

Design Fragments: Using Frameworks Correctly

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Motivation

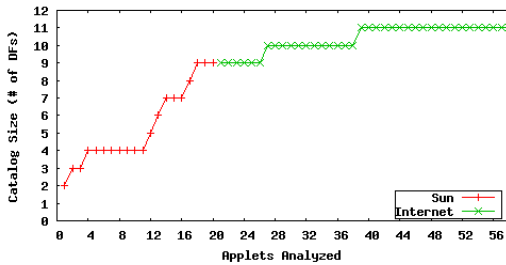
Frameworks like EJB, .Net, and Swing are large-grained reuse components that reduce development risk. Developers “fill in the blanks” to create applications. But frameworks:

- Are hard to learn
- Require coordination of non-local parts
- Constrain the solution space
- Involve heavy bureaucracy

Design fragments make things better by:

- Encoding known-good solutions
- Checking conformance
- **Preserving design intent**

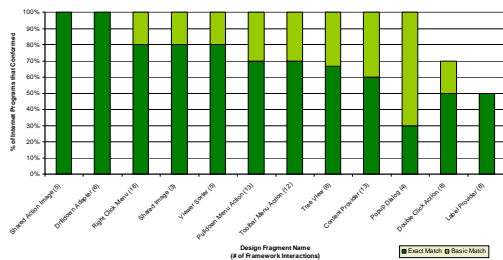
Few Design Fragments Needed



Applet case study

- 56 Applets (20 from Sun; 36 from internet)
- Slow catalog growth rate
- So: **It is practical to encode known-good solutions as design fragments**

Clients Follow the Demo Example



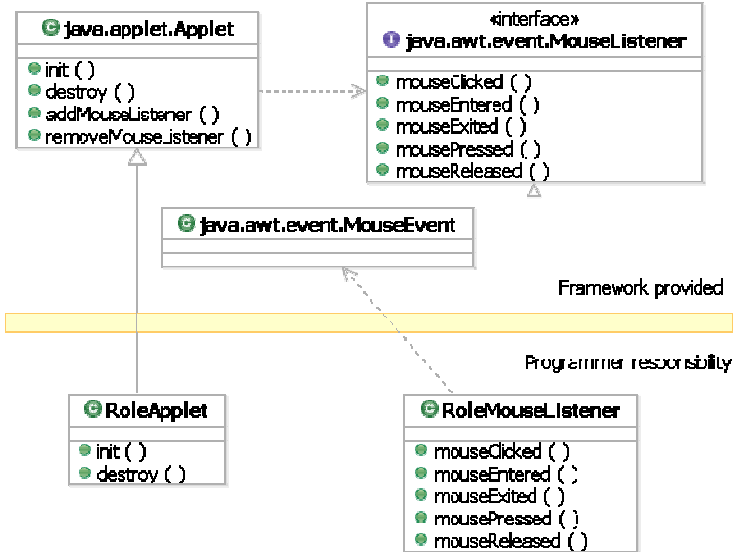
Eclipse case study

- 50 Eclipse client programs from internet
- 93% conformance with design fragments based on the framework demo programs
- Seed crystal effect – clients copy demos

Simple Example

Design Fragment: Mouse Listener Applet

Intent: This applet listens to mouse events, registering and deregistering in framework lifecycle callback methods



Behavior Constraints:

- addMouseListener(this) must be called in init()
- removeMouseListener(this) called in destroy()

In-IDE checks:

- Required method calls, required new instances, Java – XML declarative connections, object structure

In Software Lifecycle

