# Eclipse Basics
# (with Eclipse Juno for Java)

Ming-Hsien Tsai

Software Development Methods 2016/9/21

# Eclipse

- http://www.eclipse.org
- Integrated development environment (IDE)
- Extensible with plugins

# History

| Version Name | Date | Platform Version |
|---|---|---|
| N/A | 21 June 2004 | 3.0 |
| N/A | 28 June 2005 | 3.1 |
| Callisto | 30 June 2006 | 3.2 |
| Europa | 29 June 2007 | 3.3 |
| Ganymede | 25 June 2008 | 3.4 |
| Galileo | 24 June 2009 | 3.5 |
| Helios | 23 June 2010 | 3.6 |
| Indigo | 22 June 2011 | 3.7 |
| Juno | 27 June 2012 | 3.8 and 4.2 |
| Kepler | 26 June 2013 | 4.3 |
| Luna | 25 June 2014 | 4.4 |
| Mars | 24 June 2015 | 4.5 |
| Neon | 22 June 2016 | **4.6** |
| Oxygen | June 2017 (planned) | 4.7 |

Source: https://en.wikipedia.org/wiki/Eclipse_(software)

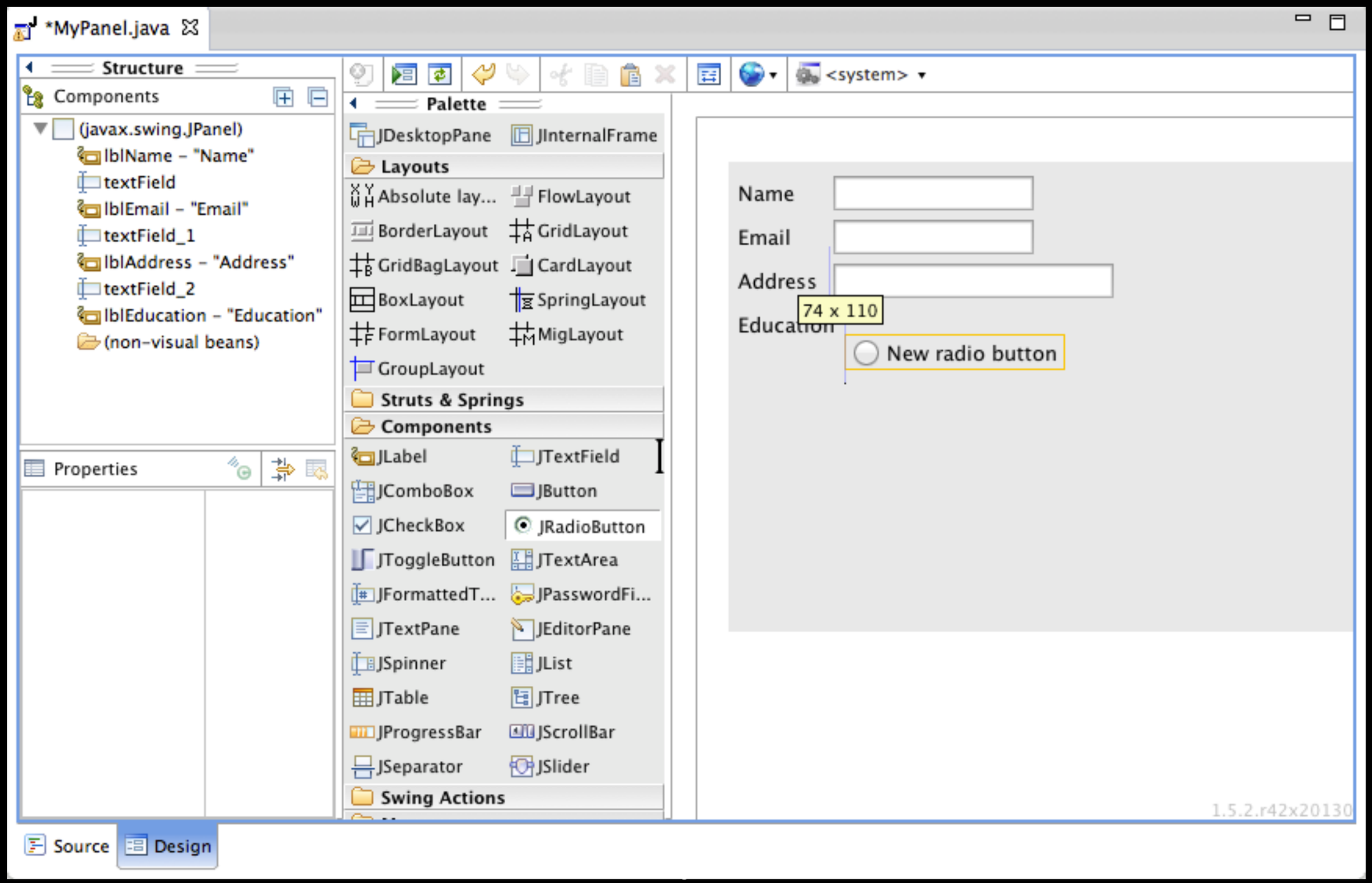
# Without IDE

obj.???

obj.func(???)

```
add(comp1, BorderLayout.NORTH);
add(comp2, BorderLayout.CENTER);
cs.weightx = 1;
comp2.add(comp3, cs);
cs.weightx = 2;
comp2.add(comp4, cs);
```

# With IDE

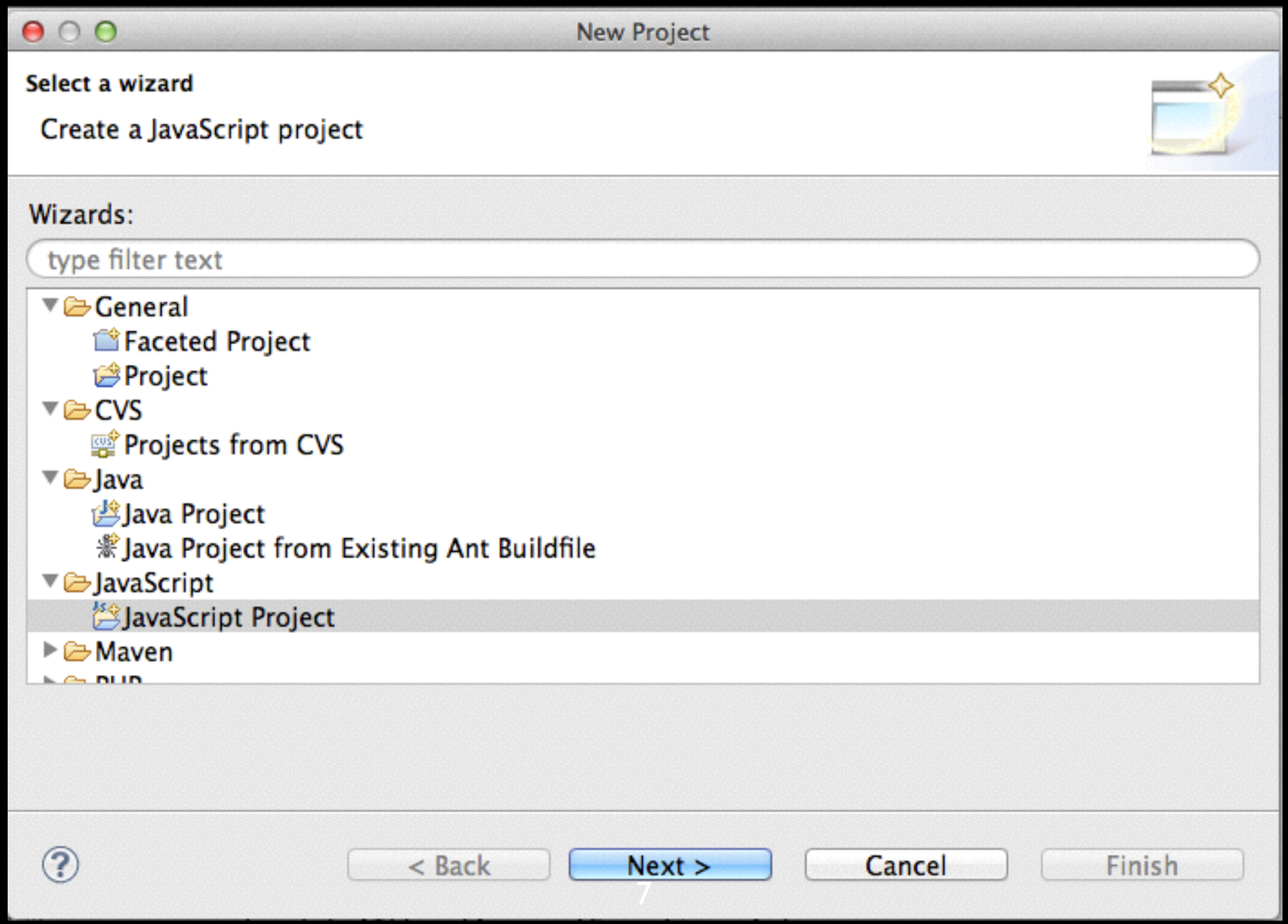

*MyPanel.java
Structure
Components
(javax.swing.JPanel)
lblName - "Name"
textField
lblEmail - "Email"
textField_1
lblAddress - "Address"
textField_2
lblEducation - "Education"
(non-visual beans)
Properties
Palette
JDesktopPane
JInternalFrame
Layouts
Absolute lay...
FlowLayout
BorderLayout
GridLayout
GridBagLayout
CardLayout
BoxLayout
SpringLayout
FormLayout
MigLayout
GroupLayout
Struts & Springs
Components
JLabel
JTextField
JComboBox
JButton
JCheckBox
JRadioButton
JToggleButton
JTextArea
JFormattedT...
JPasswordFi...
JTextPane
JEditorPane
JSpinner
JList
JTable
JTree
JProgressBar
JScrollBar
JSeparator
JSlider
Swing Actions
<system>
Name
Email
Address
74 x 110
Education
New radio button
1.5.2.r42x20130
Source
Design

# Workspace

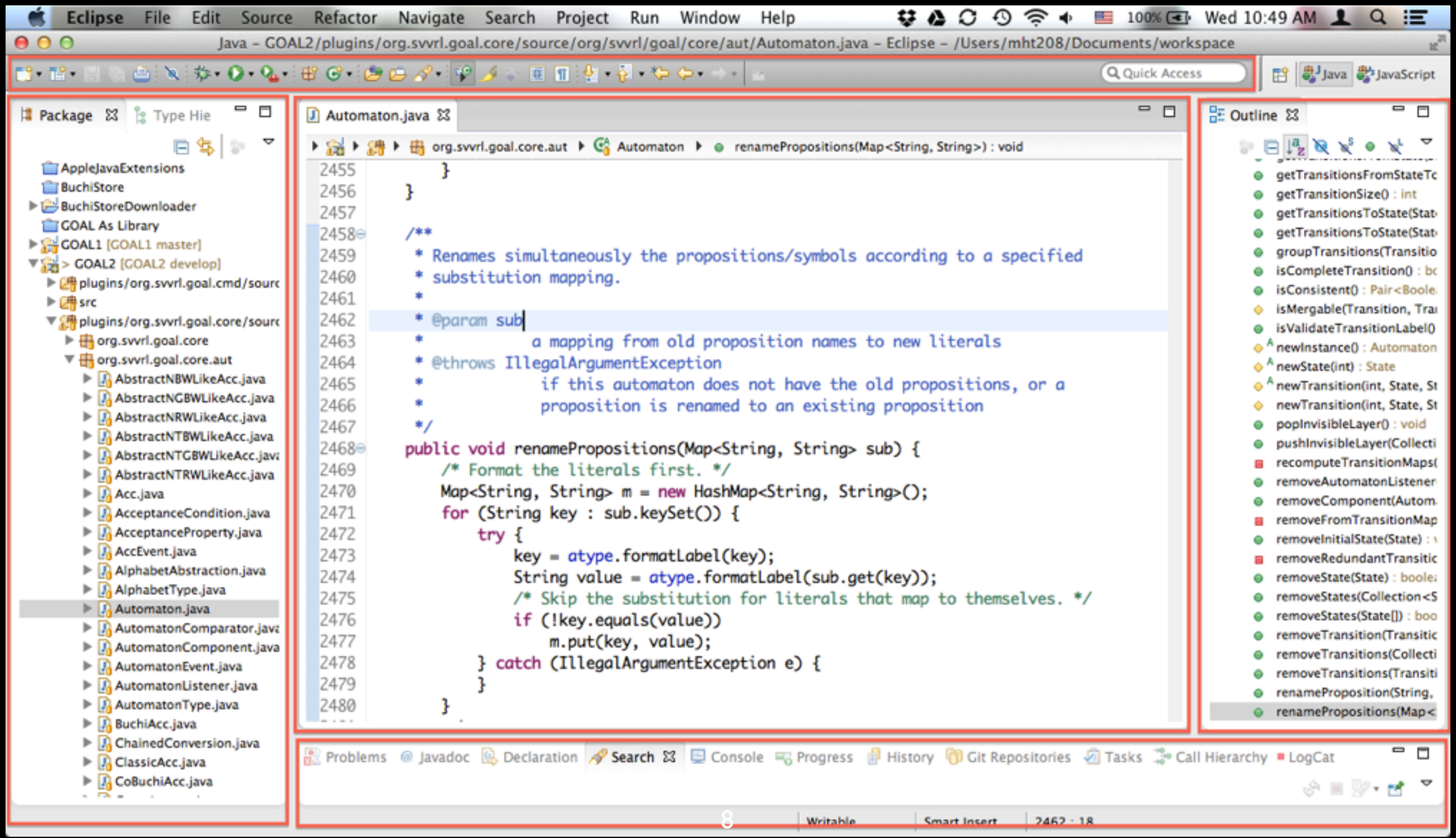
- Where your projects are stored
- Multiple workspaces are allowed

# Create Project

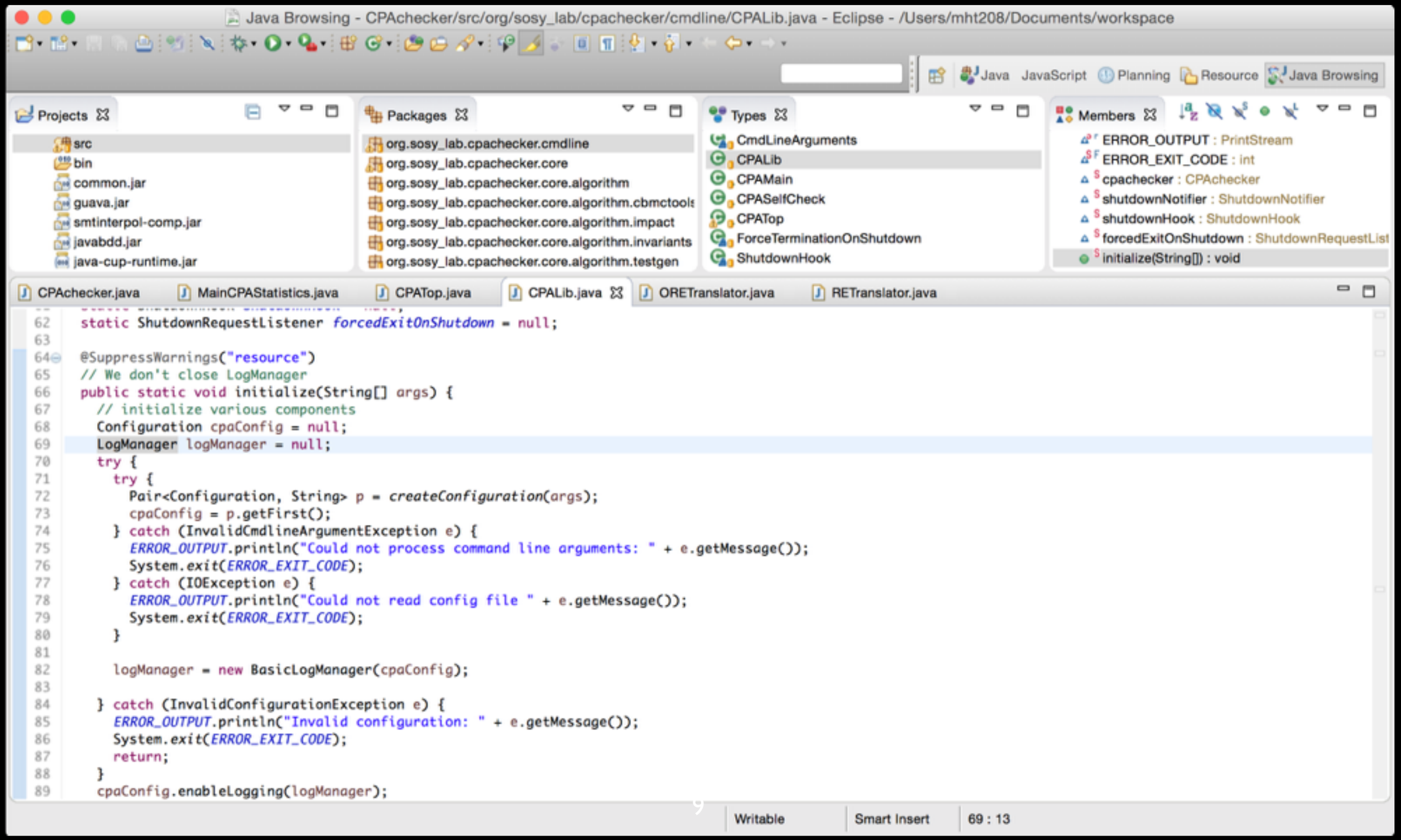
*File / New / Project...*



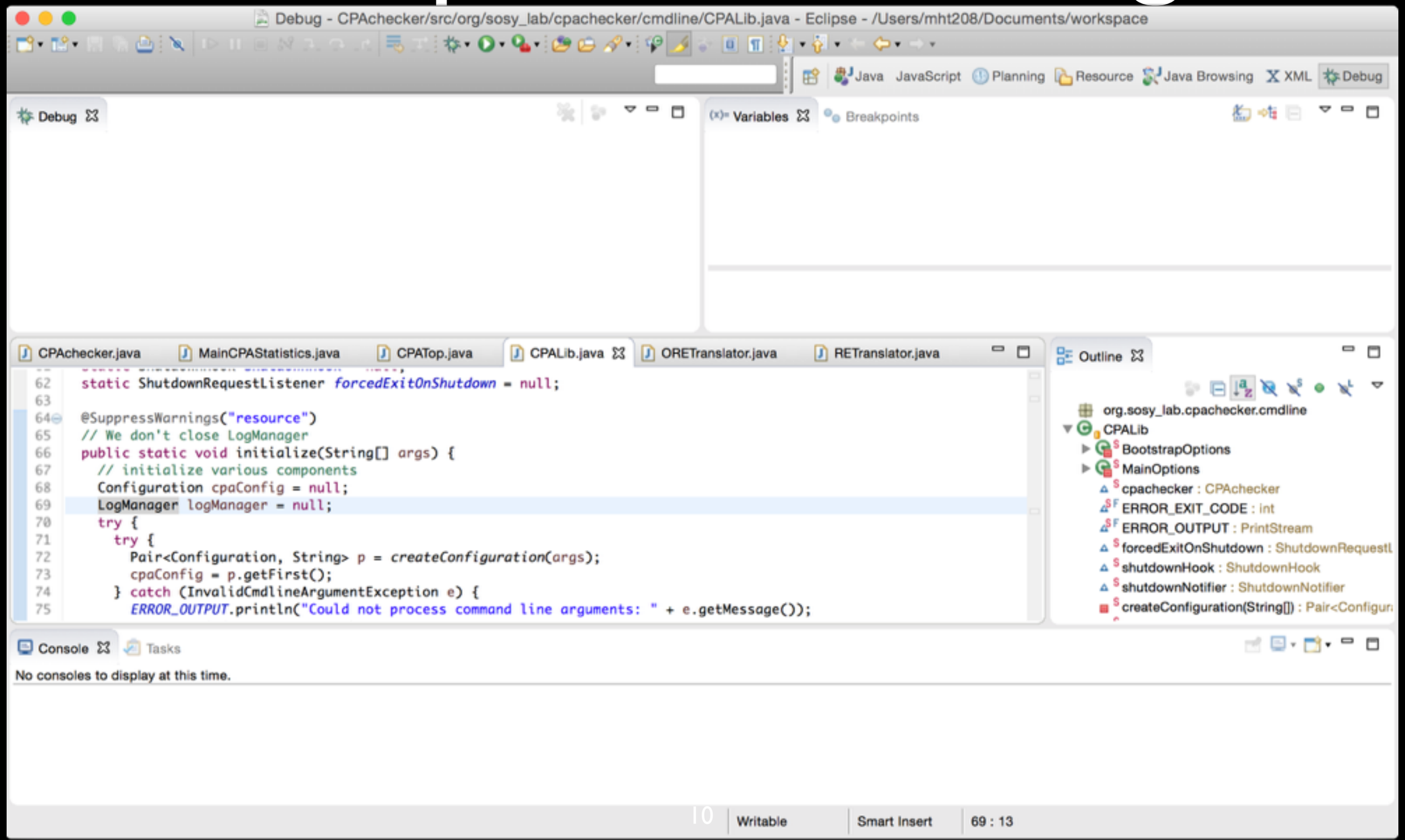
# Perspective - Java



# Perspective - Browsing

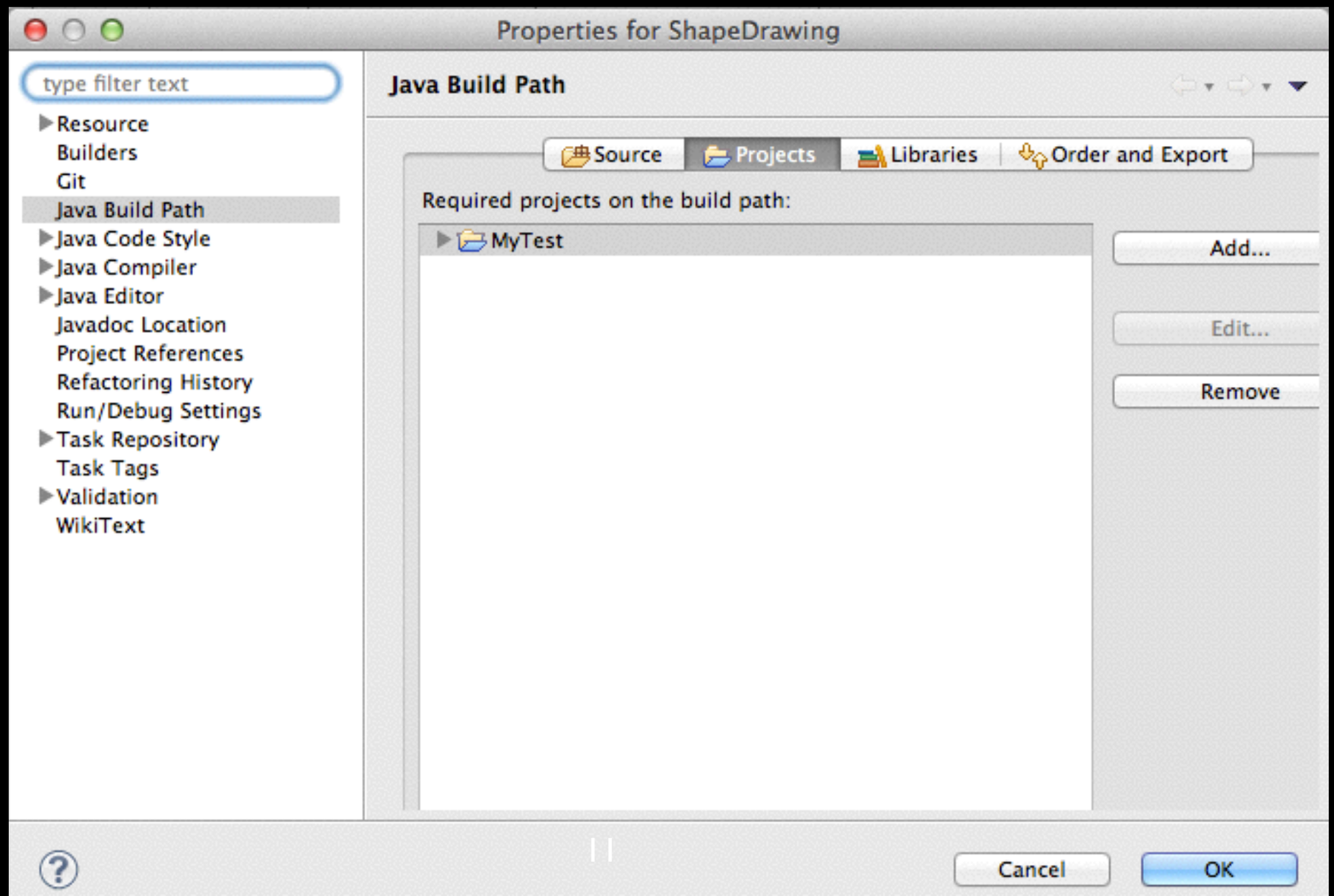


# Perspective - Debug



# Configure Project

*Project popup menu / Properties*

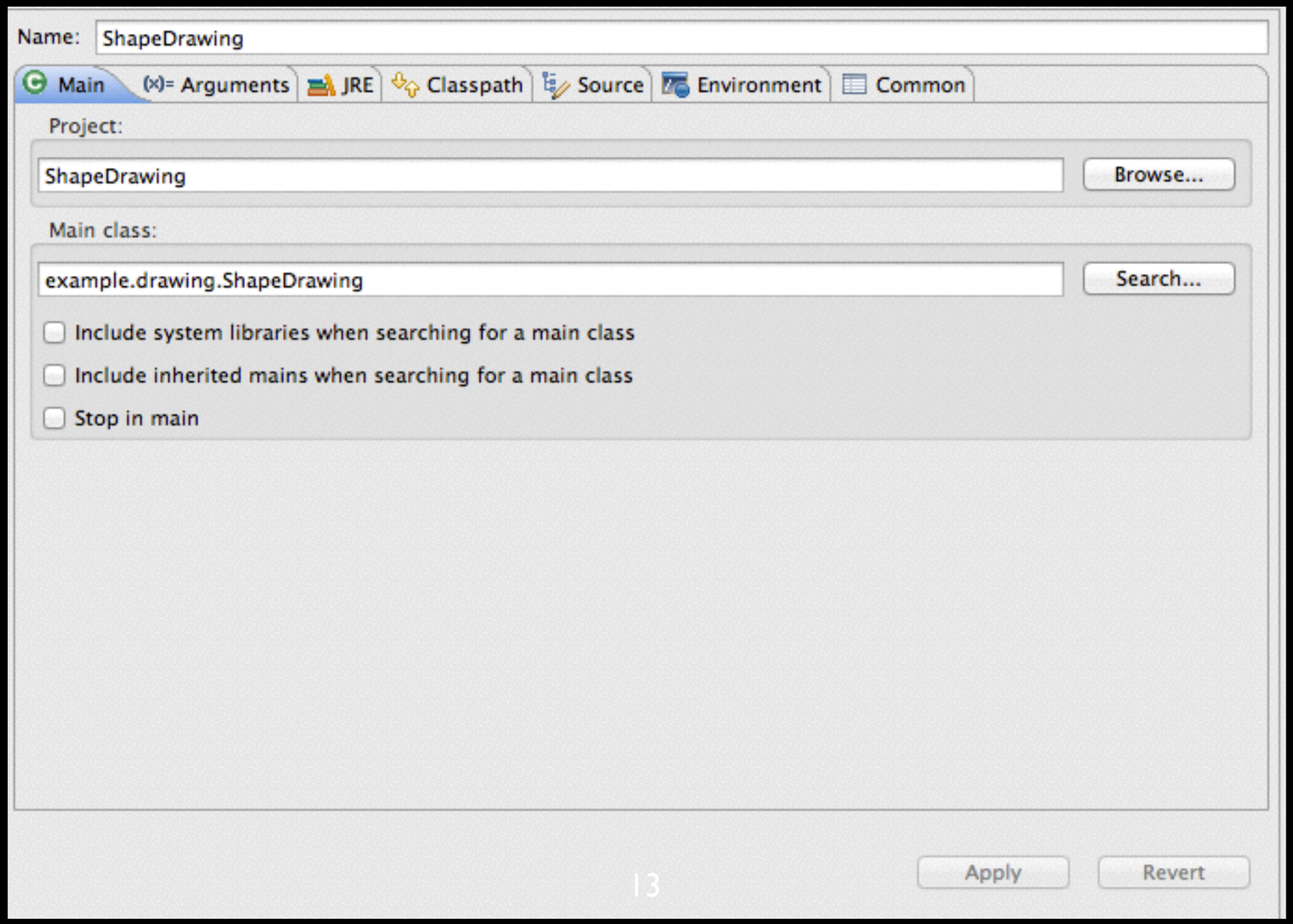


# Build Project

- Java projects can be built automatically
- Build tools:
  - GNU Make
  - Apache Ant (with Ivy)
  - Apache Maven
  - Grade
  - …

# Run Project

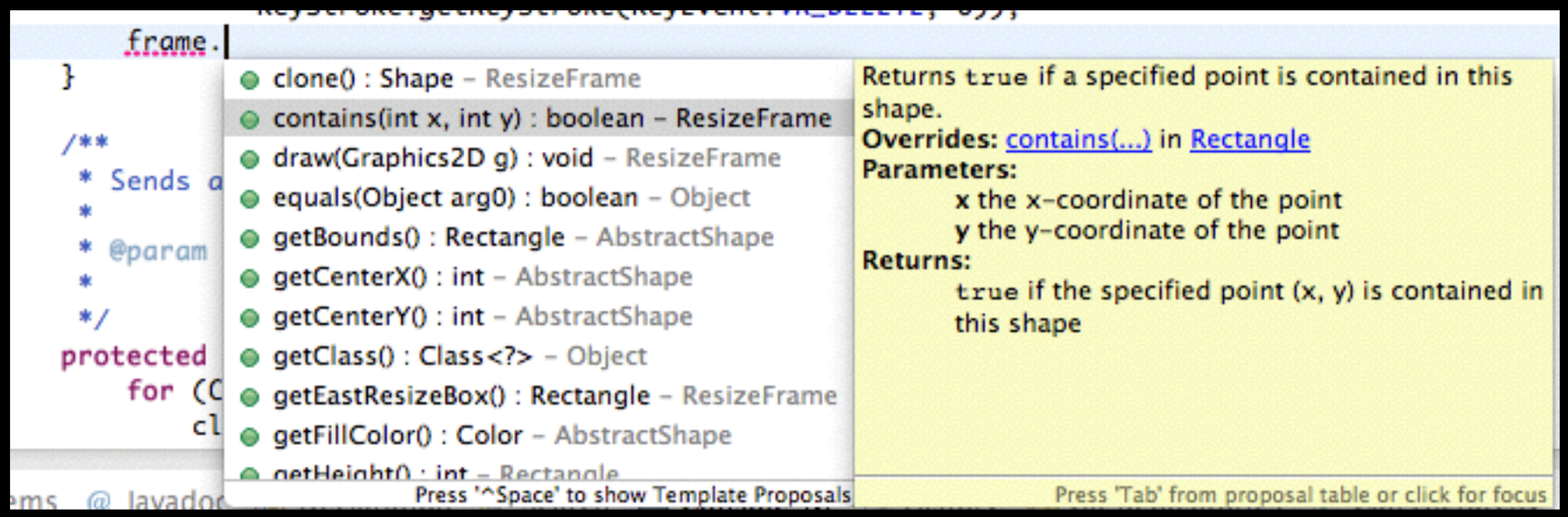
*Run / Run Configurations…*



# Java Doc

⌥⌘J  Alt-Shift-J

/**




```
/**
 * Returns {@code true} if a specified point is contained in this shape.
 *
 * @param x
 *            the x-coordinate of the point
 * @param y
 *            the y-coordinate of the point
 * @return {@code true} if the specified point (x, y) is contained in this
 *         shape
 */
public boolean contains(int x, int y);
```

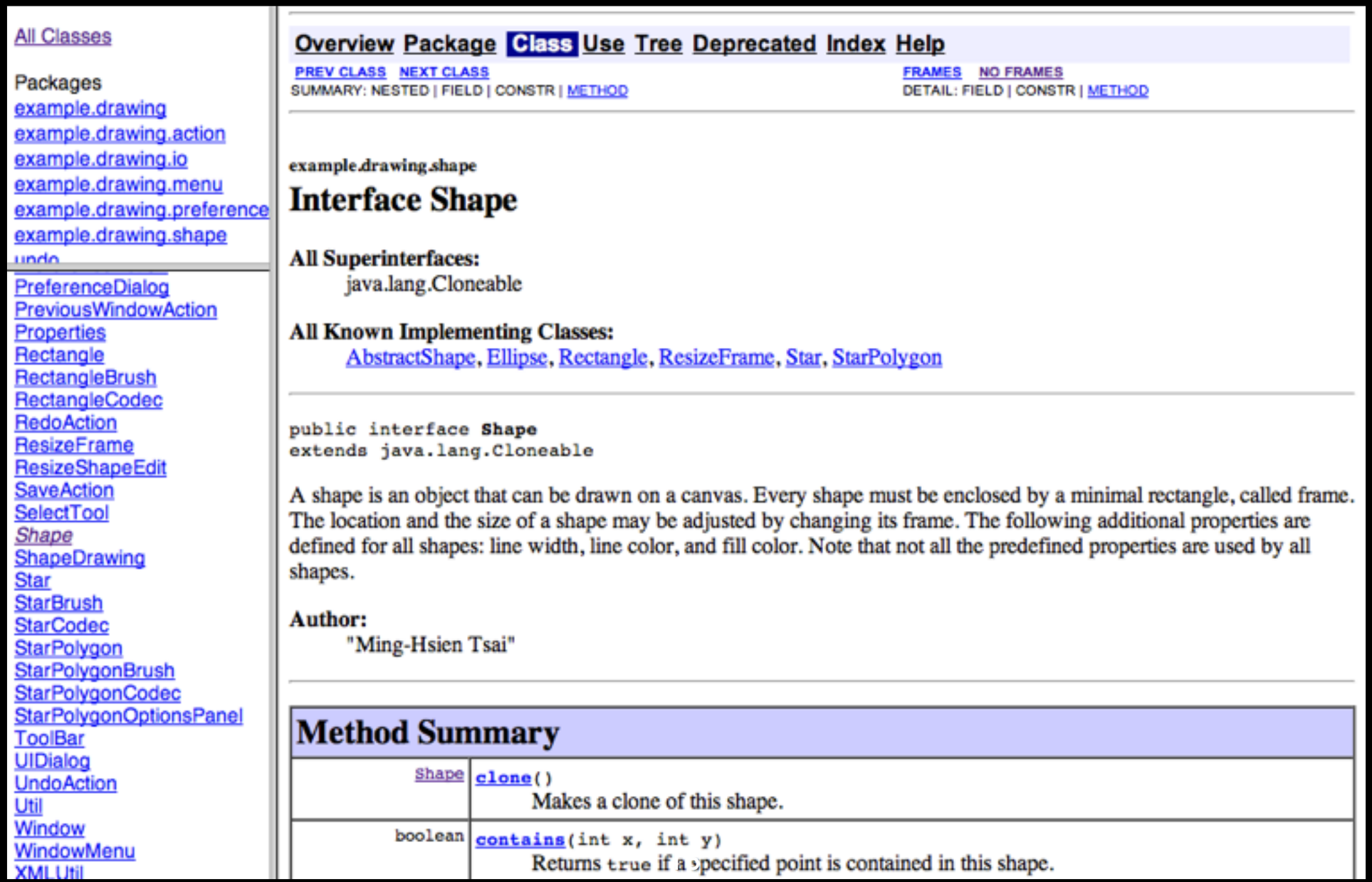
# Java Doc - Tags

```
@author <NAME>
@version <VERSION>
@param <VARIABLE> <DESCRIPTION>
@return <DESCRIPTION>
@deprecated <DESCRIPTION>
@since <VERSION>
@throws <EXCEPTION> <DESCRIPTION>
@exception <EXCEPTION> <DESCRIPTION>
@see <CLASSPATH>
…
```

http://www.oracle.com/technetwork/java/javase/documentation/index-137868.html

# Java Doc - Export

*File / Export / Java / Javadoc*



# Other Documentation Generators

- Oxygen
  - C, Objective-C, C#, PHP, Java, Python, IDL (Corba, Microsoft, and UNO/OpenOffice flavors), Fortran, VHDL, Tcl
- Sphinx
  - Python, C/C++
- ScalaDoc
- ocamldoc

More generators can be found in https://en.wikipedia.org/wiki/Comparison_of_documentation_generators

# Code Generation

Getters/Setters:

*Source / Generate Getters and Setters…*

Override/Implement:

*Source / Overwrite/Implement Methods…*

…

# Navigation

*Navigate / Open Declaration*

**F3**

*Navigate / Open Type Hierarchy*

**F4**

*Navigate / Open Call Hierarchy*

**^⌥H** **Ctrl-Alt-H**

# Search

*Search / References / Workspace*

⇧⌘G  **Ctrl-Shift-G**

# Source

*Source / Format*

⇧⌘F  **Ctrl-Shift-F**

*Source / Organize Imports*

⇧⌘O  **Ctrl-Shift-O**

*Source / Toggle Comment*

⌘/  **Ctrl-/**

```
public static <T> Set<T> inte(List<T> l1, List<T> l2) {
        Set<T> res = new HashSet<T>();

        for(int i=0;i<l1.size();i++){
      T o1 = l1.get(i);
        for(int j=0;j<l2.size();j++){
            T o2=l2.get(j);
          if(o1.equals(o2)){
            res.add(o1);
            break;
          }
          }
          }

          return res;
    }
```

# Refactor

*Refactor / Rename…*

⌥⌘R  **Alt-Shift-R**

*Refactor / Move…*

⌥⌘V  **Alt-Shift-V**

# Others

Quick Fix:

⌘1 **Ctrl-1**

Shortcuts reference:

⇧⌘L **Shift-Ctrl-L**

# Other Languages

- Eclipse CDT for C/C++
  - http://www.eclipse.org/cdt/
- Eclispe PDT for PHP
  - http://projects.eclipse.org/projects/tools.pdt
- Eclipse JSDT for Javascript
  - http://www.eclipse.org/webtools/jsdt/
- PyDev for Python
  - http://marketplace.eclipse.org/content/pydev-python-ide-eclipse/metrics#.UkJQuxY5SfQ
- Scala IDE for Scala
  - http://scala-ide.org

# Other Features

(may need third-party plugins)

- Debugging
- UML diagrams and code generation
  - UML Designer, UML to Java code generator
- Task management
  - Mylyn
- Issue tracking
  - Bugzilla, JIRA, Redmine, …

# Other Features

(may need third-party plugins)

- Continuous integration
  - Eclipse Hudson
- Program verification
  - Java PathFinder, Leon, EpiSpin