A Direct Manipulation Object-Oriented Environment to Support Methodology-Independent CASE Tools

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Abstract

The aim of the thesis is research into application of direct-manipulable OO graphical environments to the development of methodology-independent CASE tools. In this thesis, a Methodology-Independent Graphical OO CASE Environment (MIGOCE) is proposed.

MIGOCE consists of three parts: OO Notation Workshop, OO Notation Repository and Universal OO Diagramming Tool. OO Notation Workshop is an OO graphical editor which is used to design existing and new notations; OO Notation Repository is a notation database that stores different notations designed by the notation workshop; Universal OO Diagramming Tool is an upper-CASE graphical environment, by which a user can draw arbitrary OO diagrams of different methodologies. The MIGOCE database management system provides OO notation sets management, OOA/OOD diagrams management and OO repository management for data integrity and sharing.

MIGOCE has three outstanding characteristics: Methodology-independence, Directly-manipulable graphical environment and Easily-expanded program structure. MIGOCE is completely methodology-independent. It not only supports existing OO methodologies, but also supports users' own notation designs. It provides support for mixing, updating existing methodologies or defining new ones. It typically allows the user to switch quickly different OO notation sets supported by corresponding methodologies for designing diagrams. Direct manipulation interfaces of MIGOCE enable it more flexible and distinctive. The user can easily add, delete, edit or show notation shapes, and get the system feedback very quick on the screen. The MIGOCE system itself is programmed using object-oriented programming language — C++. Its program structure enable the functions of itself easy to be modified and expanded.

Although MIGOCE is a prototype, it provides a new way to develop the real methodology-independent OO CASE environment. So far, the way and style taken by MIGOCE have not been found in OO CASE literatures. This system gives a complete possibility of implementing a methodology-independent OO CASE tool and shows distinct effectiveness of such a tool in practice.

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