

**Ain Shams University**  
**Faculty of Engineering**  
**Computers and Systems Engineering Department**

**Object Models Management System**



A Thesis Submitted for the Fulfillment for the Requirement  
of the Degree of Doctor of Philosophy

In  
Electrical Engineering  
Computers and Systems Engineering Department

By

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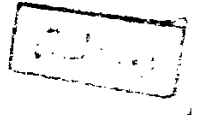
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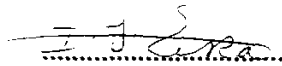
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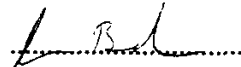
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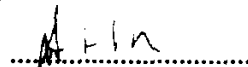
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## **STATEMENT**

This dissertation is submitted to Ain Shams University for the degree of Doctor of Philosophy in Computer Engineering.

No part of this thesis has been submitted for a degree or a qualification at other university or institution.

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Benefits of OMMS are as follows: objects can be shared and standardized, its redundancy can be reduced, inconsistency can be avoided, security restrictions can be applied, integrity can be maintained, and conflicting requirements can be balanced.

To develop object models management system tool (OMMST) we define two main sublanguages : Object model definition language (ODL) which allows specification of the schema for an object model (model, class, and association). Object model manipulation language (OML) which supports the manipulation and processing of objects.

Based on these languages, the following operations are defined and implemented: object model definitions (model, class, associations), object model alteration (adding new empty model to the OMC, inserting new object into existing model and updating objects in existing model, deleting objects from existing model and removing existing model, empty or otherwise from the OMC). Finally viewing the existing models.

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## **ABSTRACT**

### **Object Models Management System**

Object-oriented modeling and design is an approach to handle problems using models organized around the real world concepts. Object modeling expresses the characteristics of a real life problem. The static characteristics, which represent the components of a system and their interrelationships, are represented in the object model. The dynamic changes, which represent the different states and the rules of changing, are represented in the dynamic model.

The problem of focus in this thesis is how to develop a tool to facilitate the expression and management of object model. The research conducted includes the development of object models management system (OMMS) which is a software layer between the object model catalog (OMC) and the user. The user of OMMS is assumed to be a database designer or a database administrator. A user issues an access request. The OMMS intercepts that request and analyzes it. OMMS inspects the schema, and the storage structure definition, that it executes the necessary operations on the stored object model catalog. The functions of the OMMS include the support for the object model definition, object model manipulation, and object dictionary. One important feature of handling the OMMS is to render object independence.

Benefits of OMMS are as follows: objects can be shared and standardized, its redundancy can be reduced, inconsistency can be avoided, security restrictions can be applied, integrity can be maintained, and conflicting requirements can be balanced.

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## TERMINOLOGY

<b>DBMS</b>	: Database Management System
<b>DDL</b>	: Data Definition Language
<b>DML</b>	: Data Manipulation Language
<b>OD</b>	: Object Designer
<b>OMA</b>	: Object Model Administrator
<b>ODL</b>	: Object Definition Language
<b>OMC</b>	: Object Model Catalog
<b>OML</b>	: Object Manipulation Language
<b>OMMS</b>	: Object Models Management System
<b>OMMST</b>	: Object Model Management System Tool
<b>OODB</b>	: Object-Oriented DataBase



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## ***INTRODUCTION***

