GUI I

IS 313

2.6.03
Outline

- Quiz
- Quiz solution
- GUI components
- Layout
Simple Swing Application
Standard UI program

- Main program
  - Creates a window
  - Adds components
  - Displays

- Component maker
  - Creates, customizes components
  - Sets event handlers
Application Architecture
Java UI Topics

- UI Components
- Containment hierarchy
- Layout management
- Event handling
Top-Level Components

Applet  Dialog  Frame
Intermediate Containers

- Panel
- ScrollPane
- SplitPane
- TabbedPane
- Toolbar
Basic Controls

Buttons
- Check 1
- Radio 2
- OK

ComboBox
- Monday
- Tuesday
- Wednesday
- Thursday
- Friday

List
- January
- February
- March
- April

Menu
- Theme
- Help
- Metal
- Organic
- Metal2

Slider

TextField
- George Washington
- Thomas Jefferson
- Benjamin Franklin
- Thomas Faine
Non-editable Display

Label  ProgressBar  ToolTip

Label 1  [Progress Bar Image]  [ToolTip Image]
Editable Display

Table

<table>
<thead>
<tr>
<th>First Name</th>
<th>Last Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark</td>
<td>Andrews</td>
</tr>
<tr>
<td>Tom</td>
<td>Ball</td>
</tr>
<tr>
<td>Alan</td>
<td>Chung</td>
</tr>
<tr>
<td>Jeff</td>
<td>Dinkins</td>
</tr>
</tbody>
</table>

Text

Verify that the RJ45 cable is connected to the WAN plug on the back of the Pipeline unit.

Tree

```
- [ ] Tree View
  - [ ] drawing
  - [ ] treeview
```
Text Components

This is an editable JTextArea that has been initialized with the `setText` method. A text area is a "plain" text component, which means that although it can display text in any font, all of the text is in the same font.

This is an uneditable JEditorPane, which was initialized with HTML text from a URL.

This is an editable JEditorPane, another styled text component, which supports embedded components...

...and embedded icons...
Examples

- Example 2
  - two-tiered architecture
- Example 3
  - specialized component design
Layout Manager

- Maintains topological relationship between components
- Follows a set of layout rules
- Uses constraints specified by the programmer
Border Layout

Java Applet Window
Border Layout

- Topology
  - Two-dimensional distribution

- Rules
  - Corner and edge components = preferred size
  - Center component = all extra

- Constraints
  - Component sector
Flow Layout

Java Applet Window

FlowLayout

Button 1  2  Button 3  Long-Named Button 4  Button 5

Java Applet Window

FlowLayout

Button 1  2  Button 3

Long-Named Button 4  Button 5
Flow Layout

- Topology
  - One-dimensional adjacency

- Rules
  - All components = preferred size

- Constraints
  - Order of insertion
Grid Layout
Grid Layout

- Topology
  - Two-dimensional distribution

- Rules
  - All components = same size

- Constraints
  - Order of insertion
  - Left-to-right
  - Top-to-bottom
GridBag Layout
GridBag Layout

- Topology
  - Two-dimensional distribution

- Rules
  - Components = preferred size
  - Extra space allocated using constraints

- Constraints
  - Grid location, cell span, padding
  - Fill dimension
  - Weight
Box Layout

Java Applet Window

BoxLayout

Button 1
2
Button 3
Long-Named Button 4
Button 5

Java Applet Window

BoxLayout

Button 1
2
Button 3
Long-Named Button 4
Button 5

Java Applet Window
Box Layout

- Topology
  - One-dimensional stacking

- Rules
  - Components = preferred size
  - Extra space allocated using special purpose "filler components"

- Constraints
  - Alignment
  - Order of insertion
Example I: ListDialog
Example Layout II
Example Layouts III
Example Layout IV