A critical look at Java 5: Strengths, weaknesses, and compromises
by
Kim Bruce
Pomona College

ABSTRACT

With the introduction of Java 5, the language designers made several significant changes to the language. These include an enhanced “for” loop, auto-boxing and unboxing of primitive types, type-safe enumerated types, static import, and simpler I/O for novices. However the most significant changes to the language were the addition of generics (type parameters) and wild-card types.

Generics should have been part of the language from the beginning, and proposals were made for their addition nearly immediately, but it took nearly 10 years for them to be added to the language. We take a look at how they were shoe-horned into the language, and the compromises necessary to make them fit without changing the virtual machine language. We discuss where they help, and where the support for them is too weak or complex to solve existing problems.

Wild-card types, on the other hand, are a very recent idea, and were introduced without a lot of warning to the language community. We look at how they are used and examine whether the restrictions on their use make their addition to the language worthwhile.

Interestingly, both generics and wild-card types are based on prior deep ideas in type theory. We examine their roots in theory and critically evaluate their implementation in Java. The big question for us is the following: Does Java 5 represent the end of the beginning for Java or the beginning of the end?

Thursday, October 26 at 4:15 p.m.
Rose Hills Theatre
Pomona College

Refreshments at 4:00pm