
Developing High Quality Data Models

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*Developing High Quality
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MELODY ARROYO

Expert Data Modeling with Power BI
Microsoft Press

From the first chapter, author Carla DeAngelis skillfully explains the normally complex concepts of Data Modeling—a critical success factor in the information-based enterprises of today. Carla tackles complex topics such as Logical Data Models, Modeling Methodologies, Relationships, and Attributes in a clear style that makes it simple for anyone to begin applying them immediately. Once the foundation has been laid, Carla teaches you to develop your own databases with ERwin. You will learn to use the tool to create primary keys and assign attributes, build data relationships

with point and click ease, build and edit tables with Erwin's built-in editors, create indexes with the Index Editor, write custom SQL scripts, and process reports with the Report Tools.

Hands-On Big Data Modeling John Wiley & Sons

This book provides the business or IT professional with a practical working knowledge of data modelling concepts and best practices, along with how to apply these principles with ER/Studio DA. You will build many ER/Studio DA data models along the way, applying best practices to master these ten objectives: You will know why a data model is needed and which ER/Studio DA models are the most appropriate for each situation; You will be able to read a data model of any size and complexity with the same confidence as reading a book; You will know how to

apply all the key features of ER/Studio DA; You will be able to build relational and dimensional conceptual, logical, and physical data models in ER/Studio DA; You will be able to apply techniques such as indexing, transforms, and forward engineering to turn a logical data model into an efficient physical design; You will improve data model quality and impact analysis results by leveraging ER/Studio DAs lineage functionality and compare/merge utility; You will achieve enterprise architecture through ER/Studio DAs repository and portal functionality; You will be able to apply ER/Studio DAs data dictionary features; You will learn ways of sharing the data model through reporting and through exporting the model in a variety of formats; You will leverage ER/Studio DAs naming functionality to improve naming consistency. This book

contains four sections: Section I introduces data modelling and the ER/Studio DA landscape. Learn why data modelling is so critical to software development and even more importantly, why data modelling is so critical to understanding the business. You will also learn about the ER/Studio DA environment. By the end of this section, you will have created and saved your first data model in ER/Studio DA and be ready to start modelling in Section II. Section II explains all of the symbols and text on a data model, including entities, attributes, relationships, domains, and keys. By the time you finish this section, you will be able to read a data model of any size or complexity, and create a complete data model in ER/Studio DA. Section III explores the three different levels of models: conceptual, logical, and physical. A conceptual data model (CDM) represents a business need within a defined scope. The logical data model (LDM) represents a detailed business solution, capturing the business requirements without complicating the model with implementation concerns such as software and hardware. The physical data model (PDM) represents a detailed technical solution. The PDM is the logical data model compromised often to improve performance or usability. The PDM makes up for deficiencies in our technology. By the end of this section you will be able to create conceptual, logical, and physical data models in ER/Studio DA. Section IV discusses additional features of ER/Studio DA. These features include data dictionary, data lineage, automating tasks, repository and portal, exporting and reporting, naming standards, and compare and merge functionality.

Data Modeling with ERwin Technics Publications

The only Oracle Press guide to MySQL Workbench explains how to design and model MySQL databases. MySQL Workbench Data Modeling and Development helps developers learn how to effectively use this powerful product for database modeling, reverse engineering, and interaction with the database without writing SQL statements. MySQL Workbench is a graphical user interface that can be used to create and maintain MySQL databases without coding. The book covers the interface and explains how to accomplish each step by illustrating best practices visually. Clear examples, instructions, and explanations reveal, in a single volume, the art of database modeling. This Oracle Press guide shows you how to get the tool to do what you want. Annotated screen shots demonstrate all interactions with the tool,

and text explains the how, what, and why of each step. Complete coverage Installation and Configuration; Creating and Managing Connections; Data Modeling Concepts; Creating an ERD; Defining the Physical Schemata; Creating and Managing Tables; Creating and Managing Relationships; Creating and Managing Views; Creating and Managing Routines; Creating and Managing Routine Groups; Creating and Managing User & Groups; Creating and Managing SQL Scripts; Generating SQL Scripts; Forward Engineering a Data Model; Synchronize a Model with a Database; Reverse Engineering a Database; Managing Differences in the Data Catalog; Creating and Managing Model Notes; Editing Table Data; Editing Generated Scripts; Creating New Instances; Managing Import and Export; Managing Security; Managing Server Instances

Semantic Modeling for Data Elsevier
Read today's business headlines and you will see that many issues stem from people not having the right data at the right time. Data issues don't always make the front page, yet they exist within every organisation. We need to improve how we manage data -- and the most valuable tool for explaining, validating and managing data is a data model. This book provides the business or IT professional with a practical working knowledge of data modelling concepts and best practices. This book is written in a conversational style that encourages you to read it from start to finish and master these ten objectives: Know when a data model is needed and which type of data model is most effective for each situation; Read a data model of any size and complexity with the same confidence as reading a book; Build a fully normalised relational data model, as well as an easily navigatable dimensional model; Apply techniques to turn a logical data model into an efficient physical design; Leverage several templates to make requirements gathering more efficient and accurate; Explain all ten categories of the Data Model Scorecard®; Learn strategies to improve your working relationships with others; Appreciate the impact unstructured data has, and will have, on our data modelling deliverables; Learn basic UML concepts; Put data modelling in context with XML, metadata, and agile development.

Data Modeling Cambridge University Press
Logical Data Modeling offers business managers, analysts, and students a clear, basic systematic guide to defining business information structures in relational database terms. The approach,

based on Clive Finkelstein's business-side Information Engineering, is hands-on, practical, and explicit in terminology and reasoning. Filled with illustrations, examples, and exercises, Logical Data Modeling makes its subject accessible to readers with only a limited knowledge of database systems. The book covers all essential topics thoroughly but succinctly: entities, associations, attributes, keys and inheritance, valid and invalid structures, and normalization. It also emphasizes communication with business and database specialists, documentation, and the use of Visible Systems' Visible Advantage enterprise modeling tool. The application of design patterns to logical data modeling provides practitioners with a practical tool for fast development. At the end, a chapter covers the issues that arise when the logical data model is translated into the design for a physical database.

Mathematics for Machine Learning

John Wiley & Sons

What value does semantic data modeling offer? As an information architect or data science professional, let's say you have an abundance of the right data and the technology to extract business gold—but you still fail. The reason? Bad data semantics. In this practical and comprehensive field guide, author Panos Alexopoulos takes you on an eye-opening journey through semantic data modeling as applied in the real world. You'll learn how to master this craft to increase the usability and value of your data and applications. You'll also explore the pitfalls to avoid and dilemmas to overcome for building high-quality and valuable semantic representations of data. Understand the fundamental concepts, phenomena, and processes related to semantic data modeling Examine the quirks and challenges of semantic data modeling and learn how to effectively leverage the available frameworks and tools Avoid mistakes and bad practices that can undermine your efforts to create good data models Learn about model development dilemmas, including representation, expressiveness and content, development, and governance Organize and execute semantic data initiatives in your organization, tackling technical, strategic, and organizational challenges

The Data Warehouse Toolkit "O'Reilly Media, Inc."

This definitive book is endorsed by ORACLE, one of the leading database corporations today, and explains key techniques for defining the functionality of a business and subsequent high-quality

integrated systems.

Developing High Quality Data Models

Packt Publishing Ltd

Information systems development is not merely a technical intervention but involves social and ethical dilemmas that affect the human, social and organizational domains. To demonstrate this point, the authors conduct a thorough and substantive description and analysis of the conceptual and philosophical underpinnings of systems development. In particular they analyse a number of systems development methodologies including structured methods, prototyping, ETHICS and Soft Systems Methodology to reveal the underlying conceptual and philosophical foundations. The book provides an in-depth analysis of data modelling theory and its links with theories of language and cognition. It offers a framework to describe and analyse different systems development approaches and to explain their strengths and weaknesses. The book is aimed at graduate students taking courses in information systems and data modelling, but will also appeal to information systems managers and professionals for whom the summary of methodologies will be useful.

[The Data Model Resource Book](#) Addison-Wesley Professional

Data modeling is one of the most critical phases in the database application development process, but also the phase most likely to fail. A master data modeler must come into any organization, understand its data requirements, and skillfully model the data for applications that most effectively serve organizational needs. Mastering Data Modeling is a complete guide to becoming a successful data modeler. Featuring a requirements-driven approach, this book clearly explains fundamental concepts, introduces a user-oriented data modeling notation, and describes a rigorous, step-by-step process for collecting, modeling, and documenting the kinds of data that users need.

Assuming no prior knowledge, Mastering Data Modeling sets forth several fundamental problems of data modeling, such as reconciling the software developer's demand for rigor with the users' equally valid need to speak their own (sometimes vague) natural language. In addition, it describes the good habits that help you respond to these fundamental problems. With these good habits in mind, the book describes the Logical Data Structure (LDS) notation and the process of controlled evolution by which you can create low-cost, user-approved data models that resist premature obsolescence. Also included is

an encyclopedic analysis of all data shapes that you will encounter. Most notably, the book describes The Flow, a loosely scripted process by which you and the users gradually but continuously improve an LDS until it faithfully represents the information needs. Essential implementation and technology issues are also covered. You will learn about such vital topics as: The fundamental problems of data modeling The good habits that help a data modeler be effective and economical LDS notation, which encourages these good habits How to read an LDS aloud--in declarative English sentences How to write a well-formed (syntactically correct) LDS How to get users to name the parts of an LDS with words from their own business vocabulary How to visualize data for an LDS A catalog of LDS shapes that recur throughout all data models The Flow--the template for your conversations with users How to document an LDS for users, data modelers, and technologists How to map an LDS to a relational schema How LDS differs from other notations and why "Story interludes" appear throughout the book, illustrating real-world successes of the LDS notation and controlled evolution process. Numerous exercises help you master critical skills. In addition, two detailed, annotated sample conversations with users show you the process of controlled evolution in action.

The Object Primer McGraw Hill Professional

Solve all big data problems by learning how to create efficient data models Key Features Create effective models that get the most out of big data Apply your knowledge to datasets from Twitter and weather data to learn big data Tackle different data modeling challenges with expert techniques presented in this book Book Description Modeling and managing data is a central focus of all big data projects. In fact, a database is considered to be effective only if you have a logical and sophisticated data model. This book will help you develop practical skills in modeling your own big data projects and improve the performance of analytical queries for your specific business requirements. To start with, you'll get a quick introduction to big data and understand the different data modeling and data management platforms for big data. Then you'll work with structured and semi-structured data with the help of real-life examples. Once you've got to grips with the basics, you'll use the SQL Developer Data Modeler to create your own data models containing different file types such as CSV, XML, and JSON.

You'll also learn to create graph data models and explore data modeling with streaming data using real-world datasets. By the end of this book, you'll be able to design and develop efficient data models for varying data sizes easily and efficiently. What you will learn Get insights into big data and discover various data models Explore conceptual, logical, and big data models Understand how to model data containing different file types Run through data modeling with examples of Twitter, Bitcoin, IMDB and weather data modeling Create data models such as Graph Data and Vector Space Model structured and unstructured data using Python and R Who this book is for This book is great for programmers, geologists, biologists, and every professional who deals with spatial data. If you want to learn how to handle GIS, GPS, and remote sensing data, then this book is for you. Basic knowledge of R and QGIS would be helpful.

Empirical Model Building Elsevier Data Modeling Essentials, Third Edition, covers the basics of data modeling while focusing on developing a facility in techniques, rather than a simple familiarization with "the rules". In order to enable students to apply the basics of data modeling to real models, the book addresses the realities of developing systems in real-world situations by assessing the merits of a variety of possible solutions as well as using language and diagramming methods that represent industry practice. This revised edition has been given significantly expanded coverage and reorganized for greater reader comprehension even as it retains its distinctive hallmarks of readability and usefulness. Beginning with the basics, the book provides a thorough grounding in theory before guiding the reader through the various stages of applied data modeling and database design. Later chapters address advanced subjects, including business rules, data warehousing, enterprise-wide modeling and data management. It includes an entirely new section discussing the development of logical and physical modeling, along with new material describing a powerful technique for model verification. It also provides an excellent resource for additional lectures and exercises. This text is the ideal reference for data modelers, data architects, database designers, DBAs, and systems analysts, as well as undergraduate and graduate-level students looking for a real-world perspective. Thorough coverage of the fundamentals and relevant theory. Recognition and support for the creative

side of the process. Expanded coverage of applied data modeling includes new chapters on logical and physical database design. New material describing a powerful technique for model verification. Unique coverage of the practical and human aspects of modeling, such as working with business specialists, managing change, and resolving conflict. **Building a Second Brain** CRC Press Prepare for Microsoft Exam 70-768—and help demonstrate your real-world mastery of Business Intelligence (BI) solutions development with SQL Server 2016 Analysis Services (SSAS), including modeling and queries. Designed for experienced IT professionals ready to advance their status, Exam Ref focuses on the critical thinking and decision-making acumen needed for success at the MCSA level. Focus on the expertise measured by these objectives:

- Design a multidimensional BI semantic model
- Design a tabular BI semantic model
- Develop queries using Multidimensional Expressions (MDX) and Data Analysis Expressions (DAX)
- Configure and maintain SSAS

This Microsoft Exam Ref:

- Organizes its coverage by exam objectives
- Features strategic, what-if scenarios to challenge you
- Assumes you are a database or BI professional with experience creating models, writing MDX or DAX queries, and using SSAS

Data Modeling Made Simple Addison-Wesley Professional

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 goes beyond basic theory to provide users with practical guidance.

Exam Ref 70-768 Developing SQL

Data Models Technics Publications

This old edition was published in 2002. The current and final edition of this book is *The Data Warehouse Toolkit: The Definitive Guide to Dimensional Modeling*, 3rd Edition which was published in 2013 under ISBN: 9781118530801. The authors begin with fundamental design recommendations and gradually progress step-by-step through increasingly complex scenarios. Clear-cut guidelines for designing dimensional models are illustrated using real-world data warehouse case studies drawn from a variety of business application areas and industries, including: Retail sales and e-commerce Inventory management Procurement Order management

Customer relationship management (CRM) Human resources management Accounting Financial services Telecommunications and utilities Education Transportation Health care and insurance By the end of the book, you will have mastered the full range of powerful techniques for designing dimensional databases that are easy to understand and provide fast query response. You will also learn how to create an architected framework that integrates the distributed data warehouse using standardized dimensions and facts.

Logical Data Modeling John Wiley & Sons Perfect for professionals seeking a practical handle on systems analysis and design and advanced database management, this book is a unique, hands-on look at data modeling—a topic of increasing importance in object-oriented programming.

Patterns of Data Modeling John Wiley & Sons

Data Modeling Made Simple with CA ERwin Data Modeler r8 will provide the business or IT professional with a practical working knowledge of data modeling concepts and best practices, and how to apply these principles with CA ERwin Data Modeler r8. You'll build many CA ERwin data models along the way, mastering first the fundamentals and later in the book the more advanced features of CA ERwin Data Modeler. This book combines real-world experience and best practices with down to earth advice, humor, and even cartoons to help you master the following ten objectives:

1. Understand the basics of data modeling and relational theory, and how to apply these skills using CA ERwin Data Modeler
2. Read a data model of any size and complexity with the same confidence as reading a book
3. Understand the difference between conceptual, logical, and physical models, and how to effectively build these models using CA ERwin's Data Modelers Design Layer Architecture
4. Apply techniques to turn a logical data model into an efficient physical design and vice-versa through forward and reverse engineering, for both 'top down' and bottom-up design
5. Learn how to create reusable domains, naming standards, UDPs, and model templates in CA ERwin Data Modeler to reduce modeling time, improve data quality, and increase enterprise consistency
6. Share data model information with various audiences using model formatting and layout techniques, reporting, and metadata exchange
7. Use the new workspace customization features in CA ERwin Data Modeler r8 to create a workflow suited to your own individual

needs

8. Leverage the new Bulk Editing features in CA ERwin Data Modeler r8 for mass metadata updates, as well as import/export with Microsoft Excel
9. Compare and merge model changes using CA ERwin Data Modelers Complete Compare features
10. Optimize the organization and layout of your data models through the use of Subject Areas, Diagrams, Display Themes, and more

Section I provides an overview of data modeling: what it is, and why it is needed. The basic features of CA ERwin Data Modeler are introduced with a simple, easy-to-follow example. Section II introduces the basic building blocks of a data model, including entities, relationships, keys, and more. How-to examples using CA ERwin Data Modeler are provided for each of these building blocks, as well as 'real world' scenarios for context. Section III covers the creation of reusable standards, and their importance in the organization. From standard data modeling constructs such as domains to CA ERwin-specific features such as UDPs, this section covers step-by-step examples of how to create these standards in CA ERwin Data Modeling, from creation, to template building, to sharing standards with end users through reporting and queries. Section IV discusses conceptual, logical, and physical data models, and provides a comprehensive case study using CA ERwin Data Modeler to show the interrelationships between these models using CA ERwin's Design Layer Architecture. Real world examples are provided from requirements gathering, to working with business sponsors, to the hands-on nitty-gritty details of building conceptual, logical, and physical data models with CA ERwin Data Modeler r8. From the Foreword by Tom Bilcze, President, CA Technologies Modeling Global User Community: Data Modeling Made Simple with CA ERwin Data Modeler r8 is an excellent resource for the ERwin community. The data modeling community is a diverse collection of data professionals with many perspectives of data modeling and different levels of skill and experience. Steve Hoberman and Donna Burbank guide newbie modelers through the basics of data modeling and CA ERwin r8. Through the liberal use of illustrations, the inexperienced data modeler is graphically walked through the components of data models and how to create them in CA ERwin r8. As an experienced data modeler, Steve and Donna give me a handbook for effectively using the new and enhanced features of this release to bring my art form to life. The book delves into advanced modeling topics and

techniques by continuing the liberal use of illustrations. It speaks to the importance of a defined data modeling architecture with soundly modeled data to assist the enterprise in understanding of the value of data. It guides me in applying the finishing touches to my data designs.

[Data Modeling Essentials](#) Pearson Education

Imagine what you could do if scalability wasn't a problem. With this hands-on guide, you'll learn how the Cassandra database management system handles hundreds of terabytes of data while remaining highly available across multiple data centers. This expanded second edition—updated for Cassandra 3.0—provides the technical details and practical examples you need to put this database to work in a production environment. Authors Jeff Carpenter and Eben Hewitt demonstrate the advantages of Cassandra's non-relational design, with special attention to data modeling. If you're a developer, DBA, or application architect looking to solve a database scaling issue or future-proof your application, this guide helps you harness Cassandra's speed and flexibility. Understand Cassandra's distributed and decentralized structure Use the Cassandra Query Language (CQL) and `cqlsh`—the CQL shell Create a working data model and compare it with an equivalent relational model Develop sample applications using client drivers for languages including Java, Python, and Node.js Explore cluster topology and learn how nodes exchange data Maintain a high level of performance

in your cluster Deploy Cassandra on site, in the Cloud, or with Docker Integrate Cassandra with Spark, Hadoop, Elasticsearch, Solr, and Lucene [Mastering Data Modeling](#) Cambridge University Press

This new book aims to provide both beginners and experts with a completely algorithmic approach to data analysis and conceptual modeling, database design, implementation, and tuning, starting from vague and incomplete customer requests and ending with IBM DB/2, Oracle, MySQL, MS SQL Server, or Access based software applications. A rich panoply of s **R for Data Science** Technics Publications Learn how to use R to turn raw data into insight, knowledge, and understanding. This book introduces you to R, RStudio, and the tidyverse, a collection of R packages designed to work together to make data science fast, fluent, and fun. Suitable for readers with no previous programming experience, R for Data Science is designed to get you doing data science as quickly as possible. Authors Hadley Wickham and Garrett Grolemund guide you through the steps of importing, wrangling, exploring, and modeling your data and communicating the results. You'll get a complete, big-picture understanding of the data science cycle, along with basic tools you need to manage the details. Each section of the book is paired with exercises to help you practice what you've learned along the way. You'll learn how to: Wrangle—transform your datasets into a form convenient for analysis Program—learn powerful R tools for

solving data problems with greater clarity and ease Explore—examine your data, generate hypotheses, and quickly test them Model—provide a low-dimensional summary that captures true "signals" in your dataset Communicate—learn R Markdown for integrating prose, code, and results

MySQL Workbench: Data Modeling & Development Technics Publications Llc A quick and reliable way to build proven databases for core business functions Industry experts raved about The Data Model Resource Book when it was first published in March 1997 because it provided a simple, cost-effective way to design databases for core business functions. Len Silverston has now revised and updated the hugely successful 1st Edition, while adding a companion volume to take care of more specific requirements of different businesses. This updated volume provides a common set of data models for specific core functions shared by most businesses like human resources management, accounting, and project management. These models are standardized and are easily replicated by developers looking for ways to make corporate database development more efficient and cost effective. This guide is the perfect complement to The Data Model Resource CD-ROM, which is sold separately and provides the powerful design templates discussed in the book in a ready-to-use electronic format. A free demonstration CD-ROM is available with each copy of the print book to allow you to try before you buy the full CD-ROM.

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