

Graphical User Interfaces

COP3330 - Fall 2006
University of Central Florida

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Outline

- Background
- Swing Concepts
- Basic Components
- Listeners

Background

- GUIs and Java
 - **Problem:** A functional and good looking graphical user interface must be able to handle many operations from different types of components. This is a lot of programming. How do we even create graphics?
 - **Solution:** Pre-made classes to handle all the common GUI components. (Toolkit)

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Background

- AWT
- Swing
- SWT

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Swing Concepts

- Frame (JFrame)

```
JFrame window = new JFrame("Window Title");  
window.setVisible(true);
```

- Components
 - Listeners
-

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Swing Concepts

- Layouts
 - FlowLayout
 - BorderLayout
 - GridLayout

```
window.setLayout(new FlowLayout());
```

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Basic Components

- JLabel: Text (usually short) to label something

```
...
JLabel name = new JLabel("Enter Name: ");
window.add(name); //may also contain parameter for layout
```

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Basic Components

- JButton: A button with text

```
...
JButton submit = new JButton("Submit");
//button with an image:
ImageIcon cancelIcon = new ImageIcon("cancel.gif");
JButton cancel = new JButton("Cancel", cancelIcon);

window.add(submit);
window.add(cancel);
```

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Basic Components

- JCheckBox
- JRadioButton
- Some Methods:
 - setSelected(boolean b)
 - boolean isSelected()

```
JCheckBox turkeyCheck = new JCheckBox("Turkey");  
JCheckBox stuffingCheck = new JCheckBox("Stuffing");  
JRadioButton yesRadio = new JRadioButton("yes");  
JRadioButton noRadio = new JRadioButton("no");
```

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Basic Components

- JTextField: single line of text
- JTextArea: multi-line text "area"
 - read-only or editable

```
JTextField nameText = new JTextField(30); //30 is collumns  
JTextArea commentArea = new JTextArea("comments?", 5, 40);  
//5 is rows, 40 is collums
```

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Listeners

- The brains behind the looks
- Interface `actionListener`
 - requires method:
 - `actionPerformed(ActionEvent e)`

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Listeners



- Most components which can have some type of action performed have a method:
 - `addActionListener(ActionListener a)`
- Other listeners can be added to any Component
 - `addKeyListener(KeyListener kl)`
 - `addMouseListener(MouseListener ml)`
 - `addFocusListener(FocusListener fl)`

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Other Notes

- JPanels
 - A panel within some area.
 - These can have layouts associated with them => can have a FlowLayout within an area of the BorderLayout
- Pane
 - JScrollPane
 - TabbedPane
- JMenuBar
 - contains JMenu with JMenuItem