FrenchPress Gives Students Automated Feedback on Java Program Flaws

Hannah Blau, University of Massachusetts Amherst
Contact: blau@cs.umass.edu

FrenchPress is an Eclipse plug-in that partially automates the task of giving students feedback on their Java programs. It is designed not for novices but for students taking their second or third Java course: students who know enough Java to write a working program but lack the judgment to recognize bad code when they see it. FrenchPress does not diagnose compile-time or runtime errors, or logical errors that produce incorrect output. It targets silent flaws, flaws the student is unable to identify for herself because nothing in the programming environment alerts her.

FrenchPress diagnoses flaws characteristic of programmers who have not yet assimilated the object-oriented idiom. Such shortcomings include misuse of the `public` modifier and instance variables that function as local variables or class constants. Other rules address the all too common misunderstanding of the boolean datatype. Where it finds a problem, FrenchPress delivers an explanatory message in a vocabulary appropriate to the student’s current level of understanding.

FrenchPress is easy to use for both students and instructors. The instructor does not have to write a model solution or customized diagnostics for each assignment. The analysis applies to any compilable Java program. The Eclipse plug-in integrates seamlessly into the student’s development environment. The student can get feedback as she works, so she can iteratively improve the code before submitting her project.

**ACM Categories & Descriptors:** K.3.2 [Computers and Education]: Computer and Information Science Education---Computer science education; D.2.5 [Software Engineering]: Testing and Debugging---Diagnostics; D.3.2 [Programming Languages]: Language Classifications---Java

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