

INSA

INSTITUT NATIONAL
DES SCIENCES
APPLIQUÉES
TOULOUSE

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Object-Oriented Programming

Moodle Resources

Course slides, TDs, TPs

<https://moodle.insa-toulouse.fr/course/view.php?id=199>

Outline

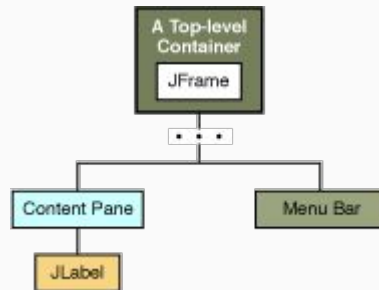
1. Introduction
2. Pragmatic programming
3. **User interaction**
4. Concurrent programming
5. Network programming

Java Swing overview



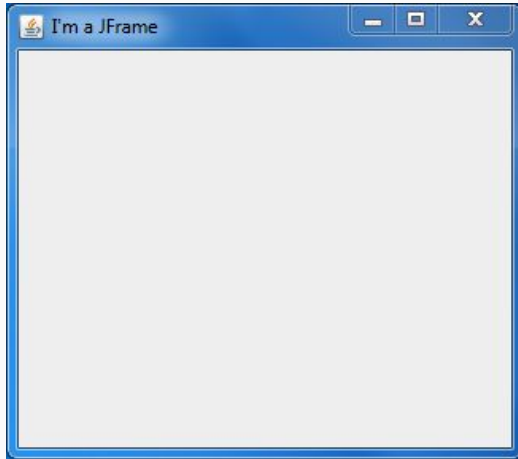
Containment hierarchy

- Tree of UI components
 - Each UI component can be contained only once
- Top level containers (JFrame, JDialog)
 - Content pane that contains (directly or indirectly) the UI components
 - Optional : menu bar (outside the content pane)



Top level containers

JFrame (main window)



JDialog

- Subwindow
- Often has a JFrame parent
- Used for notifications or confirmations



(See JOptionPane)

JComponent implementations

Drawable and listenable UI components

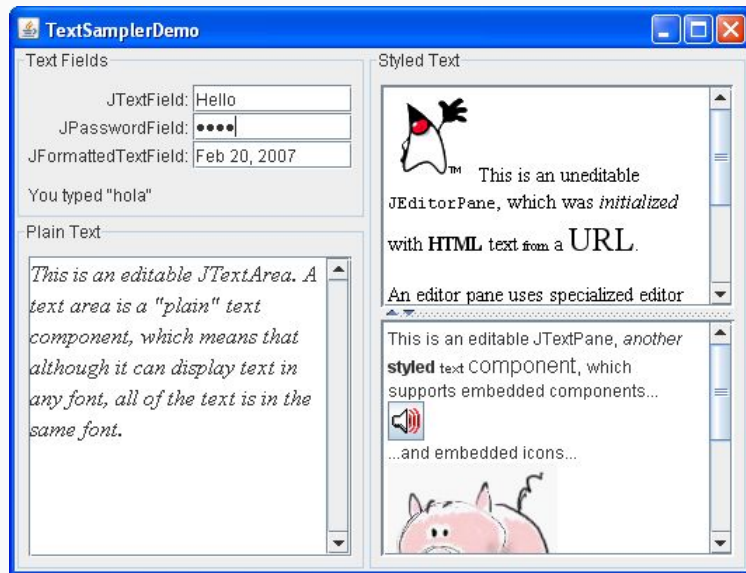
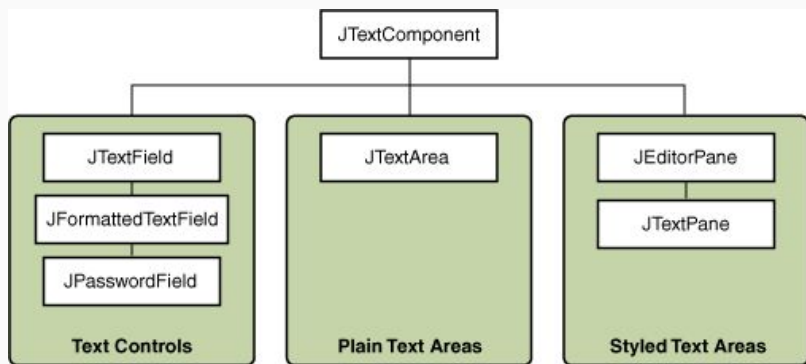


JComponent

All Swing components extends JComponent (except top-level containers)

Common features : tooltips, borders, look and feel, drag and drop, key bindings...

JTextComponent



Different kinds of UI components

- **Interaction**

- JButton
- JMenuBar

- **Data presentation**

- JLabel
- JTable
- JTree

- **Data input**

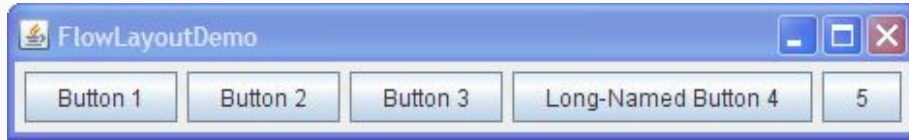
- JTextField
- JSlider
- **Multiple value**
 - JComboBox<E>
 - JList<E>
 - JRadioButton
 - JCheckBox

Layouts

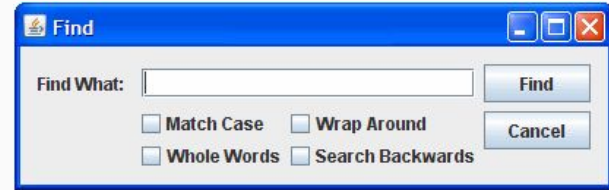
Laying out components within a container



Many of LayoutManager



FlowLayout

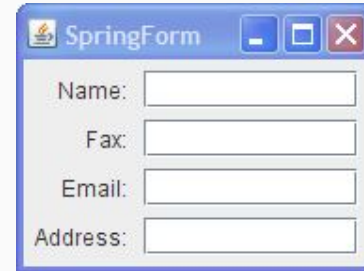


GridLayout

To be used in a
JPanel !



GridBagLayout



SpringLayout

Writing event listeners



JButton



- `setEnabled(boolean)`
- `addActionListener(ActionListener)`

Demo

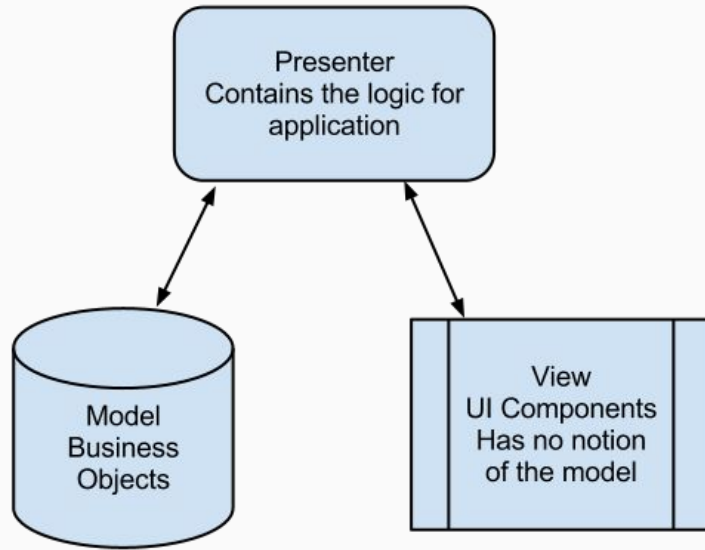
- 1 JTextField
- 1 JButton
 - On action performed : show a popup and display the content of the JTextField

Le pattern MVP

Model - View - Presenter



Model - View - Presenter



Example on JList

Requirement :

The application should allow to **hire** and **fire** some **employees**

(voir code démo)

Resources



Java Swing

- Swing tutorials :
<https://docs.oracle.com/javase/tutorial/uiswing/index.html>
- Demo use cases of Swing components :
<https://docs.oracle.com/javase/tutorial/uiswing/examples/components/>
- API javax.swing :
<https://docs.oracle.com/javase/8/docs/api/index.html?javax/swing/package-summary.html>

More user friendly : JavaFX

- Overview :
<http://www.oracle.com/technetwork/java/javase/overview/javafx-overview-2158620.html>
- API :
<https://docs.oracle.com/javase/8/javafx/api/toc.htm>



Build your web UIs in Java

Vaadin Framework : <https://vaadin.com/>

