide 1

Java GUI Libraries — Recap

- Many, many classes for GUI components — pre-defined components (e.g., `JButton`), containers (e.g., `JPanel`).

- How things are arranged on screen is controlled by "layout manager". Can nest containers, giving them different layout managers.

- How things work depends on "event listener" methods. Good use of anonymous inner classes.

Slide 2

Java GUI Libraries — Design Tips

Slide 3

- Probably better not to mix AWT and Swing unless necessary (e.g., unless you're doing an AWT-only program, prefer `JFrame` to `Frame`).

- To find out how to use components — skim online API, Sun tutorials (follow links from API), look for examples similar to what you want to do.

- For small programs, okay to put GUI and underlying data all in one class. For larger programs, consider separating them — "Model/View/Controller" design pattern.

- GUI components that must be accessed by more than one method — e.g., by listener methods — should be instance variables. Other components can often be declared locally in constructor.

Java GUI Libraries — Gotchas

Slide 4

- Be sure all changes to GUI components are done in JVM's event-dispatching thread. (That's the point of the odd-looking code in the sample programs' main method — makes sure everything is constructed in this thread.)

- Local variables used in / passed to anonymous inner classes must be `final`. (Apparently this is because the class is passed a snapshot of these variables, and it's not clear that makes sense if they're not immutable.)

Example(s)

- Revisit example(s) from last time (slightly updated).

- Then let's write a simple calculator program . . . .

Slide 5

Minute Essay

- The game framework will allow you to add panels to any or all four sides of your game. You can display info (text is easiest) or include GUI components for additional user input (e.g., click a button to speed up the player). You can also add to the menu bar.

  How might this be helpful for your game?

Slide 6