

Preface

INTRODUCTION

Database management is an integral part of many business applications, especially considering the current business environment that emphasizes data, information, and knowledge as crucial components to the proper utilization and dispensing of an organization's resources. Building upon the work of previous volumes in this book series, we are once again proud to present a collection of high-quality and state-of-the-art research conducted by experts from all around the world .

This book is designed to provide researchers and academics with the latest research-focused chapters on database and database management; these chapters will be insightful and helpful to their current and future research. The book is also designed to serve technical professionals and aims to enhance professional understanding of the capabilities and features of new database applications and upcoming database technologies.

This book is divided into four sections: (I) Analysis and Evaluation of Database Models, (II) Database Designs and Applications, (III) Database Design Issues and Solutions, and (IV) Semantic Database Analysis.

SECTION I: ANALYSIS AND EVALUATION OF DATABASE MODELS

Chapter I, "A Rigorous Framework for Model-Driven Development," describes a rigorous framework that comprises the NEREUS metamodeling notation, a system of transformation rules to bridge the gap between UML/OCL and NEREUS and, the definition of MDA-based reusable components and model/metamodeling transformations. This chapter also shows how to integrate NEREUS with algebraic languages using the Common Algebraic Specification Language.

Chapter II, "Adopting Open-Source Development Tools in a Commercial Production Environment: Are We Locked in?" explores the use of a standardized interchange format for increased flexibility in a company environment. It also reports on a case study in which a systems development company has explored the possibility of complementing its current proprietary tools with open-source products for supporting its model-based development activities.