MaBL: A Tool for Mapping Pseudocode to Multiple Implementation Languages

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ABSTRACT
Some students have done little or no programming. Some may have previously used the adopted language(s) of an institution. For some, English may not be their first spoken language. Some may be dyslexic. Bridging material for intra- or inter-institutional programming languages may not exist. A new tool MaBL is proposed, that facilitates mapping pseudocode to program statements in multiple implementation languages.

Categories and Subject Descriptors
K.3.2 [Computers and Education]: Computer & Information Science Education – Computer Science Education.
D.3.3 [Programming Languages]: Language Constructs and Features.

General Terms
Algorithms, Design, Languages.

Keywords
Introductory programming, mapping, pseudocode.

1. DESCRIPTION OF MABL
MaBL (Mapping Between Languages) is implemented using Java and JDOM, an open source library for Java-optimised XML data manipulations. Authors can use an informal style of pseudocode when adding programs and mapping data to a code example library [4], rather than generating code from a more formal representation [5]. Once mapped, if a pseudocode statement is selected, equivalent lines of code in the available languages are highlighted, extending the notion of same program collections [2]. The use of English is encouraged for overseas students, but must pseudocode be written only in English? Thus, Chinese [1] in Figure 1 illustrates one possible alternative.

2. ACKNOWLEDGEMENTS
Thanks to faculty for the Teaching & Learning Innovation Fund. Pseudocode (in English) and ARM instructions are based upon programs by Peter Knaggs [3].

Figure 1. Pseudocode mapped to three languages.

3. FUTURE WORK
Further interactivity is planned, such as allowing the student to suggest mappings, and have them validated. MaBL will be evaluated using students from the current cohort.

4. REFERENCES
[1] babelfish.altavista.com

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