

C# and its use in Programming Education

Gerard van de Ven

Eastern Institute of Technology, Faculty of Business and Computing
 Taradale, Napier
gvandeven@eit.ac.nz

The choice of language in our programming and software development education is an important decision. At least the following two considerations should be taken into account in the selection process:

- We have to make sure that what we teach our students will indeed be useful skills when they apply for jobs. One of the problems here for degree lecturers is to forecast as far as five years ahead which languages will take the lead in industry.
- The suitability of the language for teaching programming concepts to novice students.

C# and its underlying framework, .NET, are currently growing in popularity. After its first introduction in 2000, it is now one of the major languages used in industry. Figure 1 shows research performed by the author on the it.seek.co.nz website for job vacancies in New Zealand. It shows for a number of popular languages how many vacancies mentioned that language as a useful skill. Clearly Java is by far the most popular of these, C# and VB have approximately the same popularity, and C# has overtaken C++.

C# was officially ratified as a standard by ECMA in December 2001. (See <http://www.ecma-international.org>). It was defined with the experience of C++, Java and Object Pascal in mind. It uses much of the C like

syntax that makes it easy for students to transfer their skills to languages like Java, PHP, and JavaScript. It has a number of features that make it quite suitable for teaching programming concepts to both beginning and more advanced students:

- 100% object-oriented instead of a hybrid language like C++;
- Properties to support information hiding, similar to Object Pascal;
- No explicit pointers: All objects have to be created before they can be used;
- Built in garbage collection, no need for memory management by the developer;
- Compiler errors and warnings for suspicious constructs;
- Built in object serialization into for instance the XML format;
- Code documentation is supported by the compiler, including warnings and documentation generation; and,
- Easy transition between windows applications and web based applications.

Now will be a good time to seriously consider using C# in your programming classes.

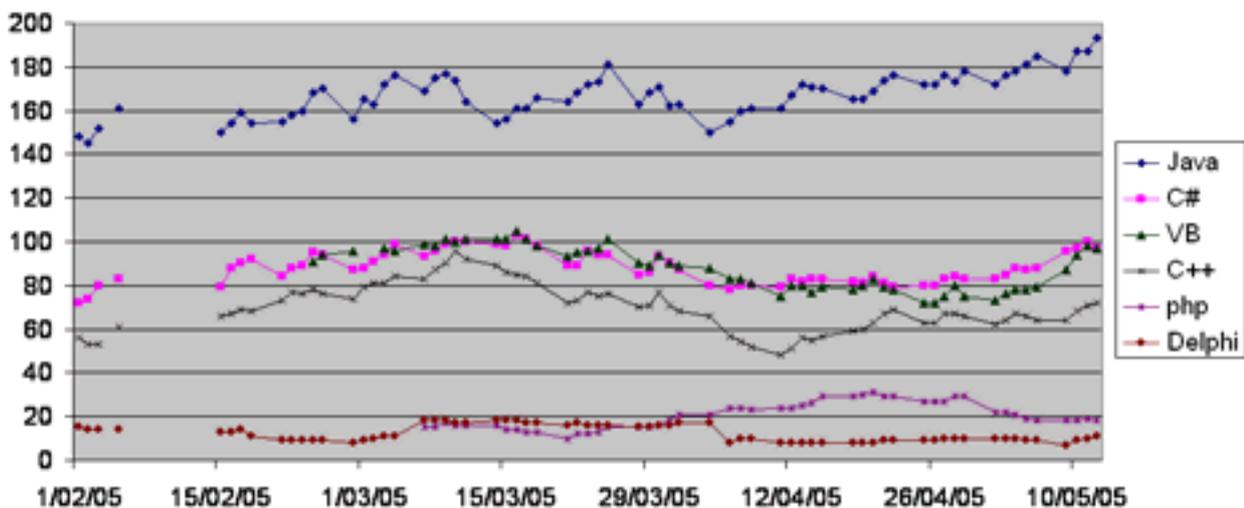


Figure 1. Number of vacancies mentioning a particular language as a useful skill