# DEVELOPING HIGH QUALITY DATA MODELS

MATTHEW WEST





# **Developing High Quality Data Models**

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# **Developing High Quality Data Models:**

**Developing High Quality Data Models** Matthew West, 2011-02-07 Developing High Quality Data Models provides an introduction to the key principles of data modeling It explains the purpose of data models in both developing an Enterprise Architecture and in supporting Information Quality common problems in data model development and how to develop high quality data models in particular conceptual integration and enterprise data models. The book is organized into four parts Part 1 provides an overview of data models and data modeling including the basics of data model notation types and uses of data models and the place of data models in enterprise architecture Part 2 introduces some general principles for data models including principles for developing ontologically based data models and applications of the principles for attributes relationship types and entity types Part 3 presents an ontological framework for developing consistent data models Part 4 provides the full data model that has been in development throughout the book The model was created using Jotne EPM Technologys EDMVisualExpress data modeling tool This book was designed for all types of modelers from those who understand data modeling basics but are just starting to learn about data modeling in practice through to experienced data modelers seeking to expand their knowledge and skills and solve some of the more challenging problems of data modeling Uses a number of common data model patterns to explain how to develop data models over a wide scope in a way that is consistent and of high quality Offers generic data model templates that are reusable in many applications and are fundamental for developing more specific templates Develops ideas for creating consistent approaches to high quality data models Data Modeling Essentials Graeme Simsion, Graham Witt, Matthew West, 2015-03-29 If you are seeking expert tutelage for data modelling tools and techniques you need look no further Regardless of your level of expertise as a data analyst data modeler data architect database designer database application developer database administrator business analysts or systems designers this book will serve as an invaluable resource in your effort to build reliable and effective data models Beginning with the basics this book provides a thorough grounding in theory before guiding the reader through the various stages of applied data modelling and database design Later chapters delve into advanced topics and enterprise data modelling covering business rules data warehousing data migration and more This new and expanded edition updates existing content where current practice dictates and adds new content on Modelling XML Master and Reference Data Mapping Between Models Data Migration and other areas of intense interest to the data modelling community NEW TO THIS EDITION Enhanced contextual treatment of data modeling by providing more examples of data models and their quality in examining where the benefits derive NEW chapter on Master and Reference Data Management NEW chapter of Data Migration NEW chapter on modeling XML messages NEW chapter on Mapping Between Data Models The perfect balance of theory and practice giving you both the foundation and the tools to develop high quality data models Perfect reference for the reflective practitioner providing clear and accessible guidance to data modeling techniques An invaluable resource

containing vast amounts of useful and well illustrated information to those involved in data modeling from the novice to the Measuring Data Quality for Ongoing Improvement Laura Sebastian-Coleman, 2012-12-31 The Data Quality expert Assessment Framework shows you how to measure and monitor data quality ensuring quality over time You ll start with general concepts of measurement and work your way through a detailed framework of more than three dozen measurement types related to five objective dimensions of quality completeness timeliness consistency validity and integrity Ongoing measurement rather than one time activities will help your organization reach a new level of data quality. This plain language approach to measuring data can be understood by both business and IT and provides practical guidance on how to apply the DQAF within any organization enabling you to prioritize measurements and effectively report on results Strategies for using data measurement to govern and improve the quality of data and quidelines for applying the framework within a data asset are included You ll come away able to prioritize which measurement types to implement knowing where to place them in a data flow and how frequently to measure Common conceptual models for defining and storing of data quality results for purposes of trend analysis are also included as well as generic business requirements for ongoing measuring and monitoring including calculations and comparisons that make the measurements meaningful and help understand trends and detect anomalies Demonstrates how to leverage a technology independent data quality measurement framework for your specific business priorities and data quality challenges Enables discussions between business and IT with a non technical vocabulary for data quality measurement Describes how to measure data quality on an ongoing basis with generic measurement types that can be applied to any situation Data Quality Management with Semantic Technologies Christian Fürber, 2015-12-11 Christian F rber investigates the useful application of semantic technologies for the area of data quality management Based on a literature analysis of typical data quality problems and typical activities of data quality management processes he develops the Semantic Data Quality Management framework as the major contribution of this thesis The SDOM framework consists of three components that are evaluated in two different use cases Moreover this thesis compares the framework to conventional data quality software Besides the framework this thesis delivers important theoretical findings namely a comprehensive typology of data quality problems ten generic data requirement types a requirement centric data quality management process and an analysis of related work The Data Modeling Handbook Michael C. Reingruber, William W. Gregory, 1994-12-17 This practical field tested reference doesn t just explain the characteristics of finished high quality data models it shows readers exactly how to build one It presents rules and best practices in several notations including IDEFIX Martin Chen and Finkelstein The book offers dozens of real world examples and go beyond basic theory to provide users with practical guidance Conceptual Modeling - ER '98 Tok Wang Ling, Sudha Ram, 1998-10-21 This volume constitutes the refereed proceedings of the 17th International Conference on Conceptual Modeling ER 98 held in Singapore in November 1998 The 32 revised full papers presented were carefully reviewed and selected from a total of 95

submissions The book is divided into chapters on conceptual modeling and design user interface modeling information retrieval on the Web semantics and constraints conceptual modeling tools quality and reliability metrics industrial experience in conceptual modeling object oriented database management systems data warehousing industrial case studies object oriented approaches The Data Model Resource Book Len Silverston, Paul Agnew, 2011-03-21 This third volume of the best selling Data Model Resource Book series revolutionizes the data modeling discipline by answering the question How can you save significant time while improving the quality of any type of data modeling effort In contrast to the first two volumes this new volume focuses on the fundamental underlying patterns that affect over 50 percent of most data modeling efforts These patterns can be used to considerably reduce modeling time and cost to jump start data modeling efforts as standards and quidelines to increase data model consistency and quality and as an objective source against which an enterprise can evaluate data models On Data Models, Their Transformations and Consistency Preserving Programming Interfaces Martin Pein.2002 Executing Data Quality Projects Danette McGilvray, 2021-05-27 Executing Data Quality Projects Second Edition presents a structured yet flexible approach for creating improving sustaining and managing the quality of data and information within any organization Studies show that data quality problems are costing businesses billions of dollars each year with poor data linked to waste and inefficiency damaged credibility among customers and suppliers and an organizational inability to make sound decisions Help is here This book describes a proven Ten Step approach that combines a conceptual framework for understanding information quality with techniques tools and instructions for practically putting the approach to work with the end result of high quality trusted data and information so critical to today s data dependent organizations. The Ten Steps approach applies to all types of data and all types of organizations for profit in any industry non profit government education healthcare science research and medicine This book includes numerous templates detailed examples and practical advice for executing every step At the same time readers are advised on how to select relevant steps and apply them in different ways to best address the many situations they will face The layout allows for quick reference with an easy to use format highlighting key concepts and definitions important checkpoints communication activities best practices and warnings The experience of actual clients and users of the Ten Steps provide real examples of outputs for the steps plus highlighted sidebar case studies called Ten Steps in Action This book uses projects as the vehicle for data quality work and the word broadly to include 1 focused data quality improvement projects such as improving data used in supply chain management 2 data quality activities in other projects such as building new applications and migrating data from legacy systems integrating data because of mergers and acquisitions or untangling data due to organizational breakups and 3 ad hoc use of data quality steps techniques or activities in the course of daily work The Ten Steps approach can also be used to enrich an organization s standard SDLC whether sequential or Agile and it complements general improvement methodologies such as six sigma or lean No two data quality projects are the same but the flexible nature of the Ten Steps

means the methodology can be applied to all The new Second Edition highlights topics such as artificial intelligence and machine learning Internet of Things security and privacy analytics legal and regulatory requirements data science big data data lakes and cloud computing among others to show their dependence on data and information and why data quality is more relevant and critical now than ever before Includes concrete instructions numerous templates and practical advice for executing every step of The Ten Steps approach Contains real examples from around the world gleaned from the author's consulting practice and from those who implemented based on her training courses and the earlier edition of the book Allows for quick reference with an easy to use format highlighting key concepts and definitions important checkpoints communication activities and best practices A companion Web site includes links to numerous data quality resources including many of the templates featured in the text guick summaries of key ideas from the Ten Steps methodology and other tools and information that are available online Looking to methods and tools for the Research in Design and Architectural Technology Filippo Bosi, Paolina Ferrulli, Elisabetta Fossi, 2015-10-15 The volume presents the research experience of young researchers and PhD candidates dealing with the Italian scientific area 08 C1 Design and Technology of Architecture with a discussion about scientific issues and methodologies applied The aim is to express the methodological and investigation features of the issues faced by the researchers along with the effectiveness of their researches design giving the reader an immediate overview of the 08 C1 doctoral experience Beside young researchers statements as witnesses of this research path the volume collects professors critical contribution to enrich the comprehensive picture of the progression and methodologies of the doctoral researches presented Digital Built Asset Management Qiuchen Lu, Michael Pitt, 2024-10-03 This insightful book presents a comprehensive understanding of the new technologies impacting the digital era of built asset and facility management Informative and accessible it illustrates how the concepts principles strategies and applications of digital built asset management can be improved and implemented in real life practice

Database Modeling and Design Toby J. Teorey, Sam S. Lightstone, Tom Nadeau, H.V. Jagadish, 2011-02-10 Database Modeling and Design Fifth Edition focuses on techniques for database design in relational database systems This extensively revised fifth edition features clear explanations lots of terrific examples and an illustrative case and practical advice with design rules that are applicable to any SQL based system The common examples are based on real life experiences and have been thoroughly class tested This book is immediately useful to anyone tasked with the creation of data models for the integration of large scale enterprise data It is ideal for a stand alone data management course focused on logical database design or a supplement to an introductory text for introductory database management In depth detail and plenty of real world practical examples throughout Loaded with design rules and illustrative case studies that are applicable to any SQL UML or XML based system Immediately useful to anyone tasked with the creation of data models for the integration of large scale enterprise data

On the Move to Meaningful Internet Systems: OTM 2010 Robert Meersman, Tharam

Dillon, Pilar Herrero, 2010-11-06 In 2007 the IS wo shop Information Security was added to try covering also the speci c issues of security in complex Internet based information systems **Enterprise and Organizational Modeling and** Simulation Joseph Barjis, Robert Pergl, Eduard Babkin, 2015-10-12 This book constitutes the refereed proceedings of the 11th International Workshop on Enterprise and Organizational Modeling and Simulation EOMAS 2015 held at CAiSE 2015 in June 2015 in Stockholm Sweden EOMAS was founded with the purpose to become a forum among researchers and practitioners to share their research and practical findings by encouraging the dissemination of research results under a more generic umbrella called enterprise engineering which encompasses internal factors ranging from organizational complexity to intricacy of business processes and sophistication in workflows as well as external factors and uncertainties such as competition politics or the emergence of innovative technologies. The 15 papers presented in this volume were carefully reviewed and selected from 28 submissions. They were organized in topical sections named enterprise conceptual modeling and simulation enterprise modeling formal foundation and enterprise optimization Interoperability for digital engineering Metadata and Semantic Research Emmanouel Garoufallou, Andreas Vlachidis, 2023-08-09 This systems VV., Moreno, 2015 book constitutes the refereed post proceedings of the 16th Research Conference on Metadata and Semantic Research MTSR 2022 held in London UK during November 7 11 2022 The 21 full papers and 4 short papers included in this book were carefully reviewed and selected from 79 submissions. They were organized in topical sections as follows metadata linked data semantics and ontologies general session and track on Knowledge IT Artifacts KITA Track on digital humanities and digital curation and track on cultural collections and applications track on digital libraries information retrieval big linked social open data and metadata linked data semantics and ontologies general session track on agriculture food environment and metadata linked Data semantics and ontologies general track on open repositories research information systems data infrastructures and metadata linked data semantics and ontologies general metadata linked data semantics and ontologies general session and track on european and national projects Model Order Reduction for Design, Analysis and Control of Nonlinear Vibratory Systems Cyril Touzé, Attilio Frangi, 2024-10-15 The book presents reduction methods that are using tools from dynamical systems theory in order to provide accurate models for nonlinear dynamical solutions occurring in mechanical systems featuring either smooth or non smooth nonlinearities. The cornerstone of the chapters is the use of methods defined in the framework of the invariant manifold theory for nonlinear systems which allows definitions of efficient methods generating the most parsimonious nonlinear models having minimal dimension and reproducing the dynamics of the full system under generic assumptions Emphasis is put on the development of direct computational methods for finite element structures Once the reduced order model obtained numerical and analytical methods are detailed in order to get a complete picture of the dynamical solutions of the system in terms of stability and bifurcation Applications from the MEMS and aerospace industry are covered and analyzed Geometric nonlinearity friction nonlinearity and contacts in jointed

structures detection and use of internal resonance electromechanical and piezoelectric coupling with passive control parametric driving are surveyed as key applications. The connection to digital twins is reviewed in a general manner opening the door to the efficient use of invariant manifold theory for nonlinear analysis design and control of engineering structures

Formal Ontology in Information Systems Nathalie Aussenac-Gilles, Torsten Hahmann, Antony Galton, 2024-01-15 FOIS is the flagship conference of the International Association for Ontology and its Applications a non profit organization which promotes interdisciplinary research and international collaboration at the intersection of philosophical ontology linguistics logic cognitive science and computer science This book presents the papers delivered at FOIS 2023 the 13th edition of the Formal Ontology in Information Systems conference The event was held as a sequentially hybrid event face to face in Sherbrooke Canada from 17 to 20 July 2023 and online from 18 to 20 September 2023 In total 62 articles from 19 different countries were submitted out of which 25 were accepted for inclusion in the conference and for publication corresponding to an acceptance rate of 40 percent The contributions are separated into the book s three sections 1 Foundational ontological issues 2 Methodological issues around the development alignment verification and use of ontologies and 3 Domain ontologies and ontology based applications In these sections ontological aspects from a wide variety of fields are covered primarily from various engineering domains including cybersecurity manufacturing petroleum engineering and robotics but also extending to the humanities social sciences medicine and dentistry A noticeable trend among the contributions in this edition of the conference is the recognition that improving the tools to analyze align and improve ontologies is of paramount importance in continuing to advance the field of formal ontology. The book will be of interest to all formal and applied ontology researchers and to those who use formal ontologies and information systems as part of their work **Enabling Manufacturing** Competitiveness and Economic Sustainability Michael F. Zaeh, 2013-09-12 The changing manufacturing environment requires more responsive and adaptable manufacturing systems The theme of the 5th International Conference on Changeable Agile Reconfigurable and Virtual production CARV2013 is Enabling Manufacturing Competitiveness and Economic Sustainability Leading edge research and best implementation practices and experiences which address these important issues and challenges are presented. The proceedings include advances in manufacturing systems design planning evaluation control and evolving paradigms such as mass customization personalization changeability re configurability and flexibility New and important concepts such as the dynamic product families and platforms co evolution of products and systems and methods for enhancing manufacturing systems economic sustainability and prolonging their life to produce more than one product generation are treated Enablers of change in manufacturing systems production volume and capability scalability and managing the volatility of markets competition among global enterprises and the increasing complexity of products manufacturing systems and management strategies are discussed Industry challenges and future directions for research and development needed to help both practitioners and academicians are presented About the Editor Prof Dr Ing

Michael F Zaeh born in 1963 has been and is Professor for and Manufacturing Technology since 2002 and together with Prof Dr Ing Gunther Reinhart Head of the Institute for Machine Tools and Industrial Management iwb at the Technische Universitaet Muenchen TUM After studying general mechanical engineering he was doctoral candidate under Prof Dr Ing Joachim Milberg at TUM from 1990 until 1993 and received his doctorate in 1993 From 1994 to 1995 he was department leader under Prof Dr Ing Gunther Reinhart From 1996 to 2002 he worked for a machine tool manufacturer in several positions most recently as a member of the extended management Prof Dr Ing Michael F Zaeh is an associated member of the CIRP and member of acatech WGP and WLP His current researches include among others Joining and Cutting Technologies like Laser Cutting and Welding as well as Friction Stir Welding Structural Behaviour and Energy Efficiency of Machine Tools and Manufacturing Processes like Additive Manufacturing Dictionary of Mathematical Geosciences Richard J. Howarth, 2017-05-27 This dictionary includes a number of mathematical statistical and computing terms and their definitions to assist geoscientists and provide guidance on the methods and terminology encountered in the literature Each technical term used in the explanations can be found in the dictionary which also includes explanations of basics such as trigonometric functions and logarithms There are also citations from the relevant literature to show the term s first use in mathematics statistics etc and its subsequent usage in geosciences

Embracing the Tune of Expression: An Mental Symphony within **Developing High Quality Data Models** 

In a global consumed by displays and the ceaseless chatter of instant transmission, the melodic splendor and mental symphony produced by the prepared term usually diminish into the back ground, eclipsed by the relentless noise and interruptions that permeate our lives. Nevertheless, set within the pages of **Developing High Quality Data Models** a marvelous literary prize filled with natural emotions, lies an immersive symphony waiting to be embraced. Crafted by an elegant composer of language, this fascinating masterpiece conducts readers on a psychological journey, skillfully unraveling the concealed tunes and profound affect resonating within each carefully constructed phrase. Within the depths with this emotional evaluation, we will explore the book is key harmonies, analyze its enthralling writing fashion, and submit ourselves to the profound resonance that echoes in the depths of readers souls.

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