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Abstract

THE DESIGN AND IMPLEMENTATION OF
OBJECT MANAGEMENT FUNCTIONS FOR WEB-BASED REPOSITORY

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In recent years, many research works on repository technology are carried out. Repository becomes one of the active areas in software field. A repository is a centralized information storage as an object reusable tool. It plays an important role in the reusability area. It acts as a reused and shared database of information about engineered artifacts, such as software, documents, designs, information systems, maps or manufactured components, no matter what kind of objects. By providing a common format for storing object information, the objects can easily be shared, and used by different products for different tasks.

The use of repository can eliminate redesigning and redeveloping tasks of the same artifacts. The development teams can share common information with each other effectively and efficiently. This results in increasing developer productivity, enhancing software quality and improving the maintainability, and hence in reducing cost and increasing competitiveness.

A repository is composed of two major components: a set of object-oriented interfaces that a developer can use to define information models, and a repository engine that is the underlying storage mechanism for these information models. This thesis focuses on the most important repository engine function – Object Management, and partial implementation of it. The first issue of Object Management is the design and implementation of a set of functions for manipulating objects, such as retrieving objects, storing objects etc. The second issue is the design and implementation of the object storage system. We choose the strategy of developing the repository by putting an object-

oriented layer on the top of a relational database. This strategy needs to address the followingproblems:

- OO–RelationalSchematransformation,and
- OO–Relationalquerytranslation

Thethesispresentsourmethoddetailsforhandlingthem.

Furthermore, our repository is designed to work under the Web with Client/Server architecture. This is motivated by the fact that Internet as the working environment becomesverypopularandanecessity,andmanyapplicationsorworkroutinesarebased on the web. The solution for the repository supporting Web-based environment is presentedinthethesis.