

Java GUI Libraries
Java being an evolving language, it has two groups of GUI-related classes:

Abstract Window Toolkit (AWT) — older, "look and feel" consistent with platform's windowing system.
Swing — newer, more extensive, look and feel more aimed at being consistent across platforms. Makes use of AWT components.

Many, many classes to build GUIs:

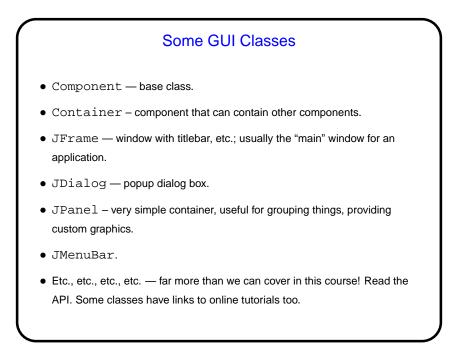
GUI elements — buttons, labels, text boxes, menus, etc., etc., etc., etc.
"Containers" to group elements and arrange them for display.
"Listeners" and "events" to allow program to respond to user input.

Programs are "event-based" or "event-driven", can seem a little different from traditional text-in/text-out programs.

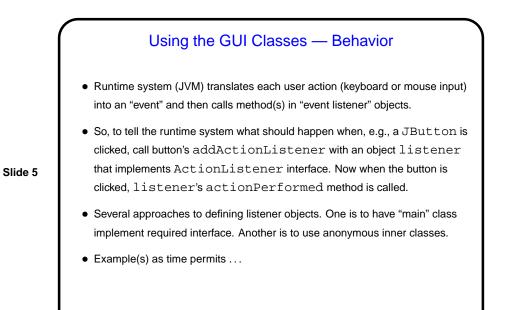
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## Using the GUI Classes — Appearance When using predefined components, key issue is how they're grouped into container and how things are laid out within each container. Preferred method is to use a layout manager — places elements in some reasonable way, does something reasonable if container is resized. Simple layouts include FlowLayout, GridLayout, BorderLayout, BoxLayout. GridBagLayout provides more control, but is more complex. Some of them expand components to fit, others lay them out at their minimum size. See API and tutorials for more info. Often makes sense to group elements hierarchically — JPanel is useful for that.



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