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Summary: Java Swing

- Overview
  - A GUI is a "Graphical User Interface."
  - Most users prefer not to interact with a command prompt.
    - GUI's create a user-friendly environment.
  - Extending the Java Swing classes is helpful by allowing you to automatically add the Swing components.
- JFrame
  - The overall container or window to all other GUI components.
  - Set window height and width: setSize(int width, int height), where width and height are in pixels.
  - Use .add(Component component) to add panels or other components to the JFrame.
- JPanel
  - Is a subdivision of the frame that contains components.
  - Use .add(Component component) to all of the components inside of a panel before using add(Component panel).
  - Panels are nestable.
- JLabel
  - Can display either text, an image, or both.
  - Does not take user input.
- JTextField/JTextArea
  - Creates a possibly editable (by the user) text field for user input or program output
  - Retrieve text using .getText().
  - A TextField is only a single line long
    - Specify length by number of characters (Within constructor)
  - A TextArea can be multiple lines long
    - Specify size by rows and columns (Within constructor)
    - Can add scroll bars using JScrollPane(TextArea textarea).
- Buttons
  - Allows the program to present a finite set of choices to the user.
  - JButton
    - Is the implementation of the "push" button.
    - Usually includes ActionListeners
  - JToggleButton - JCheckBox/JRadioButton

- JCheckBox and JRadioButton extend JToggleButton
- JCheckBox
  - Allows multiple options to be selected.
- JRadioButton
  - Allows only one option to be selected.
  - Must be added to a ButtonGroup.
  - JComboBox
    - Creates a drop-down menu or list.
    - Convenient for a large number of choices.
    - Use .add(String string) to add options to the list.
- Layout Management
  - Flow Layout (default)
    - Fills left to right, and goes to the next line when needed.
  - Border Layout
    - Groups components into: Center, North, West, South, and East.
  - Grid Layout
    - Arranges components in a grid with a fixed number of rows and columns
    - Resizes each of the components so that they all have the same size.
  - Use the .setLayout(LayoutManager layoutmanager) to define the type of layout.
  - Use the idea of "nestable JPanels" to your advantage.
- Menus
  - A frame contains a menu bar. The menu bar contains menus. A menu contains submenus and menu items.
  - Menu items generate action events. Submenus don't use action events.
  - Use the .add(JMenuItem menuitem) or .add(String string) methods to add menu items and submenus.

Extra Resources

Java Swing API:

http://download.oracle.com/javase/1.4.2/docs/api/javax/swing/package-summary.html

Visual Guide to Swing Components:

http://download.oracle.com/javase/tutorial/ui/features/components.html