

# Data Modeling For MongoDB Building Well Designed And Supportable MongoDB Databases

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*Data Model Scorecard* - Steve Hoberman  
2015-11-01

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, 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). **The Data Warehouse Toolkit** - Ralph Kimball 2011-08-08

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.

**NoSQL for Mere Mortals** - Dan Sullivan 2015

NoSQL for Mere Mortals is an easy, practical guide to succeeding with NoSQL in your environment. Students are guided step-by-step through choosing technologies, designing high-performance databases, and planning for long-term maintenance. The author introduces each type of NoSQL database, shows how to install and manage them, and demonstrates how to leverage their features while avoiding common mistakes that lead to poor performance and unmet requirements. He uses four popular NoSQL databases as reference models: MongoDB, a document database; Cassandra, a column family data store; Redis, a key-value database; and Neo4j, a graph database.

*Building Node Applications with MongoDB and Backbone* - Mike Wilson 2012-12-11

Build an application from backend to browser with Node.js, and kick open the doors to real-time event programming. With this hands-on book, you'll learn how to create a social network application similar to LinkedIn and Facebook, but with a real-time twist. And you'll build it with just one programming language: JavaScript. If you're an experienced web developer unfamiliar with JavaScript, the book's first section introduces you to the project's core

technologies: Node.js, Backbone.js, and the MongoDB data store. You'll then launch into the project—a highly responsive, highly scalable application—guided by clear explanations and lots of code examples. Learn about key modules in Node.js for building real-time apps Use the Backbone.js framework to write clean browser code, and maintain better data integration with MongoDB Structure project files as a foundation for code that will arrive later Create user accounts and learn how to secure the data Use Backbone.js templates to build the application's UIs, and integrate access control with Node.js Develop a contact list to help users link to and track other accounts Use Socket.io to create real-time chat functionality Extend your UIs to give users up-to-the-minute information *Web and Network Data Science* - Thomas W. Miller 2015

Master modern web and network data modeling: both theory and applications. In *Web and Network Data Science*, a top faculty member of Northwestern University's prestigious analytics program presents the first fully-integrated treatment of both the business and academic elements of web and network modeling for predictive analytics. Some books in this field focus either entirely on business issues (e.g., Google Analytics and SEO); others are strictly academic (covering topics such as sociology, complexity theory, ecology, applied physics, and economics). This text gives today's managers and students what they really need: integrated coverage of concepts, principles, and theory in the context of real-world applications. Building on his pioneering Web Analytics course at Northwestern University, Thomas W. Miller covers usability testing, Web site performance, usage analysis, social media platforms, search engine optimization (SEO), and many other topics. He balances this practical coverage with accessible and up-to-date introductions to both social network analysis and network science, demonstrating how these disciplines can be used to solve real business problems. *Artificial Intelligence* - 2019-07-31

Artificial intelligence (AI) is taking on an increasingly important role in our society today. In the early days, machines fulfilled only manual activities. Nowadays, these machines extend their capabilities to cognitive tasks as well. And now AI is poised to make a huge contribution to medical and biological applications. From medical equipment to diagnosing and predicting disease to image and video processing, among others, AI has proven to be an area with great potential. The ability of AI to make informed decisions, learn and perceive the environment, and predict certain behavior, among its many other skills, makes this application of paramount importance in today's world. This book discusses and examines AI applications in medicine and biology as well as challenges and opportunities in this fascinating area.

### **Exploring Occupant Behavior in**

**Buildings** - Andreas Wagner 2017-10-27

This book is the first to comprehensively cover research methods for building occupant behavior. As this is of growing importance for building design and for building performance optimization, the book aims to provide a sound scientific basis for experimental studies in this field. It introduces the reader to fundamental questions about the topic and unfolds the different fields related to occupant actions and comfort. This is followed by more general questions about developing an appropriate research method and experimental design. A comprehensive overview of sensors for monitoring environmental and also behavioral and action-related quantities helps to set up an experiment. In this context, different experimental environments and data collection methods (in-situ, laboratories, surveys) are introduced and discussed in terms of their suitability for the respective research question. Furthermore, data management and reporting is addressed. The book concludes with fundamental challenges in conducting occupant studies, with chapters on ground truth, ethics and privacy.

[Hands-On Big Data Modeling](#) - James Lee

2018-11-30

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.

**Cassandra: The Definitive Guide** - Jeff Carpenter 2016-06-29

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

**NoSQL Data Models** - Olivier Pivert 2018-07-27

The topic of NoSQL databases has recently emerged, to face the Big Data challenge, namely the ever increasing volume of data to be handled. It is now recognized that relational databases are not appropriate in this context, implying that new database models and techniques are needed. This book presents recent research works, covering the following basic aspects: semantic data management, graph databases, and big data management in cloud environments. The chapters in this book report on research about the evolution of basic concepts such as data models, query languages, and new challenges

regarding implementation issues.

**Intelligent Systems Design and Applications** - Ana Maria Madureira 2017-02-22

This book comprises selected papers from the 16th International Conference on Intelligent Systems Design and Applications (ISDA'16), which was held in Porto, Portugal from December 1 to 16, 2016. ISDA 2016 was jointly organized by the Portuguese-based Instituto Superior de Engenharia do Porto and the US-based Machine Intelligence Research Labs (MIR Labs) to serve as a forum for the dissemination of state-of-the-art research and development of intelligent systems, intelligent technologies, and applications. The papers included address a wide variety of themes ranging from theories to applications of intelligent systems and computational intelligence area and provide a valuable resource for students and researchers in academia and industry alike.

**Data Modeling for MongoDB** - Steve Hoberman 2014-06-14

Master how to data model MongoDB applications.

Marketing Data Science - Thomas W. Miller 2015-05-02

Now, a leader of Northwestern University's prestigious analytics program presents a fully-integrated treatment of both the business and academic elements of marketing applications in predictive analytics. Writing for both managers and students, Thomas W. Miller explains essential concepts, principles, and theory in the context of real-world applications. Building on Miller's pioneering program, Marketing Data Science thoroughly addresses segmentation, target marketing, brand and product positioning, new product development, choice modeling, recommender systems, pricing research, retail site selection, demand estimation, sales forecasting, customer retention, and lifetime value analysis. Starting where Miller's widely-praised Modeling Techniques in Predictive Analytics left off, he integrates crucial information and insights that were previously segregated in

texts on web analytics, network science, information technology, and programming. Coverage includes: The role of analytics in delivering effective messages on the web Understanding the web by understanding its hidden structures Being recognized on the web – and watching your own competitors Visualizing networks and understanding communities within them Measuring sentiment and making recommendations Leveraging key data science methods: databases/data preparation, classical/Bayesian statistics, regression/classification, machine learning, and text analytics Six complete case studies address exceptionally relevant issues such as: separating legitimate email from spam; identifying legally-relevant information for lawsuit discovery; gleaning insights from anonymous web surfing data, and more. This text's extensive set of web and network problems draw on rich public-domain data sources; many are accompanied by solutions in Python and/or R. Marketing Data Science will be an invaluable resource for all students, faculty, and professional marketers who want to use business analytics to improve marketing performance.

*Mastering MongoDB 3.x* - Alex Giamas  
2017-11-17

An expert's guide to build fault tolerant MongoDB application About This Book Master the advanced modeling, querying, and administration techniques in MongoDB and become a MongoDB expert Covers the latest updates and Big Data features frequently used by professional MongoDB developers and administrators If your goal is to become a certified MongoDB professional, this book is your perfect companion Who This Book Is For Mastering MongoDB is a book for database developers, architects, and administrators who want to learn how to use MongoDB more effectively and productively. If you have experience in, and are interested in working with, NoSQL databases to build apps and websites, then this book is for you. What You Will Learn Get hands-on with advanced querying techniques such as

indexing, expressions, arrays, and more. Configure, monitor, and maintain highly scalable MongoDB environment like an expert. Master replication and data sharding to optimize read/write performance. Design secure and robust applications based on MongoDB. Administer MongoDB-based applications on-premise or in the cloud Scale MongoDB to achieve your design goals Integrate MongoDB with big data sources to process huge amounts of data In Detail MongoDB has grown to become the de facto NoSQL database with millions of users—from small startups to Fortune 500 companies. Addressing the limitations of SQL schema-based databases, MongoDB pioneered a shift of focus for DevOps and offered sharding and replication maintainable by DevOps teams. The book is based on MongoDB 3.x and covers topics ranging from database querying using the shell, built in drivers, and popular ODM mappers to more advanced topics such as sharding, high availability, and integration with big data sources. You will get an overview of MongoDB and how to play to its strengths, with relevant use cases. After that, you will learn how to query MongoDB effectively and make use of indexes as much as possible. The next part deals with the administration of MongoDB installations on-premise or in the cloud. We deal with database internals in the next section, explaining storage systems and how they can affect performance. The last section of this book deals with replication and MongoDB scaling, along with integration with heterogeneous data sources. By the end this book, you will be equipped with all the required industry skills and knowledge to become a certified MongoDB developer and administrator. Style and approach This book takes a practical, step-by-step approach to explain the concepts of MongoDB. Practical use-cases involving real-world examples are used throughout the book to clearly explain theoretical concepts.

*Building Applications with Spring 5 and Vue.js 2* - James J. Ye 2018-10-26

Become efficient in both frontend and backend web development with Spring and Vue Key Features Connect application's frontend and backend with Vue, Vuex, and Spring Boot Leverage the latest web standards to enhance code performance, readability, and cross-compatibility Build secure full-stack web applications with Spring Security Book Description Building Applications with Spring 5 and Vue.js 2, with its practical approach, helps you become a full-stack web developer. As well as knowing how to write frontend and backend code, a developer has to tackle all problems encountered in the application development life cycle - starting from the simple idea of an application, to the UI and technical designs, and all the way to implementation, testing, production deployment, and monitoring. With the help of this book, you'll get to grips with Spring 5 and Vue.js 2 as you learn how to develop a web application. From the initial structuring to full deployment, you'll be guided at every step of developing a web application from scratch with Vue.js 2 and Spring 5. You'll learn how to create different components of your application as you progress through each chapter, followed by exploring different tools in these frameworks to expedite your development cycle. By the end of this book, you'll have gained a complete understanding of the key design patterns and best practices that underpin professional full-stack web development. What you will learn Analyze requirements and design data models Develop a single-page application using Vue.js 2 and Spring 5 Practice concept, logical, and physical data modeling Design, implement, secure, and test RESTful API Add test cases to improve reliability of an application Monitor and deploy your application to production Who this book is for Building Applications with Spring 5.0 and Vue.js 2.0 is for you if you are developer who is new to Vue.js or Spring. It is assumed that you have some knowledge of HTML, CSS, and Java.

**MongoDB: The Definitive Guide -**

Kristina Chodorow 2013-05-10 Manage the huMONGOus amount of data collected through your web application with MongoDB. This authoritative introduction—written by a core contributor to the project—shows you the many advantages of using document-oriented databases, and demonstrates how this reliable, high-performance system allows for almost infinite horizontal scalability. This updated second edition provides guidance for database developers, advanced configuration for system administrators, and an overview of the concepts and use cases for other people on your project. Ideal for NoSQL newcomers and experienced MongoDB users alike, this guide provides numerous real-world schema design examples. Get started with MongoDB core concepts and vocabulary Perform basic write operations at different levels of safety and speed Create complex queries, with options for limiting, skipping, and sorting results Design an application that works well with MongoDB Aggregate data, including counting, finding distinct values, grouping documents, and using MapReduce Gather and interpret statistics about your collections and databases Set up replica sets and automatic failover in MongoDB Use sharding to scale horizontally, and learn how it impacts applications Delve into monitoring, security and authentication, backup/restore, and other administrative tasks

**Node.js, MongoDB and Angular Web Development - Brad Dayley 2017-10-11** Node.js, MongoDB and Angular Web Development The definitive guide to using the MEAN stack to build web applications Node.js is a leading server-side programming environment, MongoDB is the most popular NoSQL database, and Angular is the leading framework for MVC-based front-end development. Together, they provide an easy-to-implement, fully integrated web development stack that allows web programmers to create high-performance sites and applications built completely in JavaScript, from server to client. Updated for Angular 2, Angular 4,

and subsequent versions, this new edition of Node.js, MongoDB and Angular Web Development shows you how to integrate these three technologies into complete working solutions. It begins with concise, crystal-clear tutorials on each technology and then quickly moves on to building common web applications. You'll learn how to use Node.js and MongoDB to build more scalable, high-performance sites, how to leverage Angular's innovative MVC approach to structure more effective pages and applications, and how to use all three together to deliver outstanding next-generation Web solutions. Implement a highly scalable and dynamic web server using Node.js and Express Implement a MongoDB data store for your web applications Access and interact with MongoDB from Node.js JavaScript code Learn the basics of TypeScript Define custom Angular directives that extend the HTML language Build server-side web services in JavaScript Implement client-side services that can interact with the Node.js web server Build dynamic browser views that provide rich user interaction Add authenticated user accounts and nested comment components to your web applications and pages Contents at a Glance Part I: Getting Started 1 Introducing the Node.js-to-Angular Stack 2 JavaScript Primer Part II: Learning Node.js 3 Getting Started with Node.js 4 Using Events, Listeners, Timers, and Callbacks in Node.js 5 Handling Data I/O in Node.js 6 Accessing the File System from Node.js 7 Implementing HTTP Services in Node.js 8 Implementing Socket Services in Node.js 9 Scaling Applications Using Multiple Processors in Node.js 10 Using Additional Node.js Modules Part III: Learning MongoDB 11 Understanding NoSQL and MongoDB 12 Getting Started with MongoDB 13 Getting Started with MongoDB and Node.js 14 Manipulating MongoDB Documents from Node.js 15 Accessing MongoDB from Node.js 16 Using Mongoose for Structured Schema and Validation 17 Advanced MongoDB Concepts Part IV: Using Express to Make Life Easier

18 Implementing Express in Node.js 19 Implementing Express Middleware Part V: Learning Angular 20 Jumping into TypeScript 21 Getting Started with Angular 22 Angular Components 23 Expressions 24 Data Binding 25 Built-in Directives Part VI: Advanced Angular 26 Custom Directives 27 Events and Change Detection 28 Implementing Angular Services in Web Applications 29 Creating Your Own Custom Angular Services 30 Having Fun with Angular

Enterprise, Business-Process and Information Systems Modeling - Jens Gulden 2018-06-04

This book constitutes the proceedings of two events held at the CAiSE conference and relating to the areas of enterprise, business process and information systems modeling: The 19th International Conference on Business Process Modeling, Development and Support, BPMDS 2018, and the 23rd International Conference on Evaluation and Modeling Methods for Systems Analysis and Development, EMMSAD 2018. The conferences took place in Tallinn, Estonia, in June 2018. The 13 papers accepted for BPMDS were carefully reviewed and selected from 29 submissions; for EMMSAD 6 papers out of 13 submissions were accepted for publication. For BPMDS 2018, the papers were organized in topical sections as follows: context-awareness in business processes; automatic analysis of business processes; advanced approaches for business process modeling; evaluation of business process modeling techniques; an experience report on modeling collaborative processes. For EMMSAD 2018, the six related papers are listed without further sections.

**Getting MEAN with Mongo, Express, Angular, and Node** - Simon Holmes 2019-04-22

Summary Getting MEAN, Second Edition teaches you how to develop full-stack web applications using the MEAN stack. This edition was completely revised and updated to cover MongoDB 4, Express 4, Angular 7, Node 11, and the latest mainstream release of JavaScript ES2015. Purchase of the print

book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Juggling languages mid-application can radically slow down a full-stack web project. The MEAN stack—MongoDB, Express, Angular, and Node—uses JavaScript end to end, maximizing developer productivity and minimizing context switching. And you'll love the results! MEAN apps are fast, powerful, and beautiful. About the Book Getting MEAN, Second Edition teaches you how to develop full-stack web applications using the MEAN stack. Practical from the very beginning, the book helps you create a static site in Express and Node. Expanding on that solid foundation, you'll integrate a MongoDB database, build an API, and add an authentication system. Along the way, you'll get countless pro tips for building dynamic and responsive data-driven web applications! What's inside MongoDB 4, Express 4, Angular 7, and Node.js 11 MEAN stack architecture Mobile-ready web apps Best practices for efficiency and reusability About the Reader Readers should be comfortable with standard web application designs and ES2015-style JavaScript. About the Author Simon Holmes and Clive Harber are full-stack developers with decades of experience in JavaScript and other leading-edge web technologies. Table of Contents PART 1 - SETTING THE BASELINE Introducing full-stack development Designing a MEAN stack architecture PART 2 - BUILDING A NODE WEB APPLICATION Creating and setting up a MEAN project Building a static site with Node and Express Building a data model with MongoDB and Mongoose Writing a REST API: Exposing the MongoDB database to the application Consuming a REST API: Using an API from inside Express PART 3 - ADDING A DYNAMIC FRONT END WITH ANGULAR Creating an Angular application with TypeScript Building a single-page application with Angular: Foundations Building a single-page application with Angular: The next level PART 4 -

MANAGING AUTHENTICATION AND USER SESSIONS Authenticating users, managing sessions, and securing APIs Using an authentication API in Angular applications

Data Modeling for MongoDB - Steve Hoberman 2014-06-01

Congratulations! You completed the MongoDB application within the given tight timeframe and there is a party to celebrate your application's release into production. Although people are congratulating you at the celebration, you are feeling some uneasiness inside. To complete the project on time required making a lot of assumptions about the data, such as what terms meant and how calculations are derived. In addition, the poor documentation about the application will be of limited use to the support team, and not investigating all of the inherent rules in the data may eventually lead to poorly-performing structures in the not-so-distant future. Now, what if you had a time machine and could go back and read this book. You would learn that even NoSQL databases like MongoDB require some level of data modeling. Data modeling is the process of learning about the data, and regardless of technology, this process must be performed for a successful application. You would learn the value of conceptual, logical, and physical data modeling and how each stage increases our knowledge of the data and reduces assumptions and poor design decisions. Read this book to learn how to do data modeling for MongoDB applications, and accomplish these five objectives: Understand how data modeling contributes to the process of learning about the data, and is, therefore, a required technique, even when the resulting database is not relational. That is, NoSQL does not mean NoDataModeling! Know how NoSQL databases differ from traditional relational databases, and where MongoDB fits. Explore each MongoDB object and comprehend how each compares to their data modeling and traditional relational database counterparts, and learn the basics of adding, querying, updating, and deleting



data in MongoDB. Practice a streamlined, template-driven approach to performing conceptual, logical, and physical data modeling. Recognize that data modeling does not always have to lead to traditional data models! Distinguish top-down from bottom-up development approaches and complete a top-down case study which ties all of the modeling techniques together. This book is written for anyone who is working with, or will be working with MongoDB, including business analysts, data modelers, database administrators, developers, project managers, and data scientists. There are three sections: In Section I, Getting Started, we will reveal the power of data modeling and the tight connections to data models that exist when designing any type of database (Chapter 1), compare NoSQL with traditional relational databases and where MongoDB fits (Chapter 2), explore each MongoDB object and comprehend how each compares to their data modeling and traditional relational database counterparts (Chapter 3), and explain the basics of adding, querying, updating, and deleting data in MongoDB (Chapter 4). In Section II, Levels of Granularity, we cover Conceptual Data Modeling (Chapter 5), Logical Data Modeling (Chapter 6), and Physical Data Modeling (Chapter 7). Notice the “ing” at the end of each of these chapters. We focus on the process of building each of these models, which is where we gain essential business knowledge. In Section III, Case Study, we will explain both top down and bottom up development approaches and go through a top down case study where we start with business requirements and end with the MongoDB database. This case study will tie together all of the techniques in the previous seven chapters. Nike Senior Data Architect Ryan Smith wrote the foreword. Key points are included at the end of each chapter as a way to reinforce concepts. In addition, this book is loaded with hands-on exercises, along with their answers provided in Appendix A. Appendix B contains all of the book’s references and Appendix C contains a glossary of the terms

used throughout the text.

### **Sports Analytics and Data Science -**

Thomas W. Miller 2015-11-18

This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. This up-to-the-minute reference will help you master all three facets of sports analytics — and use it to win! Sports Analytics and Data Science is the most accessible and practical guide to sports analytics for everyone who cares about winning and everyone who is interested in data science. You’ll discover how successful sports analytics blends business and sports savvy, modern information technology, and sophisticated modeling techniques. You’ll master the discipline through realistic sports vignettes and intuitive data visualizations—not complex math. Every chapter focuses on one key sports analytics application. Miller guides you through assessing players and teams, predicting scores and making game-day decisions, crafting brands and marketing messages, increasing revenue and profitability, and much more. Step by step, you’ll learn how analysts transform raw data and analytical models into wins: both on the field and in any sports business.

### **MongoDB in Action -** Kyle Banker

2016-03-29

Summary MongoDB in Action, Second Edition is a completely revised and updated version. It introduces MongoDB 3.0 and the document-oriented database model. This perfectly paced book gives you both the big picture you'll need as a developer and enough low-level detail to satisfy system engineers. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology This document-oriented database was built for high availability, supports rich, dynamic schemas, and lets you easily distribute data across multiple servers. MongoDB 3.0 is flexible, scalable, and very fast, even with big data loads. About the Book MongoDB in Action, Second Edition is a completely revised and updated version. It introduces

MongoDB 3.0 and the document-oriented database model. This perfectly paced book gives you both the big picture you'll need as a developer and enough low-level detail to satisfy system engineers. Lots of examples will help you develop confidence in the crucial area of data modeling. You'll also love the deep explanations of each feature, including replication, auto-sharding, and deployment. What's Inside Indexes, queries, and standard DB operations Aggregation and text searching Map-reduce for custom aggregations and reporting Deploying for scale and high availability Updated for Mongo 3.0 About the Reader Written for developers. No previous MongoDB or NoSQL experience is assumed. About the Authors After working at MongoDB, Kyle Banker is now at a startup. Peter Bakkum is a developer with MongoDB expertise. Shaun Verch has worked on the core server team at MongoDB. A Genentech engineer, Doug Garrett is one of the winners of the MongoDB Innovation Award for Analytics. A software architect, Tim Hawkins has led search engineering at Yahoo Europe. Technical Contributor: Wouter Thielen. Technical Editor: Mihalis Tsoukalos. Table of Contents PART 1 GETTING STARTED A database for the modern web MongoDB through the JavaScript shell Writing programs using MongoDB PART 2 APPLICATION DEVELOPMENT IN MONGODB Document-oriented data Constructing queries Aggregation Updates, atomic operations, and deletes PART 3 MONGODB MASTERY Indexing and query optimization Text search WiredTiger and pluggable storage Replication Scaling your system with sharding Deployment and administration

*How to Use IBM Cloud Object Storage When Building and Operating Cloud Native Applications* - Giri Badanahatti 2018-11-15 This IBM® Redpaper™ publication presents a series of tutorials for cloud native developers just getting started with IBM Cloud™ and IBM Cloud Object Storage. Within the context of a car insurance application, this paper presents an introductory series of linked modules

that allow developers unfamiliar with either IBM Cloud or cloud native development to get started with application development using IBM starter kits. This allows you to become familiar with the types of services available on IBM Cloud, and to develop a sense of which patterns and choices are appropriate for different use cases. Some of the technologies and products covered in this book are Cloudant®, Watson™ Analytics, machine learning, elastic search, Kubernetes, containers, pre-signed URLs, Aspera®, and SQL Query. In addition to the technical integration steps, it also presents a business case for integrating these technologies and products with IBM Cloud Object Storage. The target audience for this paper is cloud native developers and cloud object storage specialists.

NoSQL Distilled - Pramod J. Sadalage 2013 'NoSQL Distilled' is designed to provide you with enough background on how NoSQL databases work, so that you can choose the right data store without having to trawl the whole web to do it. It won't answer your questions definitively, but it should narrow down the range of options you have to consider.

MongoDB Applied Design Patterns - Rick Copeland 2013-03-04

Whether you're building a social media site or an internal-use enterprise application, this hands-on guide shows you the connection between MongoDB and the business problems it's designed to solve. You'll learn how to apply MongoDB design patterns to several challenging domains, such as ecommerce, content management, and online gaming. Using Python and JavaScript code examples, you'll discover how MongoDB lets you scale your data model while simplifying the development process. Many businesses launch NoSQL databases without understanding the techniques for using their features most effectively. This book demonstrates the benefits of document embedding, polymorphic schemas, and other MongoDB patterns for tackling specific big data use cases, including: Operational intelligence: Perform real-time analytics of business data

Ecommerce: Use MongoDB as a product catalog master or inventory management system  
Content management: Learn methods for storing content nodes, binary assets, and discussions  
Online advertising networks: Apply techniques for frequency capping ad impressions, and keyword targeting and bidding  
Social networking: Learn how to store a complex social graph, modeled after Google+  
Online gaming: Provide concurrent access to character and world data for a multiplayer role-playing game

*ECPPM 2021 - eWork and eBusiness in Architecture, Engineering and Construction*  
- Vitaly Semenov 2021-07-25

eWork and eBusiness in Architecture, Engineering and Construction 2021 collects the papers presented at the 13th European Conference on Product and Process Modelling (ECPPM 2021, Moscow, 5-7 May 2021). The contributions cover a wide spectrum of thematic areas that hold great promise towards the advancement of research and technological development targeted at the digitalization of the AEC/FM (Architecture, Engineering, Construction and Facilities Management) domains. High quality contributions are devoted to critically important problems that arise, including: Information and Knowledge Management Semantic Web and Linked Data Communication and Collaboration Technologies Software Interoperability BIM Servers and Product Lifecycle Management Systems Digital Twins and Cyber-Physical Systems Sensors and Internet of Things Big Data Artificial and Augmented Intelligence in AEC Construction Management 5D/nD Modelling and Planning Building Performance Simulation Contract, Cost and Risk Management Safety and Quality Sustainable Buildings and Urban Environments Smart Buildings and Cities BIM Standardization, Implementation and Adoption Regulatory and Legal Aspects BIM Education and Training Industrialized Production, Smart Products and Services  
Over the past quarter century, the biennial ECPPM conference series, as the oldest BIM conference, has provided researchers

and practitioners with a unique platform to present and discuss the latest developments regarding emerging BIM technologies and complementary issues for their adoption in the AEC/FM industry.

**Learn MongoDB 4.x** - Doug Bierer  
2020-09-11

Design, administer, and deploy high-volume and fault-tolerant database applications using MongoDB 4.x  
Key Features  
Build a powerful and scalable MongoDB database using real industry data  
Understand the process of designing NoSQL schema with the latest release of MongoDB 4.x  
Explore the ins and outs of MongoDB, including queries, replication, sharding, and vital admin tasks  
Book Description  
When it comes to managing a high volume of unstructured and non-relational datasets, MongoDB is the defacto database management system (DBMS) for DBAs and data architects. This updated book includes the latest release and covers every feature in MongoDB 4.x, while helping you get hands-on with building a MongoDB database app. You'll get to grips with MongoDB 4.x concepts such as indexes, database design, data modeling, authentication, and aggregation. As you progress, you'll cover tasks such as performing routine operations when developing a dynamic database-driven website. Using examples, you'll learn how to work with queries and regular database operations. The book will not only guide you through design and implementation, but also help you monitor operations to achieve optimal performance and secure your MongoDB database systems. You'll also be introduced to advanced techniques such as aggregation, map-reduce, complex queries, and generating ad hoc financial reports on the fly. Later, the book shows you how to work with multiple collections as well as embedded arrays and documents, before finally exploring key topics such as replication, sharding, and security using practical examples. By the end of this book, you'll be well-versed with MongoDB 4.x and be able to perform development and administrative tasks associated with this

NoSQL database. What you will learn Understand how to configure and install MongoDB 4.x Build a database-driven website using MongoDB as the backend Perform basic database operations and handle complex MongoDB queries Develop a successful MongoDB database design for large corporate customers with complex requirements Secure MongoDB database systems by establishing role-based access control with X.509 transport-level security Optimize reads and writes directed to a replica set or sharded cluster Perform essential MongoDB administration tasks Maintain database performance through monitoring Who this book is for This book is a MongoDB tutorial for DevOps engineers, database developers, database administrators, system administrators and those who are just getting started with NoSQL and looking to build document-oriented databases and gain real-world experience in managing databases using MongoDB. Basic knowledge of databases and Python is required to get started with this DBMS book.

**MongoDB Recipes** - Subhashini Chellappan 2019-12-13

Get the most out of MongoDB using a problem-solution approach. This book starts with recipes on the MongoDB query language, including how to query various data structures stored within documents. These self-contained code examples allow you to solve your MongoDB problems without fuss. MongoDB Recipes describes how to use advanced querying in MongoDB, such as indexing and the aggregation framework. It demonstrates how to use the Compass function, a GUI client interacting with MongoDB, and how to apply data modeling to your MongoDB application. You'll see recipes on the latest features of MongoDB 4 allowing you to manage data in an efficient manner using MongoDB. What You Will Learn Work with the MongoDB document model Design MongoDB schemas Use the MongoDB query language Harness the aggregation framework Create replica sets and sharding in MongoDB Who This

Book Is For Developers and professionals who work with MongoDB.

**Data Modeling Made Simple with PowerDesigner** - Steve Hoberman 2011-04-01

Data Modeling Made Simple with PowerDesigner 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 PowerDesigner. You'll build many PowerDesigner data models along the way, increasing your skills first with the fundamentals and later with more advanced feature of PowerDesigner. This book combines real-world experience and best practices to help you master the following ten objectives: This book has ten key objectives for you, the reader: 1. You will know when a data model is needed and which PowerDesigner models are the most appropriate for each situation 2. You will be able to read a data model of any size and complexity with the same confidence as reading a book 3. You will know when to apply and how to make use of all the key features of PowerDesigner 4. You will be able to build, step-by-step in PowerDesigner, a pyramid of linked data models, including a conceptual data model, a fully normalized relational data model, a physical data model, and an easily navigable dimensional model 5. 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 6. You will improve data governance and modeling consistency within your organization by leveraging features such as PowerDesigner's reference models, Glossary, domains, and model comparison and model mapping techniques 7. You will know how to utilize dependencies and traceability links to assess the impact of change 8. You will know how to integrate your PowerDesigner models with externally-managed files, including the import and export of data using Excel and Requirements documents 9. You will know where you can take advantage of the entire PowerDesigner

model set, to increase the success rate of corporate-wide initiatives such as business intelligence and enterprise resource planning (ERP) 10. You will understand the key differentiators between PowerDesigner and other data modeling tools you may have used before This book contains seven sections: Section I introduces data modeling, along with its purpose and variations. Section II explains all of the components on a data model including entities, data elements, relationships, and keys. Also included is a discussion of the importance of quality names and definitions for your objects. Section III explains the important role of data modeling tools, the key features required of any data modeling tool, and an introduction to the essential features of PowerDesigner. It also describes how to create and manage data modeling objects in PowerDesigner. Section IV introduces the Data Model Pyramid, then dives into the relational and dimensional subject areas, logical, and physical data models, and describes how PowerDesigner supports these models and the connections between them. Section V guides you through the creation of your own Data Model Pyramid. Section VI focuses on additional PowerDesigner features (some of which have already been introduced) that make life easier for data modelers. Learn how to get information into and out of PowerDesigner, and improve the quality of your data models with a cross-reference of key PowerDesigner features with the Data Model Scorecard®. Section VII discusses PowerDesigner topics beyond data modeling, including the XML physical model and the other types of model available in PowerDesigner.

*Database Modeling and Design* - Toby J. Teorey 1999

This work has been revised and updated to provide a comprehensive treatment of database design for commercial database products and their applications. The book covers the basic foundation of design as well as more advanced techniques, and also incorporates coverage of data warehousing and OLAP (On-Line Analytical Processing),

data mining, object-relational, multimedia, and temporal/spatial design.

**Full Stack FastAPI, React, and MongoDB** - Marko Aleksendric 2022-09-23

Wield the power of Python, React, and MongoDB to build web and data applications quickly and broaden your web development horizons Key Features Learn how to build web applications without having to know the intricacies of the components Build full stack projects without compromising on development speed and app performance Prepare yourself for the diverse world of web development, analytics, and data visualization Book Description If you need to develop web applications quickly, where do you turn? Enter the FARM stack. The FARM stack combines the power of the Python ecosystem with REST and MongoDB and makes building web applications easy and fast. This book is a fast-paced, concise, and hands-on beginner's guide that will equip you with the skills you need to quickly build web applications by diving just deep enough into the intricacies of the stack's components. The book quickly introduces each element of the stack and then helps you merge them to build a medium-sized web application. You'll set up a document store with MongoDB, build a simple API with FastAPI, and create an application with React. Security is crucial on the web, so you'll learn about authentication and authorization with JSON Web Tokens. You'll also understand how to optimize images, cache responses with Redis, and add additional features to your application as well as explore tips, tricks, and best practices to make your development experience a breeze. Before you know it, you'll be deploying the application to different platforms. By the end of this book, you will have built a couple of functional applications efficiently and will have the springboard you need to delve into diverse and more specialized domains. What you will learn Discover the flexibility of the FARM stack Implement complete JWT authentication with FastAPI Explore the various Python drivers for

MongoDB Discover the problems that React libraries solve Build simple and medium web applications with the FARM stack Dive into server-side rendering with Next.js Deploy your app with Heroku, Vercel, Ubuntu Server and Netlify Understand how to deploy and cache a FastAPI backend Who this book is for This book is for web developers and analysts who want to include the power of a modern asynchronous Python framework, a flexible data store and a powerful UI library with the combination of two of the most important programming languages today in their web development toolkit. Beginners in the field of information presentation will also find this book helpful. You must have a beginner-level understanding of Python, JavaScript, and HTML and CSS to get the most out of this book.

### **Web Development with MongoDB and Node** - Bruno Joseph D'mello 2017-09-29

Use the two popular web development stacks, Node.js and MongoDB, to build full-featured web applications About This Book Learn the new ECMAScript along with Node 8 and MongoDB to make your application more effective. Get the up-to-date information required to launch your first application prototype using the latest versions of Node.js and MongoDB. A practical guide with clear instructions to designing and developing a complete web application from start to finish using trending frameworks such as angular4 and hapi Who This Book Is For The book is designed for JavaScript developers of any skill level who want to get up-and-running using Node.js and MongoDB to build full-featured web applications. A basic understanding of JavaScript and HTML is the only prerequisite for this book. What You Will Learn Work with Node.js building blocks Write and configure a web server using Node.js powered by the Express.js framework Build dynamic HTML pages using the Handlebars template engine Persist application data using MongoDB and Mongoose ODM Test your code using automated testing tools such as the Mocha framework Automate test cases using Gulp

Reduce your web development time by integrating third-party tools for web interaction. Deploy a development environment to the cloud using services such as Heroku, Amazon Web Services, and Microsoft Azure Explore single-page application frameworks to take your web applications to the next level In Detail Node.js builds fast, scalable network applications while MongoDB is the perfect fit as a high-performance, open source NoSQL database solution. The combination of these two technologies offers high performance and scalability and helps in building fast, scalable network applications. Together they provide the power for manage any form of data as well as speed of delivery. This book will help you to get these two technologies working together to build web applications quickly and easily, with effortless deployment to the cloud. You will also learn about angular 4, which consumes pure JSON APOIs from a hapi server. The book begins by setting up your development environment, running you through the steps necessary to get the main application server up-and-running. Then you will see how to use Node.js to connect to a MongoDB database and perform data manipulations. From here on, the book will take you through integration with third-party tools to interact with web apps. You will see how to use controllers and view models to generate reusable code that will reduce development time. Toward the end, the book supplies tests to properly execute your code and take your skills to the next level with the most popular frameworks for developing web applications. By the end of the book, you will have a running web application developed with MongoDB, Node.js, and some of the most powerful and popular frameworks. Style and approach A practical guide with clear instructions to designing and developing a complete web application from start to finish

### **Graph Data Modeling for NoSQL and SQL** - Thomas Frisendal 2016-09-09

Master a graph data modeling technique superior to traditional data modeling for both relational and NoSQL databases

(graph, document, key-value, and column), leveraging cognitive psychology to improve big data designs. From Karen Lopez's Foreword: In this book, Thomas Frisendal raises important questions about the continued usefulness of traditional data modeling notations and approaches: Are Entity Relationship Diagrams (ERDs) relevant to analytical data requirements? Are ERDs relevant in the new world of Big Data? Are ERDs still the best way to work with business users to understand their needs? Are Logical and Physical Data Models too closely coupled? Are we correct in using the same notations for communicating with business users and developers? Should we refine our existing notations and tools to meet these new needs, or should we start again from a blank page? What new notations and approaches will we need? How will we use those to build enterprise database systems? Frisendal takes us through the history of data modeling, enterprise data models and traditional modeling methods. He points out, quite contentiously, where he feels we have gone wrong and in a few places where we got it right. He then maps out the psychology of meaning and context, while identifying important issues about where data modeling may or may not fit in business modeling. The main subject of this work is a proposal for a new exploration-driven modeling approach and new modeling notations for business concept models, business solutions models, and physical data models with examples on how to leverage those for implementing into any target database or datastore. These new notations are based on a property graph approach to modeling data.

### **50 Tips and Tricks for MongoDB**

**Developers** - Kristina Chodorow  
2011-04-19

Getting started with MongoDB is easy, but once you begin building applications with it, you'll face some complex issues. What are the tradeoffs between normalized and denormalized data? How do you handle replica set failure and failover? This collection of MongoDB tips, tricks, and

hacks helps you resolve issues with everything from application design and implementation to data safety and monitoring. You get specific guidance in five topic areas directly from engineers at 10gen, the company that develops and supports this open source database: Application Design Tips: What to keep in mind when designing your schema Implementation Tips: Programming applications against MongoDB Optimization Tips: Speeding up your applications Data Safety Tips: Using replication and journaling to keep data safe—without sacrificing too much performance Administration Tips: How to configure MongoDB and keep it running smoothly **Web Database Applications with PHP and MySQL** - Hugh E. Williams 2002 Combines language tutorials with application design advice to cover the PHP server-side scripting language and the MySQL database engine.

### **Mobile Applications and Solutions for Social Inclusion**

- Paiva, Sara 2018-05-19 Advancements in technology have allowed the creation of new tools and innovations that can improve different aspects of life. Mobile technologies are an ever-expanding area of research that can benefit users. Mobile Applications and Solutions for Social Inclusion provides emerging research on the use of mobile technology to assist in improving social inclusion in several domains and for users in their daily lives. While highlighting topics such as alert systems, indoor navigation, and tracking and monitoring, this publication explores the various applications and techniques of mobile solutions in assistive technology. This book is an important resource for researchers, academics, professionals, and students seeking current research on the benefits and uses of mobile devices for end users and community acceptance.

[Data Modeling Made Simple with Embarcadero ER/Studio Data Architect](#) - Steve Hoberman 2015-10

Build a working knowledge of data modeling concepts and best practices, along with how to apply these principles

with ER/Studio. This second edition includes numerous updates and new sections including an overview of ER/Studio's support for agile development, as well as a description of some of ER/Studio's newer features for NoSQL, such as MongoDB's containment structure. You will build many ER/Studio data models along the way, applying best practices to master these ten objectives: 1. Know why a data model is needed and which ER/Studio models are the most appropriate for each situation 2. Understand each component on the data model and how to represent and create them in ER/Studio 3. Know how to leverage ER/Studio's latest features including those assisting agile teams and forward and reverse engineering of NoSQL databases 4. Know how to apply all the foundational features of ER/Studio 5. Be able to build relational and dimensional conceptual, logical, and physical data models in ER/Studio 6. Be able to apply techniques such as indexing, transforms, and forward engineering to turn a logical data model into an efficient physical design 7. Improve data model quality and impact analysis results by leveraging ER/Studio's lineage functionality and compare/merge utility 8. Be able to apply ER/Studio's data dictionary features 9. Learn ways of sharing the data model through reporting and through exporting the model in a variety of formats 10. Leverage ER/Studio's naming functionality to improve naming consistency, including the new Automatic Naming Translation feature. This book contains four sections: Section I introduces data modeling and the ER/Studio landscape. Learn why data modeling is so critical to software development and even more importantly, why data modeling is so critical to understanding the business. You will learn about the newest features in ER/Studio (including features on big data and agile), and the ER/Studio environment. By the end of this section

**Innovative Applications of Big Data in the Railway Industry** - Kohli, Shruti  
2017-11-30

Use of big data has proven to be beneficial

within many different industries, especially in the field of engineering; however, infiltration of this type of technology into more traditional heavy industries, such as the railways, has been limited. Innovative Applications of Big Data in the Railway Industry is a pivotal reference source for the latest research findings on the utilization of data sets in the railway industry. Featuring extensive coverage on relevant areas such as driver support systems, railway safety management, and obstacle detection, this publication is an ideal resource for transportation planners, engineers, policymakers, and graduate-level engineering students seeking current research on a specific application of big data and its effects on transportation.

Design Patterns for Cloud Native Applications - Kasun Indrasiri 2021-05-17  
With the immense cost savings and scalability the cloud provides, the rationale for building cloud native applications is no longer in question. The real issue is how. With this practical guide, developers will learn about the most commonly used design patterns for building cloud native applications using APIs, data, events, and streams in both greenfield and brownfield development. You'll learn how to incrementally design, develop, and deploy large and effective cloud native applications that you can manage and maintain at scale with minimal cost, time, and effort. Authors Kasun Indrasiri and Sriskandarajah Suhothayan highlight use cases that effectively demonstrate the challenges you might encounter at each step. Learn the fundamentals of cloud native applications Explore key cloud native communication, connectivity, and composition patterns Learn decentralized data management techniques Use event-driven architecture to build distributed and scalable cloud native applications Explore the most commonly used patterns for API management and consumption Examine some of the tools and technologies you'll need for building cloud native systems

**Practical Data Analysis** - Hector Cuesta  
2016-09-30



A practical guide to obtaining, transforming, exploring, and analyzing data using Python, MongoDB, and Apache Spark

About This Book Learn to use various data analysis tools and algorithms to classify, cluster, visualize, simulate, and forecast your data

Apply Machine Learning algorithms to different kinds of data such as social networks, time series, and images

A hands-on guide to understanding the nature of data and how to turn it into insight

Who This Book Is For This book is for developers who want to implement data analysis and data-driven algorithms in a practical way. It is also suitable for those without a background in data analysis or data processing. Basic knowledge of Python programming, statistics, and linear algebra is assumed.

What You Will Learn

- Acquire, format, and visualize your data
- Build an image-similarity search engine
- Generate meaningful visualizations anyone can understand
- Get started with analyzing social network graphs
- Find out how to implement sentiment text analysis
- Install

data analysis tools such as Pandas, MongoDB, and Apache Spark

Get to grips with Apache Spark

Implement machine learning algorithms such as classification or forecasting

In Detail Beyond buzzwords like Big Data or Data Science, there are a great opportunities to innovate in many businesses using data analysis to get data-driven products. Data analysis involves asking many questions about data in order to discover insights and generate value for a product or a service. This book explains the basic data algorithms without the theoretical jargon, and you'll get hands-on turning data into insights using machine learning techniques. We will perform data-driven innovation processing for several types of data such as text, Images, social network graphs, documents, and time series, showing you how to implement large data processing with MongoDB and Apache Spark.

Style and approach This is a hands-on guide to data analysis and data processing. The concrete examples are explained with simple code and accessible data.