What *Is* a DSL?

Due: Monday, September 10, 2012 at 11:59pm Pacific
Complete this assignment on your own.

1. Overview

In class we've seen one DSL, discussed properties of DSLs and languages in general, and practiced specifying a language's *computational model* (or *semantics*). In this assignment, you'll read an introductory chapter about DSLs, which will give us some shared terminology for talking about DSLs and their implementations. You'll also find a DSL "in the wild" and describe its design and implementation using terminology from the reading. We'll discuss your DSL during part of next Monday's class.

2. Read Fowler's Introduction to DSLs

Read Fowler, Chapter 2 (see the "Materials" section, below, for instructions on accessing this material). For the most part, this reading is self-contained. In a few places, Fowler references other parts of the book. Ignore these references; you can understand the reading without them. It may be helpful to know that, in Chapter 1, Fowler described a domain called *Miss Grant's Controller*. You can safely substitute the domain you chose for you DSL in place of *Miss Grant's Controller*.

3. Find a DSL

Find a DSL — one that you think several other people in the class **won't** know. When picking a DSL, it's good to find one for which you have access to a few example programs, so you can get a good sense of it. Sometimes it's hard to be sure whether or not a language is actually a DSL. If you find a language that you think might be a DSL, but you're not sure, then go with it — just assume that it is a DSL.

You might try thinking of a domain, e.g., finance, and searching on the web for "domain specific language" + finance.

4. Describe Your DSL's Implementation and Semantics

Answer the following questions about your language:

(a) What is the name of the language?

(b) Describe the language's domain in five words.

(c) What is the underlying semantics of this language? To answer this question, provide a high-level description (no more than 100 words) of the computation that occurs when someone executes a program in this language.

(d) Fowler writes about a spectrum of languages, from general-purpose languages to "purely" domain-specific. Where does the DSL you chose fall on this spectrum, and why?

(e) Is the language implemented as an internal or external DSL? Justify your answer.

(f) What language(s) was (were) used to implement the DSL?

(g) Identify one potential benefit of the DSL: how is a programmer's life or a company's bottom line made easier by the existence of this language?

(h) Identify one potential drawback of the DSL: what does a programmer or company lose by using this DSL instead of general-purpose language?

Materials

The Fowler chapter is available on Sakai. Go to the tab for this course and click the `Resources` link, found along the left-hand side of the page. There you should see a folder labelled `HM CSCI 181C.1 FA12 Resources`, in which you'll find a file named `Fowler_Chapter2.pdf`.

Submitting Your Solution

Modify the file `Answers.txt`, (see my email dated September 10) adding your responses where indicated. When you're ready to submit, upload the modified file to Sakai by clicking `Drop Box` on the left-hand side of the tab for this course. Use the `Add` button next to your name to upload your file.

Collaboration and Honor Code

I expect you to abide by the Harvey Mudd Honor code. Your solution to this assignment should be produced by you alone. You may discuss concepts at a high level with any student in the class. However, you may not copy solutions from anyone.

If you have any questions about what behavior is acceptable, it is your responsibility to come see me before you engage in this behavior. I will be happy to answer any of your questions.