Design your own UI description language with Xtext and Wazaabi

Charles Bonneau / Software Engineer EURA NOVA
AGENDA

1 / Who Am I?

2 / Wazaabi

3 / A DSL for Wazaabi

4 / Xtext

5 / Demo

6 / Questions
AGENDA

1 / Who Am I?

2 / Wazaabi

3 / A DSL for Wazaabi

4 / Xtext

5 / Demo

6 / Questions
1 / Who Am I?
Software Engineer at EURA NOVA

• Graduated from university of Rennes 1 in France
• Worked with Eclipse and EMF at EURA NOVA since 4 years
• Discovered Xtext 1,5 year ago
• Worked with Wazaabi for 1 year

SOURCES : www.univ-rennes1.fr , Eclipse.org, Wazaabi.org, euranova.eu
AGENDA

1 / Who Am I ?
2 / Wazaabi
3 / A DSL for Wazaabi
4 / Xtext
5 / Demo
6 / Questions
2 / Wazaabi
Model Your UI... Live!

SOURCES: http://wazaabi.org
• Model the UI
• Generic UI concepts
• De-coupled from any existing UI frameworks
• Live rendered in the target UI framework
• Data binding to another EMF model
• Model the UI
• Generic UI concepts
• De-coupled from any existing UI frameworks
• Live rendered in the target UI framework
• Data binding to another EMF model
Model layer

Engine layer

Presentation layer

GUI model

SWT

SWING

GWT

SOURCES: http://wazaabi.org
• Define the « style » of widget
  • Font
  • Layout
  • Color
  • Text value
  • etc
• Listener mechanism
• Allow to listen to UI event (selection, focus, click, etc)
• Databiding between UI model and business model
• Listen to EMF event
• Provide a Xpath like mecanism
  • Example: $datamodel/&reference//@attribute
• Inspired by the CSS mechanism
• Styles Rules and EventHandler only defined once
• Support for Variable injection for databiding
• Allow to define classes of widgets
• Can be overridden by the Wazaabi model
Creating Wazaabi Models

// create a container and set its layout
Container container = CoreWidgetsFactory.eINSTANCE.createContainer();
FillLayoutRule layoutRule = SWTStylesFactory.eINSTANCE
.createFillLayoutRule();
layoutRule.setPropertyValue("layout");
container.setFillStyleRule().add(layoutRule);

// create a collection
final Collection collection = CoreWidgetsFactory.eINSTANCE
.createCollection();

BooleanRule booleanRule = CoreStylesFactory.eINSTANCE
.createBooleanRule();
booleanRule.setValue(true);
// booleanRule.setPropertyValue("allow-row-selection");
// booleanRule.setPropertyValue("show-horizontal-lines");
booleanRule.setPropertyValue("header-visible");
collection.getStyleSheet().add(booleanRule);

BooleanRule multiSelect = CoreStylesFactory.eINSTANCE
.createBooleanRule();
multiSelect.
setPropertyValue("MULTIPLE_SELECTION_PROPERTY_NAME");
multiSelect.setValue(true);
collection.getStyleSheet().add(multiSelect);

LookAndFeelRule lookAndFeelRule = CoreCollectionsStylesFactory.eINSTANCE
.createLookAndFeelRule();
lookAndFeelRule.setPropertyValue("lookAndFeel1");
// KNX-NLS-15
lookAndFeelRule.setValue("LookAndFeel.TABLE");
collection.getStyleSheet().add(lookAndFeelRule);

BooleanRule isCheckable = CoreStylesFactory.eINSTANCE
.createBooleanRule();
isCheckable.setPropertyValue("checkable");
collection.getStyleSheet().add(isCheckable);
isCheckable.setValue(true);
ARE YOU F**KING ME

2 / Wazaabi / Creating Wazaabi Models

SOURCES : http://wazaabi.org
2 / Wazaabi / UI model editor

SOURCES: http://wazaabi.org
AGENDA

1 / Who Am I?

2 / Wazaabi

3 / A DSL for Wazaabi

4 / Xtext

5 / Demo

6 / Questions
3 / A DSL for Wazaabi

Your own UI description Language

Container "thisIsAnID" {
  styleRules{
    SashFormLayoutRule{
      propertyName "layout"
    }
  }
  children{
    Label "MyLabel"{
      styleRules{
        StringRule{
          propertyName "text"
          value "Say Hello"
        }
      }
    },
    TextComponent "myTextComponent"{
      text "Hello World"
    }
  }
}
3 / A DSL for Wazaabi / Feature list

- Create/edit the UI model
- Language for EMF models
- Customizable grammar
- Structural Validation
- Live building of the EMF model
- Content Assistant
- Template mechanism

SOURCES: http://www.eclipse.org/xtext
• Create/edit the UI model
• Language for EMF models
• Customizable grammar
• Structural Validation
• Live building of the EMF model
• Content Assistant
• Template mechanism
AGENDA

1 / Who Am I?
2 / Wazaabi
3 / A DSL for Wazaabi
4 / Xtext
5 / Demo
6 / Questions
Language development made easy!
• DSL creation framework
• Generates smart editor for the DSL
• Integrated in Eclipse
• Hook for generation (in JAVA)
• Syntactic validation
• Content Assistant
• Outline viewer

SOURCES: http://www.eclipse.org/xtext
• DSL creation framework
• Generates smart editor for the DSL
• Integrated in Eclipse
• Hook for generation (in JAVA)
• Syntactic validation
• Content Assistant
• Outline viewer

SOURCES: http://www.eclipse.org/xtext
• The Abstract Syntax Tree is EMF based
• Auto-build of the target language
• Syntactic validation
• Hooks for semantic validation

SOURCES: http://www.eclipse.org/xtext
• The Abstract Syntax Tree is EMF based
• Auto-build of the target language
• Syntactic validation
• Hooks for semantic validation
5 / Demo
A UI description language in less than 5 minutes
6 / Questions
Feedback / Give feedback on the sessions

- Sign in: www.eclipsecon.org
- Select Session Evaluate
- Vote