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An Expert System to Customize a CASE tool

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ABSTRACT

This paper introduces an expert system, Intelligent Metacase Customizer, that is used to tailor a CASE tool to a particular application, environment and user wishes. There is a wide range of software development techniques considered in such a way that Intelligent Metacase Customizer is able to deal with standard methodologies as well as *ad hoc* ones (methodologies defined particularly for any organization). Intelligent Metacase Customizer is integrated with a CASE tool generator inside the CCASE architecture. We explain how a final user is currently developing a pen-computing nursery application assisted by the existing CCASE prototype.

Keywords: software development methodology, CASE tool, expert system, uncertainty, knowledge engineering.

1. INTRODUCTION

The use of software development methodology is of paramount importance to any organization which develops software either for its own use or for sale. Such a methodology must encompass the whole software life cycle, including at least the phases of analysis, design, implementation and maintenance.

At present there is a wide variety of software development methodologies in use, most of which belong to either of these classes: structured or object-oriented. Structured methodologies are described, for instance, in [12,17,18,19], and some of the most recent object-oriented methodologies are in [2,13,4,5]. Whether the last ones will eventually replace the former ones is still an open question.

As in happening in all information-intensive activities, software development is getting steadily more and more computerized support. The software tools that help in developing, maintaining and documenting software are generically called CASE (Computer-Aided Software Engineering) tools. Most present-day CASE tools support either just one particular methodology or a reduced set of methodologies that can be build from a set of supported techniques (a set which is usually very reduced as well as limited to either structured or, less frequently, object-oriented techniques).

Our goal is to develop a new tool, CCASE, that supports a fairly wide variety of possible object-oriented and structured methodologies, and give the user the possibility to get a methodology, and the CASE support for it tailored to the particular application, environment and user wishes. This tailoring is achieved by means of a complex parameterization process carried out internally by an expert system as we show along this paper