



Iterative Development

Smalltalk Does that Better

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What You Need

- A REPL
- Decent Debugging Tools
- Code Browsers Integrated with your tools
- “Scratchpad” workspaces
 - Smalltalk has all of that



The Tools

- Browsers
- Inspectors
- Debugger



An Example

- We have a duplicate data problem in part of our application
- SAP drops records into a table
- A Stored Procedure converts that data for our app (badly)
 - Result: Duplicate Data



The Problem

- The “owner” of the interface is booked solid
- I’m not an Oracle/Stored Proc Guy
- My task is to eliminate the duplicates
- So...



Explore

- Created a small set of simple database objects
- Wrote the algorithm that finds duplicates in Smalltalk



Steps

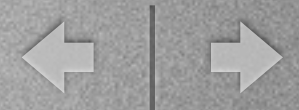
- Started in a workspace
 - Wrote some exploratory code to scan the tables
 - Migrated that code to actual objects
 - Weekly meeting arranged to run and evaluate



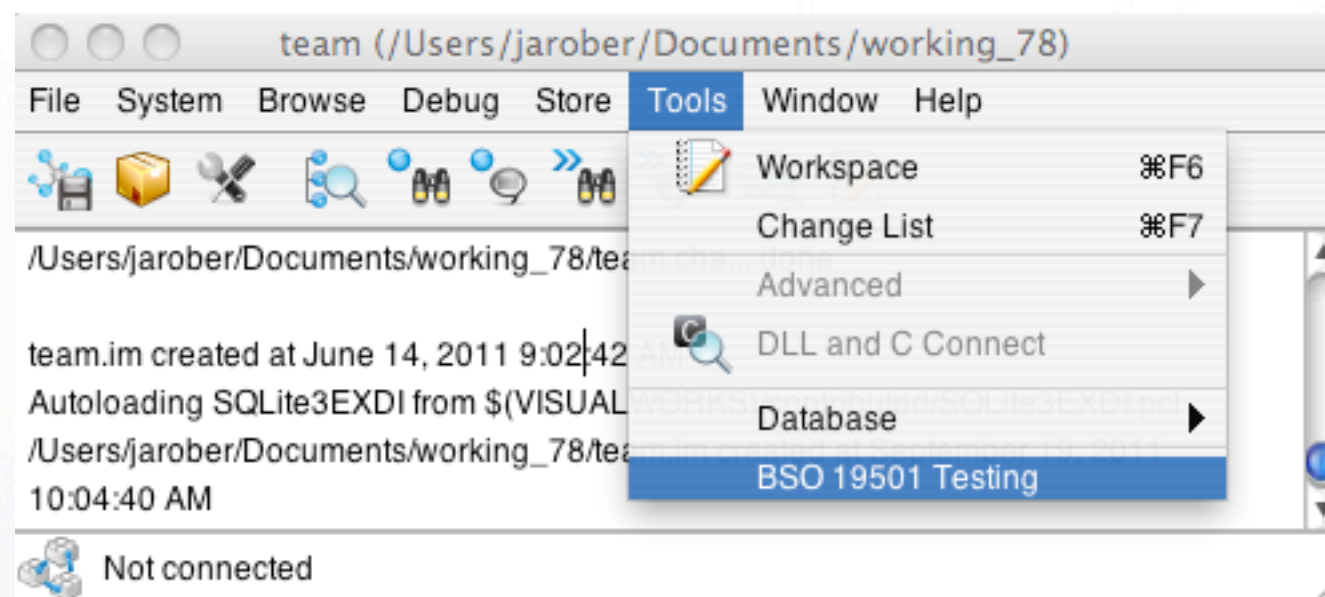
Exploring

The screenshot shows a window titled "Workspace" with a menu bar (Page, Edit, Smalltalk, Options, Help) and a toolbar with icons for file operations and execution. Below the toolbar are two tabs: "Workspace" (selected) and "Variables". The main area contains Smalltalk code for querying a database component. At the bottom, there is a text area labeled "Text or Smalltalk code" and a button labeled "All".

```
"get records from T_OPER_COMPONENT"  
comps := OperatingComponent selectAll.  
  
|  
  
"get the ones where part number and serial number match"  
matches := OrderedCollection new.  
comps do: [:each |  
    | in |  
    in := comps select: [:each1 | each1 = each].  
    matches add: in].  
  
matches select: [:each | each size > 1]
```

Exploring





Exploring

- This tracking takes a long time to run
- Sometimes, the test app loses its database connection
- Smalltalk Helps



Exploring

- Application is halted with an exception
- I'm running in the development env
 - Skip back a few steps in the stack
 - restart “from here”
- Complete long running process with fresh db connection



Example

- Start a Long Running Process
- Interrupt, rewind stack



Iterative Example

- Test First
- Add a New Arithmetic Function
- Make Sure it Works!



Problem Solving

- Often we don't understand the problem...
- yet
- Write the part we do understand
- “Fill in the Blanks” as we go



Debugger Driven

- I can only track so much state
- The apps I work on have tons of state
- Write “up to where I get it”
- Debug



Example

- Years ago, I created an RSS reader app
- At the time, I knew very little about XML
- I'd write a little, look at what I had...
 - Repeat



Demo

- Iterative Look at a Problem
- Uses tests, debugger, workspace



Runtime/Dev Time

- In Smalltalk, the line is thin
- You can create a runtime with the dev tools mostly around
 - “Runtime mode” turned on
 - Highly useful for testing
 - Create a more stripped runtime for production



Example

- **Inspectors, Browsers in BottomFeeder**



Another Example

- We'll Make a Live Coding Change to my Blog



Summary

- Smalltalk is a very “live” environment
- Even at Runtime



Questions?

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