

Data Models And Decisions The Fundamentals Of Management Science

Predictive Modeling for Energy Management and Power Systems Engineering introduces readers to the cutting-edge use of big data and large computational infrastructures in energy demand estimation and power management systems. The book supports engineers and scientists who seek to become familiar with advanced optimization techniques for power systems designs, optimization techniques and algorithms for consumer power management, and potential applications of machine learning and artificial intelligence in this field. The book provides modeling theory in an easy-to-read format, verified with on-site models and case studies for specific geographic regions and complex consumer markets. Presents advanced optimization techniques to improve existing energy demand system Provides data-analytic models and their practical relevance in proven case studies Explores novel developments in machine-learning and artificial intelligence applied in energy management Provides modeling theory in an easy-to-read format Work with data like a pro using this guide that breaks down how to organize, apply, and most importantly, understand what you are analyzing in order to

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become a true data ninja. From the stock market to genomics laboratories, census figures to marketing email blasts, we are awash with data. But as anyone who has ever opened up a spreadsheet packed with seemingly infinite lines of data knows, numbers aren't enough: we need to know how to make those numbers talk. In *The Model Thinker*, social scientist Scott E. Page shows us the mathematical, statistical, and computational models—from linear regression to random walks and far beyond—that can turn anyone into a genius. At the core of the book is Page's "many-model paradigm," which shows the reader how to apply multiple models to organize the data, leading to wiser choices, more accurate predictions, and more robust designs. *The Model Thinker* provides a toolkit for business people, students, scientists, pollsters, and bloggers to make them better, clearer thinkers, able to leverage data and information to their advantage.

An introduction to the use of probability models for analyzing risk and economic decisions, using spreadsheets to represent and simulate uncertainty. This textbook offers an introduction to the use of probability models for analyzing risks and economic decisions. It takes a learn-by-doing approach, teaching the student to use spreadsheets to represent and simulate uncertainty and to analyze the effect of such uncertainty on an economic decision. Students in applied business and

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economics can more easily grasp difficult analytical methods with Excel spreadsheets. The book covers the basic ideas of probability, how to simulate random variables, and how to compute conditional probabilities via Monte Carlo simulation. The first four chapters use a large collection of probability distributions to simulate a range of problems involving worker efficiency, market entry, oil exploration, repeated investment, and subjective belief elicitation. The book then covers correlation and multivariate normal random variables; conditional expectation; optimization of decision variables, with discussions of the strategic value of information, decision trees, game theory, and adverse selection; risk sharing and finance; dynamic models of growth; dynamic models of arrivals; and model risk. New material in this second edition includes two new chapters on additional dynamic models and model risk; new sections in every chapter; many new end-of-chapter exercises; and coverage of such topics as simulation model workflow, models of probabilistic electoral forecasting, and real options. The book comes equipped with Simtools, an open-source, free software used throughout the book, which allows students to conduct Monte Carlo simulations seamlessly in Excel.

“Cukier and his co-authors have a more ambitious project than Kahneman and Harari. They don’t want

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to just point out how powerfully we are influenced by our perspectives and prejudices—our frames. They want to show us that these frames are tools, and that we can optimise their use.” —Forbes From pandemics to populism, AI to ISIS, wealth inequity to climate change, humanity faces unprecedented challenges that threaten our very existence. The essential tool that will enable humanity to find the best way forward is defined in *Framers* by internationally renowned authors Kenneth Cukier, Viktor Mayer-Schönberger, and Francis de Véricourt. To frame is to make a mental model that enables us to make sense of new situations. Frames guide the decisions we make and the results we attain. People have long focused on traits like memory and reasoning, leaving framing all but ignored. But with computers becoming better at some of those cognitive tasks, framing stands out as a critical function—and only humans can do it. This book is the first guide to mastering this human ability. Illustrating their case with compelling examples and the latest research, authors Cukier, Mayer-Schönberger, and de Véricourt examine:

- Why advice to “think outside the box” is useless
- How Spotify beat Apple by reframing music as an experience
- How the #MeToo twitter hashtag reframed the perception of sexual assault
- The disaster of framing Covid-19 as equivalent to seasonal flu, and how framing it akin to SARS delivered New Zealand from the pandemic

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Framers shows how framing is not just a way to improve how we make decisions in the era of algorithms—but why it will be a matter of survival for humanity in a time of societal upheaval and machine prosperity.

Data, Models, and Decisions
The Fundamentals of Management Science
Ingram

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 guidelines to increase data model consistency and quality, and as an objective source against which an enterprise can evaluate data models. Praise for The Data Model Resource Book, Volume 3 "Len and Paul look beneath the superficial issues of data modeling and have produced a work that is a must for every serious designer and manager of an IT project." —Bill Inmon, World-renowned expert, speaker, and author on data warehousing and widely recognized as the "father of data warehousing" "The Data Model Resource Book, Volume 3: Universal Patterns for Data Modeling is a

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great source for reusable patterns you can use to save a tremendous amount of time, effort, and cost on any data modeling effort. Len Silverston and Paul Agnew have provided an indispensable reference of very high-quality patterns for the most foundational types of data model structures. This book represents a revolutionary leap in moving the data modeling profession forward." —Ron Powell, Cofounder and Editorial Director of the Business Intelligence Network "After we model a Customer, Product, or Order, there is still more about each of these that remains to be captured, such as roles they play, classifications in which they belong, or states in which they change. The Data Model Resource Book, Volume 3: Universal Patterns for Data Modeling clearly illustrates these common structures. Len Silverston and Paul Agnew have created a valuable addition to our field, allowing us to improve the consistency and quality of our models by leveraging the many common structures within this text." —Steve Hoberman, Best-Selling Author of Data Modeling Made Simple "The large national health insurance company I work at has actively used these data patterns and the (Universal Data Models) UDM, ahead of this book, through Len Silverston's UDM Jump Start engagement. The patterns have found their way into the core of our Enterprise Information Model, our data warehouse designs, and progressively into key business function databases.

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We are getting to reuse the patterns across projects and are reaping benefits in understanding, flexibility, and time-to-market. Thanks so much." —David Chasteen, Enterprise Information Architect "Reusing proven data modeling design patterns means exactly that. Data models become stable, but remain very flexible to accommodate changes. We have had the fortune of having Len and Paul share the patterns that are described in this book via our engagements with Universal Data Models, LLC. These data modeling design patterns have helped us to focus on the essential business issues because we have leveraged these reusable building blocks for many of the standard design problems. These design patterns have also helped us to evaluate the quality of data models for their intended purpose. Many times there are a lot of enhancements required. Too often the very specialized business-oriented data model is also implemented physically. This may have significant drawbacks to flexibility. I'm looking forward to increasing the data modeling design pattern competence within Nokia with the help of this book." —Teemu Mattelmaki, Chief Information Architect, Nokia "Once again, Len Silverston, this time together with Paul Agnew, has made a valuable contribution to the body of knowledge about datamodels, and the act of building sound data models. As a professional d

Loss Models: From Data to Decisions, Fifth Edition

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continues to supply actuaries with a practical approach to the key concepts and techniques needed on the job. With updated material and extensive examples, the book successfully provides the essential methods for using available data to construct models for the frequency and severity of future adverse outcomes. The book continues to equip readers with the tools needed for the construction and analysis of mathematical models that describe the process by which funds flow into and out of an insurance system. Focusing on the loss process, the authors explore key quantitative techniques including random variables, basic distributional quantities, and the recursive method, and discuss techniques for classifying and creating distributions. Parametric, non-parametric, and Bayesian estimation methods are thoroughly covered along with advice for choosing an appropriate model. Throughout the book, numerous examples showcase the real-world applications of the presented concepts, with an emphasis on calculations and spreadsheet implementation. *Loss Models: From Data to Decisions, Fifth Edition* is an indispensable resource for students and aspiring actuaries who are preparing to take the SOA and CAS examinations. The book is also a valuable reference for professional actuaries, actuarial students, and anyone who works with loss and risk models.

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A modern practical guide to building and using actuarial models. *Loss Models: From Data to Decisions* is organized around the principle that actuaries build models in order to analyze risks and make decisions about managing the risks based on conclusions drawn from the analysis. In practice, one begins with data and ends with a business decision. The book flows logically from this principle. It begins with a framework for model building and a description of frequency and severity loss data typically available to actuaries. Parametric models are emphasized throughout. The frequency and severity models are used in building aggregate loss models, in credibility-based pricing models, and in loss analysis over multiple time periods. Designed as both an educational text as well as a professional reference, *Loss Models*: Assumes little prior knowledge of insurance systems Features many fascinating examples taken from insurance files Contains a major instructive case study continued through each chapter Covers the classical areas of risk theory and loss distributions Gives a practical but rigorous treatment of modern credibility theory Uses standard statistical concepts, methods, and notation Provides modern computational algorithms for implementing methods Includes free companion software available from an FTP site Deals with many topics on CAS 4B and SOA 151 and 152 actuarial exams Includes many exercises based on past CAS and SOA exams. Many regulations issued by the U.S. Environmental Protection Agency (EPA) are based on the results of computer models. Models help EPA explain environmental phenomena in settings where direct

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observations are limited or unavailable, and anticipate the effects of agency policies on the environment, human health and the economy. Given the critical role played by models, the EPA asked the National Research Council to assess scientific issues related to the agency's selection and use of models in its decisions. The book recommends a series of guidelines and principles for improving agency models and decision-making processes. The centerpiece of the book's recommended vision is a life-cycle approach to model evaluation which includes peer review, corroboration of results, and other activities. This will enhance the agency's ability to respond to requirements from a 2001 law on information quality and improve policy development and implementation.

Written in plain English and based on successful client engagements, *Data Modeling of Financial Derivatives: A Conceptual Approach* introduces new and veteran data modelers, financial analysts, and IT professionals to the fascinating world of financial derivatives. Covering futures, forwards, options, swaps, and forward rate agreements, finance and modeling expert Robert Mamayev shows you step-by-step how to structure and describe financial data using advanced data modeling techniques. The book introduces IT professionals, in particular, to various financial and data modeling concepts that they may not have seen before, giving them greater proficiency in the financial language of derivatives—and greater ability to communicate with financial analysts without fear or hesitation. Such knowledge will be especially useful to those looking to

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pick up the necessary skills to become productive right away working in the financial sector. Financial analysts reading this book will come to grips with various data modeling concepts and therefore be in better position to explain the underlying business to their IT audience. Data Modeling of Financial Derivatives—which presumes no advanced knowledge of derivatives or data modeling—will help you: Learn the best entity–relationship modeling method out there—Barker’s CASE methodology—and its application in the financial industry Understand how to identify and creatively reuse data modeling patterns Gain an understanding of financial derivatives and their various applications Learn how to model derivatives contracts and understand the reasoning behind certain design decisions Resolve derivatives data modeling complexities parsimoniously so that your clients can understand them intuitively Packed with numerous examples, diagrams, and techniques, this book will enable you to recognize the various design patterns that you are most likely to encounter in your professional career and apply them successfully in practice. Anyone working with financial models will find it an invaluable tool and career booster. Manage and work with business data effectively by learning data modeling techniques and leveraging the latest features of Power BI Key Features Understand data modeling techniques to get the best out of data using Power BI Define the relationships between data to extract valuable insights Solve a wide variety of business challenges by building optimal data models Book Description Microsoft Power BI is one of the most

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popular business intelligence tools available on the market for desktop and the cloud. This book will be your guide to understanding the ins and outs of data modeling and how to create data models using Power BI confidently. You'll learn how to connect data from multiple sources, understand data, define and manage relationships between data, and shape data models. In this book, you'll explore how to use data modeling and navigation techniques to define relationships and create a data model before defining new metrics and performing custom calculations using modeling features. As you advance through the chapters, the book will demonstrate how to create full-fledged data models, enabling you to create efficient data models and simpler DAX code with new data modeling features. With the help of examples, you'll discover how you can solve business challenges by building optimal data models and changing your existing data models to meet evolving business requirements. Finally, you'll learn how to use some new and advanced modeling features to enhance your data models to carry out a wide variety of complex tasks. By the end of this Power BI book, you'll have gained the skills you need to structure data coming from multiple sources in different ways to create optimized data models that support reporting and data analytics. What you will learn Implement virtual tables and time intelligence functionalities in DAX to build a powerful model Identify Dimension and Fact tables and implement them in Power Query Editor Deal with advanced data preparation scenarios while building Star Schema Explore best practices for data preparation and data

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modeling Discover different hierarchies and their common pitfalls Understand complex data models and how to decrease the level of model complexity with different data modeling approaches Who this book is for This MS Power BI book is for BI users, data analysts, and analysis developers who want to become well-versed with data modeling techniques to make the most of Power BI. Basic knowledge of Power BI and Star Schema will help you to understand the concepts covered in this book.

“Get it done well and get it done fast” are twin, apparently opposing, demands. Data architects are increasingly expected to deliver quality data models in challenging timeframes, and agile developers are increasingly expected to ensure that their solutions can be easily integrated with the data assets of the overall organization. If you need to deliver quality solutions despite exacting schedules, “The Nimble Elephant” will help by describing proven techniques that leverage the libraries of published data model patterns to rapidly assemble extensible and robust designs. The three sections in the book provide guidelines for applying the lessons to your own situation, so that you can apply the techniques and patterns immediately to your current assignments. The first section, Foundations for Data Agility, addresses some perceived aspects of friction between “data” and “agile” practitioners. As a starting point for resolving the differences, pattern levels of granularity are classified, and their interdependencies exposed. A context of various types of models is established (e.g. conceptual / logical / physical, and

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industry / enterprise / project), and you will learn how to customize patterns within specific model types. The second section, Steps Towards Data Agility, shares guidelines on generalizing and specializing, with cautions on the dangers of going too far. Creativity in using patterns beyond their intended purpose is encouraged. The short-term “You Ain’t Gonna Need It” (YAGNI) philosophy of agile practitioners, and the longer-term strategic perspectives of architects, are compared and evaluated. Consideration is given to the potential of enterprise views contributing to project-specific models. Other topics include industry models, iterative modeling, creation of patterns when none exist, and patterns for rules-in-data. The section ends with a perspective on the modeler’s possible role in agile projects, followed by a case study. The final section, A Bridge to the Land of Object Orientation, provides a pathway for re-skilling traditional data modelers who want to expand their options by actively engaging with the ranks of object-oriented developers. I’m delighted to see that John has put his extensive experience and broad knowledge of data modeling into print! John’s ability to simplify the complex, and to share his knowledge and enthusiasm – and humor – with colleagues, comes through in this very useful and readable book. I recommend it to anyone working with data. — Monika Remenyi, Senior Data Architect, Telstra

John Giles has written a compelling and engaging book about the importance of data modeling patterns in the world of agile computing. His book is clearly and simply written, and it is full of excellent examples drawn from his extensive experience

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as a practitioner. You will see the enthusiasm and passion that John clearly has for his work in data modeling. And you will see in his book that any interchange with John will always have its fair share of good humor and wisdom! — Professor Ron Weber, Dean, Faculty of IT, Monash University

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.

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

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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.

The book combines topics from two traditionally distinct quantitative subjects: probability/statistics and optimization models, into one unified treatment of quantitative methods and models for management and business. The book stresses those fundamental concepts that are most important for the practical analysis of management decisions: modeling and evaluating uncertainty explicitly, understanding the dynamic nature of decision-making, using historical data and limited information effectively, simulating complex systems, and allocating scarce resources optimally. *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

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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.

Choose the right Azure data service and correct model design for successful implementation of your data model with the help of this hands-on guide Key Features Design a cost-effective, performant, and scalable database in Azure Choose and implement the most suitable design for a database Discover how your database can scale with growing data volumes, concurrent users, and query complexity Book Description Data is at the heart of all applications and forms the foundation of modern data-driven businesses. With the

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multitude of data-related use cases and the availability of different data services, choosing the right service and implementing the right design becomes paramount to successful implementation. Data Modeling for Azure Data Services starts with an introduction to databases, entity analysis, and normalizing data. The book then shows you how to design a NoSQL database for optimal performance and scalability and covers how to provision and implement Azure SQL DB, Azure Cosmos DB, and Azure Synapse SQL Pool. As you progress through the chapters, you'll learn about data analytics, Azure Data Lake, and Azure SQL Data Warehouse and explore dimensional modeling, data vault modeling, along with designing and implementing a Data Lake using Azure Storage. You'll also learn how to implement ETL with Azure Data Factory. By the end of this book, you'll have a solid understanding of which Azure data services are the best fit for your model and how to implement the best design for your solution. What you will learn Model relational database using normalization, dimensional, or Data Vault modeling Provision and implement Azure SQL DB and Azure Synapse SQL Pools Discover how to model a Data Lake and implement it using Azure Storage Model a NoSQL database and provision and implement an Azure Cosmos DB Use Azure Data Factory to implement ETL/ELT processes Create a star schema model using dimensional modeling Who this book is for This book is for business intelligence developers and consultants who work on (modern) cloud data warehousing and design and implement databases. Beginner-level knowledge of cloud data management is

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expected.

Introduction and background; Exploratory data analysis and graphics; Deterministic functions for ecological modeling; Probability and stochastic distributions for ecological modeling; Stochastic simulation and power analysis; Likelihood and all that; Optimization and all that; Likelihood examples; Standard statistics revisited; Modeling variance; Dynamic models.

Proven data models that save companies' time and money developing data architectures, databases and data warehouses. The Data Model Resource Book provides a common set of data models for specific functions common to most businesses, such as sales, marketing, order processing, contracts, shipments, invoicing, work efforts, budgeting, and accounting.

Readers can apply more than one data model to their own company to meet specific data needs. A CD-ROM, sold separately, contains the SQL for all of the data models contained in the book in Oracle, Sybase, Informix, Microsoft SQL Server and ANSI compatible formats.

In financially constrained health systems across the world, increasing emphasis is being placed on the ability to demonstrate that health care interventions are not only effective, but also cost-effective. This book deals with decision modelling techniques that can be used to estimate the value for money of various interventions including medical devices, surgical procedures, diagnostic technologies, and pharmaceuticals. Particular emphasis is placed on the importance of the appropriate representation of uncertainty in the evaluative process

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and the implication this uncertainty has for decision making and the need for future research. This highly practical guide takes the reader through the key principles and approaches of modelling techniques. It begins with the basics of constructing different forms of the model, the population of the model with input parameter estimates, analysis of the results, and progression to the holistic view of models as a valuable tool for informing future research exercises. Case studies and exercises are supported with online templates and solutions. This book will help analysts understand the contribution of decision-analytic modelling to the evaluation of health care programmes. ABOUT THE SERIES: Economic evaluation of health interventions is a growing specialist field, and this series of practical handbooks will tackle, in-depth, topics superficially addressed in more general health economics books. Each volume will include illustrative material, case histories and worked examples to encourage the reader to apply the methods discussed, with supporting material provided online. This series is aimed at health economists in academia, the pharmaceutical industry and the health sector, those on advanced health economics courses, and health researchers in associated fields.

Business Analytics, Second Edition teaches the fundamental concepts of the emerging field of business analytics and provides vital tools in understanding how data analysis works in today's organizations. Students will learn to apply basic business analytics principles, communicate with analytics professionals, and effectively

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use and interpret analytic models to make better business decisions. Included access to commercial grade analytics software gives students real-world experience and career-focused value. Author James Evans takes a balanced, holistic approach and looks at business analytics from descriptive, and predictive perspectives.

Leaders and Managers want quick answers, quick ways to reach solutions, ways and means to access knowledge that won't eat into their precious time and quick ideas that deliver a big result. The Little Book of Big Decision Models cuts through all the noise and gives managers access to the very best decision-making models that they need to to keep things moving forward. Every model is quick and easy to read and delivers the essential information and know-how quickly, efficiently and memorably.

Big data modeling is very challenging to handle using traditional database modeling and management systems. This book will teach you how to model big data using the latest and more efficient tools such as ERWIN, ANACONDA (Python), and WEKA to model data.

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

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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

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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.

In the current fast-paced and constantly changing business environment, it is more important than ever for organizations to be agile, monitor business performance, and meet with increasingly stringent compliance requirements. Written by pioneering consultants and bestselling authors with track records of international success, *The Decision Model: A Business Logic Framework Linking Business and Technology* provides a platform for rethinking how to view, design, execute, and govern business logic. The book explains how to implement the Decision Model, a stable, rigorous model of core business logic that informs current and emerging technology. The authors supply a strong theoretical foundation, while succinctly defining the path needed to incorporate agile and iterative techniques for developing a model that will be the cornerstone for continual growth. Because the book introduces a new model with tentacles in many disciplines, it is divided into three sections:

Section 1: A Complete overview of the Decision Model and its place in the business and technology world

Section 2: A Detailed treatment of the foundation of the

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Decision Model and a formal definition of the Model

Section 3: Specialized topics of interest on the Decision Model, including both business and technical issues

The Decision Model provides a framework for organizing business rules into well-formed decision-based structures that are predictable, stable, maintainable, and normalized. More than this, the Decision Model directly correlates business logic to the business drivers behind it, allowing it to be used as a lever for meeting changing business objectives and marketplace demands. This book not only defines the Decision Model and but also demonstrates how it can be used to organize decision structures for maximum stability, agility, and technology independence and provide input into automation design.

Data models are the main medium used to communicate data requirements from business to IT, and within IT from analysts, modelers, and architects, to database designers and developers. Therefore it's essential to get the data model right. But how do you determine right? That's where the Data Model Scorecard® comes in. The Data Model Scorecard is a data model quality scoring tool containing ten categories aimed at improving the quality of your organization's data models. Many of my consulting assignments are dedicated to applying the Data Model Scorecard to my client's data models – I will show you how to apply the Scorecard in this book. This book, written for people who build, use, or review data models, contains the Data Model Scorecard template and an explanation along with many examples of each of the ten Scorecard categories. There are three sections: In Section I, Data Modeling and the Need for Validation,

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receive a short data modeling primer in Chapter 1, understand why it is important to get the data model right in Chapter 2, and learn about the Data Model Scorecard in Chapter 3. In Section II, Data Model Scorecard Categories, we will explain each of the ten categories of the Data Model Scorecard. There are ten chapters in this section, each chapter dedicated to a specific Scorecard category: · Chapter 4: Correctness · Chapter 5: Completeness · Chapter 6: Scheme · Chapter 7: Structure · Chapter 8: Abstraction · Chapter 9: Standards · Chapter 10: Readability · Chapter 11: Definitions · Chapter 12: Consistency · Chapter 13: Data In Section III, Validating Data Models, we will prepare for the model review (Chapter 14), cover tips to help during the model review (Chapter 15), and then review a data model based upon an actual project (Chapter 16).

This book covers the underlying science and application issues related to aggregation operators, focusing on tools used in practical applications that involve numerical information. It will thus be required reading for engineers, statisticians and computer scientists of all kinds. Starting with detailed introductions to information fusion and integration, measurement and probability theory, fuzzy sets, and functional equations, the authors then cover numerous topics in detail, including the synthesis of judgements, fuzzy measures, weighted means and fuzzy integrals.

Combines topics from two traditionally distinct quantitative subjects, probability/statistics and management science/optimization, in a unified treatment of quantitative methods and models for management.

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Stresses those fundamental concepts that are most important for the practical analysis of management decisions: modeling and evaluating uncertainty explicitly, understanding the dynamic nature of decision-making, using historical data and limited information effectively, simulating complex systems, and allocating scarce resources optimally.

What could you do with data if scalability wasn't a problem? With this hands-on guide, you'll learn how Apache Cassandra handles hundreds of terabytes of data while remaining highly available across multiple data centers -- capabilities that have attracted Facebook, Twitter, and other data-intensive companies. *Cassandra: The Definitive Guide* provides the technical details and practical examples you need to assess this database management system and put it to work in a production environment. Author Eben Hewitt demonstrates the advantages of Cassandra's nonrelational design, and pays special attention to data modeling. If you're a developer, DBA, application architect, or manager looking to solve a database scaling issue or future-proof your application, this guide shows you how to harness Cassandra's speed and flexibility.

Understand the tenets of Cassandra's column-oriented structure
Learn how to write, update, and read Cassandra data
Discover how to add or remove nodes from the cluster as your application requires
Examine a working application that translates from a

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relational model to Cassandra's data model Use examples for writing clients in Java, Python, and C# Use the JMX interface to monitor a cluster's usage, memory patterns, and more Tune memory settings, data storage, and caching for better performance

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

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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

For MIS specialists and nonspecialists alike, a comprehensive, readable, understandable guide to the concepts and applications of decision support systems.

This is the digital version of the printed book (Copyright © 1996). Learning the basics of a modeling technique is not the same as learning how to use and apply it. To develop a data model of an organization is to gain insights into its nature that do not come easily. Indeed, analysts are often expected to understand subtleties of an organization's structure that may have evaded people who have worked there for years. Here's help for those analysts who have learned the basics of data modeling (or "entity/relationship modeling") but who need to obtain the insights required to prepare a good model of a real business. Structures common

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to many types of business are analyzed in areas such as accounting, material requirements planning, process manufacturing, contracts, laboratories, and documents. In each chapter, high-level data models are drawn from the following business areas: The Enterprise and Its World The Things of the Enterprise Procedures and Activities Contracts Accounting The Laboratory Material Requirements Planning Process Manufacturing Documents Lower-Level Conventions

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

