Data Modeling For Mongodb Building Well Designed And Supportable Mongodb Databases

Take a deep dive into web development using the Go programming language to build web apps and RESTful services to create reliable and efficient software. Web Development with Go provides Go language fundamentals and then moves on to advanced web development concepts and successful deployment of Go web apps to the cloud. Web Development with Go will teach you how to develop scalable real-world web apps, RESTful services, and backend systems with Go. The book starts off by covering Go programming language fundamentals as a prerequisite for web development. After a thorough understanding of the basics, the book delves into web development using the built-in package, net/http. With each chapter you'll be introduced to new concepts for gradually building a real-world web system. The book further shows you how to integrate Go with other technologies. For example, it provides an overview of using MongoDB as a means of persistent storage, and provides an end-to-end REST API sample as well. The book then moves on to demonstrate how to deploy web apps to the cloud using the Google Cloud platform. Web Development with Go provides: Fundamentals for building real-world web apps in Go Thorough coverage of prerequisites and practical code examples Demo web apps for attaining a deeper understanding of web development A reference REST API app which can be used to build scalable real-world backend services in Go A thorough demonstration of deploying web apps to the Cloud using the Google Cloud platform Go is a high-performance language while providing greater level of developer productivity, therefore Web Development with Go equips you with the necessary skills and knowledge required for effectively building robust and efficient web apps by leveraging the features of Go.

Leverage the power of MongoDB 4.x to build and administer fault-tolerant database applications Key Features Master the new features and capabilities of MongoDB 4.x Implement advanced data modeling, querying, and administration techniques in MongoDB Includes rich case-studies and best practices followed by expert MongoDB developers Book Description MongoDB is the best platform for working with non-relational data and is considered to be the smartest tool for organizing data in line with business needs. The recently released MongoDB 4.x supports ACID transactions and makes the technology an asset for enterprises across the IT and fintech sectors. This book provides expertise in advanced and niche areas of managing databases (such as modeling and querying databases) along with various administration techniques in MongoDB, thereby helping you become a successful MongoDB expert. The book helps you understand how the newly added capabilities function with the help of some interesting examples and large datasets. You will dive deeper into niche areas such as high-performance configurations, optimizing SQL statements, configuring large-scale sharded clusters, and many more. You will also master best practices in overcoming database failover, and master recovery and backup procedures for database security. By the end of the book, you will have gained a practical understanding of administering database applications both on premises and on the cloud; you will also be able to scale database applications across all servers. What you will learn Perform advanced querying techniques such as indexing and expressions Configure, monitor, and

maintain a highly scalable MongoDB environment Master replication and data sharding to optimize read/write performance Administer MongoDB-based applications on premises or on the cloud Integrate MongoDB with big data sources to process huge amounts of data Deploy MongoDB on Kubernetes containers Use MongoDB in IoT, mobile, and serverless environments Who this book is for This book is ideal for MongoDB developers and database administrators who wish to become successful MongoDB experts and build scalable and fault-tolerant applications using MongoDB. It will also be useful for database professionals who wish to become certified MongoDB professionals. Some understanding of MongoDB and basic database concepts is required to get the most out of this book.

Build a variety of cross-platform applications with the world's most complete full-stack JavaScript framework— Meteor About This Book Develop a set of real-world applications each exploring different features of Meteor Make your app more appealing by adding reactivity and responsiveness to it Work with the most powerful feature of Meteor—the "full stack reactivity"—through building real-time applications with many third party libraries Who This Book Is For If you are a developer who is looking forward to taking your application development skills with Meteor to next level by getting your hands-on different projects, this book is for you. What You Will Learn See how Meteor fits in the modern web application development by using its reactive data system Make your front-end behave consistently across environments by implementing a predictable state container with Redux Get familiar with React and overview of Angular 2 Add a map to your application with a real-time geolocation Plugin into Meteor social media APIs like Twitter's streaming and Facebook's Messenger Add search functionality from scratch to your existing app and data Add responsiveness with Bootstrap 4 and Google's Material Design using Less and Sass Distribute your data across machines and data centers by adding Apache Cassandra to your existing stack. Learn how to scale your microservices with the high performant language neutral framework gRPC. Learn how to query multiple data sources using GraphQL. In Detail This book starts with the basic installation and overview of the main components in Meteor. You'll get hands-on multiple versatile applications covering a wide range of topics from adding a front-end views with the hottest rendering technology React to implementing a microservices oriented architecture.All the code is written with ES6/7 which is the latest significantly improved JavaScript language. We'll also look at real-time data streaming, server to server data exchange, responsive styles on the front-end, full-text search functionality, and integration of many third-party libraries and APIs using npm. By the end of the book, you'll have the skills to quickly prototype and even launch your next app idea in a matter of days. Style and Approach This book takes an easy-to-follow project-based approach. Each project starts with the goal of what you will learn and an overview the technologies used.

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 sectio

An effective guide to learning how to build a large-scale distributed application using the wide range of functionalities in Gin Key Features Explore the commonly used functionalities of Gin to build web applications Become well-versed with rendering HTML templates with the Gin engine Solve commonly occurring challenges such as scaling, caching, and deployment Book Description Gin is a high-performance HTTP web framework used to build web applications and microservices in Go. This book is designed to teach you the ins and outs of the Gin framework with the help of practical examples. You'll start by exploring the basics of the Gin framework, before progressing to build a real-world RESTful API. Along the way, you'll learn how to write custom middleware and understand the routing mechanism, as well as how to bind user data and validate incoming HTTP requests. The book also demonstrates how to store and retrieve data at scale with a NoSQL database such as MongoDB, and how to implement a caching layer with Redis. Next, you'll understand how to secure and test your API endpoints with authentication protocols such as OAuth 2 and JWT. Later chapters will guide you through rendering HTML templates on the server-side and building a frontend application with the React web framework to consume API responses. Finally, you'll deploy your application on Amazon Web Services (AWS) and learn how to automate the deployment process with a continuous integration/continuous delivery (CI/CD) pipeline. By the end of this Gin book, you will be able to design, build, and deploy a production-ready distributed application from scratch using the Gin framework. What you will learn Build a production-ready REST API with the Gin framework Scale web applications with event-driven architecture Use NoSQL databases for data persistence Set up authentication middleware with JWT and Auth0 Deploy a Gin-based RESTful API on AWS with Docker and Kubernetes Implement a CI/CD workflow for Gin web apps Who this book is for This book is for Go developers who are comfortable with the Go language and seeking to learn REST API design and development with the Gin framework. Beginner-level knowledge of the Go programming language is required to make the most of this book.

Designing Cloud Data Platforms teaches you how to integrate data from multiple sources into a single, cloud-based, modern data platform. In it, you'll follow a six-layer approach to creating cloud data platforms that maximizes flexibility and manageability and reduces costs. Companies that embrace modern cloud data platforms benefit from an integrated view of their business using all of their data and can take advantage of advanced analytic practices to drive predictions and as yet unimagined data services. Designing Cloud Data Platforms is a hands-on guide to envisioning and designing a modern scalable data platform that takes full advantage of the flexibility of the cloud. Designing Cloud Data Platforms teaches you how to integrate data from multiple sources into a single, cloud-based, modern data platform. In it, you'll follow a six-layer approach to creating cloud data platforms that maximizes flexibility and manageability and reduces costs. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

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 to16, 2016. ISDA 2016 was jointly organized by the Portugual-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.

Application developers love MongoDB, a document-oriented NoSQL database, for its speed, flexibility, scalability, and ease of use. MongoDB is well-suited as a back-end for modern web applications. Its schema-free design encourages rapid application development, and built-in replication and auto-sharding architecture allow for massive parallel distribution. Production deployments at SourceForge, Foursquare, and Shutterfly demonstrate daily that MongoDB is up to real-world challenges. MongoDB in Action, Second Edition is a comprehensive guide to MongoDB version 2.6. It begins with a general overview of current database systems, explaining what makes MongoDB unique and describing its ideal use cases. Then, a series of tutorials lead into detailed examples for leveraging MongoDB in e-commerce, social networking, and other common applications. A reference section on schema design patterns helps ease the transition from the relational data model of SQL to MongoDB's document-based data model. Purchase of the print book comes with an offer of a free PDF, ePub, and Kindle eBook from Manning. Also available is all code from the book.

A beginner's guide to performing queries, indexing, replication, and backup with MongoDB 4.0 About This Video Definitive guide to building powerful and scalable databases with real industry datasets Design NoSQL schemas with the latest release, MongoDB 4.0 Explore the ins and out of MongoDB such as indexes, queries, standard DB operations, and various DBA administration tasks In Detail When it comes to managing a heavy volume of unstructured and non-relational datasets, MongoDB has become the de facto database management system for DBAs and data architects. This video teaches all you need to know about building a MongoDB database application with hands-on knowledge of every aspect of MongoDB 4.0 such as indexes, objectives,

data modeling, authentication, relationships, expressions, replication, and more. This course will help you design and implement, and then monitor and secure, MongoDB database systems. With real-world examples, you will gain confidence in working with indexes, queries, and regular database operations. You also will master techniques such as aggregation, text searching, custom aggregations, and reporting. By the end of the course, and after getting hands-on with all its latest features, you will be completely familiar with MongoDB 4.0. Downloading the example code for this course: You can download the example code files for this course on GitHub at the following link: https://github.com/PacktPublishing/Learning-MongoDB-4 . If you require support please email: customercare@packt.com.

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).

Unlock the power of the MEAN stack by creating attractive and real-world projects About This Book Learn about the different components that comprise a MEAN application to construct a fully functional MEAN application using the best third-party modules A step-by-step guide to developing the MEAN stack components from scratch to achieve maximum flexibility when building an e-commerce application Build optimum end-to-end web applications using the MEAN stack Who This Book Is For This learning path is for web developers who are experienced in developing applications using JavaScript. This course is for developers who are interested in learning how to build modern and multiple web applications using MongoDB, Express, AngularJS, and Node.js. What You Will Learn Build modern, end-to-end web applications by employing the full-stack web development solution of MEAN Connect your Express application to MongoDB and use a Mongoose model and build a complex application from start to finish in MongoDB Employ AngularJS to build responsive UI components Implement multiple authentication strategies such as OAuth, JsonWebToken, and Sessions

Enhance your website's usability with social logins such as Facebook, Twitter, and Google Secure your app by creating SSL certificates and run payment platforms in a live environment Implement a chat application from scratch using Socket.IO Create distributed applications and use the power of server-side rendering in your applications Extend a project with a real-time bidding system using WebSockets In Detail The MEAN stack is a collection of the most popular modern tools for web development. This course will help you to build a custom e-commerce app along with several other applications. You will progress to creating several applications with MEAN. The first module in this course will provide you with the skills you need to successfully create, maintain, and test a MEAN application. Starting with MEAN core frameworks, this course will explain each framework key concepts of MongoDB, Express, AngularJS, and Node.js. We will walk through the different tools and frameworks that will help expedite your daily development cycles. After this, the next module will show you how to create your own e-commerce application using the MEAN stack. It takes you step by step through the parallel process of learning and building to develop a production-ready, high-quality e-commerce site from scratch. It also shows you how to manage user authentication and authorization, check multiple payment platforms, add a product search and navigation feature, deploy a production-ready e-commerce site, and finally add your own high-quality feature to the site. The final step in this course will enable you to build a better foundation for your AngularJS apps. You'll learn how to build complex real-life applications with the MEAN stack and a few more advanced projects. You will become familiar with WebSockets, build real-time web applications, create auto-destructing entities, and see how to work with monetary data in Mongo. You will also find out how to a build real-time e-commerce application. This learning path combines some of the best that Packt has to offer in one complete, curated package. It includes content from the following Packt products: MEAN Web Development by Amos Haviv Building an E-Commerce Application with MEAN by Adrian Mejia MEAN Blueprints by Robert Onodi Style and approach This course will begin with the introduction to MEAN, gradually progressing with building applications in each framework. Each transition is well explained, and each chapter begins with the required background knowledge. Grasp the fundamentals of web application development by building a simple database-backed app from scratch, using HTML, JavaScript, and other open source tools. Through hands-on tutorials, this practical guide shows inexperienced web app developers how to create a user interface, write a server, build client-server communication, and use a cloud-based service to deploy the application. Each chapter includes practice problems, full examples, and mental models of the development workflow. Ideal for a college-level course, this book helps you get started with web app development by providing you with a solid grounding in the process. Set up a basic workflow with a text editor, version control system, and web browser Structure a user interface with HTML, and include styles with CSS Use JQuery and JavaScript to add interactivity to your application Link the client to the server with AJAX, JavaScript objects, and JSON Learn the basics of server-side programming with Node.js Store data outside your application with Redis and MongoDB Share your application by uploading it to the cloud with CloudFoundry Get basic tips for writing maintainable code on both client and server

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.

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.

The "one-size-fits-all" thinking regarding traditional RDBMSs has been challenged in the last few years by the emergence of diversified NoSQL databases. More than 120 NoSQL databases are now available in the market, and the market leader by far is MongoDB. With so many companies opting for MongoDB as their NoSQL database of

choice, there's a need for a practical how-to combined with expert advice for getting the most out of the software. Beginning with a short introduction to the basics of NoSQL databases, MongoDB experts Navin Sabharwal and Shankatala Gupta Edward introduce readers to MongoDB – the leading document based NoSQL database, acquainting them step by step with all aspects of MongoDB. They cover the data model, underlying architecture, how to code using Mongo Shell, and administration of the MongoDB platform, among other topics. The book also provides clear guidelines and practical examples for architecting and developing applications using the MongoDB platform and deploying them. Database developers, architects, and database administrators will find useful information covering all aspects of the MongoDB platform and how to put it to use practically. Practical Guide to MongoDB provides readers with: A solid understanding of NoSQL databases An understanding of how to get started with MongoDB Methodical coverage of the architecture, development, and administration of MongoDB A plethora of "How to's" enabling you to use the technology most efficiently to solve the problems you face Practical MongoDB is for those just starting to learning to work with NoSQL databases in general and MongoDB in particular. Skills in these areas are in demand, making this book essential reading for those who want to work more productively or break into big data work. It will prove equally useful for entrepreneurs and others who like to work with new tech nologies.
There are numerous publications which introduce and discuss the Internet of Things (IoT). In the midst of these, this work has several unique characteristics which should change the reader's perspective, and in particular, provide a more profound understanding of the impact of the IoT on society. Dependable IoT for Human and Industry covers the main aspects of Internet of Things and IoT based systems such as global issues of applications, modeling, development and implementation of dependable IoT for different human and industry domains. Technical topics discussed in the book include: Introduction in Internet of vital and trust ThingsModelling and assessment techniques for dependable and secure IoT systemsArchitecting and development of IoT systemsImplementation of IoT for smart cities and drone fleets; business and blockchain, transport and industryTraining courses and education experience on Internet and Web of Thing
This book describes important methodologies, tools and techniques from the fields of artificial intelligence, basically those which are based on relevant conceptual and formal development. The coverage is wide, ranging from machine learning to the use of data on the Semantic Web, with many new topics. The contributions are concerned with machine learning, big data, data processing in medicine, similarity processing in ontologies, semantic image analysis, as well as many applications including the use of machine leaning techniques for cloud security, artificial intelligence techniques for detecting COVID-19, the Internet of things, etc. The book is meant to be a very important and useful source of information for researchers and doctoral students in data analysis, Semantic Web, big data, machine learning, computer engineering and related disciplines, as well as for postgraduate students who want to integrate the doctoral cycle.
The Definitive Guide to MongoDB, Second Edition, is updated for the latest version and includes all of the latest MongoDB features, including the

aggregation framework introduced in version 2.2 and hashed indexes in version 2.4. MongoDB is the most popular of the "Big Data" NoSQL database technologies, and it's still growing. David Hows from 10gen, along with experienced MongoDB authors Peter Membrey and Eelco Plugge, provide their expertise and experience in teaching you everything you need to know to become a MongoDB pro. What you'll learn Set up MongoDB on all major server platforms, including Windows, Linux, OS X, and cloud platforms like Rackspace, Azure, and Amazon EC2 Work with GridFS and the new aggregation framework Work with your data using non-SQL commands Write applications using either PHP or Python Optimize MongoDB Master MongoDB administration, including replication, replication tagging, and tag-aware sharding Who this book is for Database admins and developers who need to get up to speed on MongoDB and its Big Data, NoSQL approach to dealing with data management. Table of ContentsPart I: MongoDB Basics Ch. 1: Introduction to MongoDB Ch. 2: Installing MongoDB Ch. 3: The Data Model Ch. 4: Working with Data Ch. 5: GridFS Part II: Developing with MongoDB Ch. 6: PHP and MongoDB Ch. 7: Python and MongoDB Ch. 8: Advanced Queries Part III: Advanced MongoDB with Big Data Ch. 9: Database Administration Ch. 10: Optimization Ch. 11: Replication Ch. 12: Sharding

This comprehensive text/reference presents a broad-ranging overview of device connectivity in distributed computing environments, supporting the vision of an Internet of Things (IoT). Expert perspectives are provided by an international selection of researchers from both industry and academia, covering issues of communication, security, privacy, interoperability, networking, access control, and authentication. In addition to discussing state-of-the-art research and practice, the book includes corporate analyses offering a balanced view of benefits and limitations, and numerous case studies illustrating the challenges and practical solutions. Topics and features: discusses issues of security and privacy in connected environments, with a specific focus on the impact of the IoT paradigm on enterprise information systems; examines the challenges of managing big data in IoT environments, and proposes cloud computing-based solutions to the limitations inherent in the IoT paradigm; suggests approaches to overcome service-level interoperability problems in the IoT environment; introduces a mobile IoT simulator designed to evaluate the behavior of IoT systems, in addition to a novel approach to manage hyper-connectivity in the IoT; describes the use of the Essence framework to model software development methods, and highlights the benefits of integrating data from smart buildings and IoT devices; presents an asymmetric schema matching mechanism for IoT interoperability, and explores the topic of automatic provenance capture at the middleware level; reviews emerging network topologies and communication technologies, and advises on the adoption of a data distribution service as a middleware platform for IoT systems. This practically-oriented volume serves as a complete reference for students, researchers and practitioners of distributed

computing, providing insights into the latest approaches, technologies, and frameworks relevant to the IoT environment.

Finding the power of MEAN (MongoDB, Express, Angular, and Node) stack to build modern web application. This book helps you how to develop web application based MEAN stack with hands-on-lab approach. The book volume 1 explores how to get started with MEAN stack with several code samples. The following is highlight topics in this book: * Preparing Development Environment * Basic Routing * Input and Form Handling * Data Binding and Templates * MongoDB Data Modeling * Express Routes and Middleware * Cookie and Session * Error handling * Building RESTful Application * Data paging

This book gathers selected research papers presented at the International Conference on Recent Trends in Machine Learning, IOT, Smart Cities & Applications (ICMISC 2020), held on 29–30 March 2020 at CMR Institute of Technology, Hyderabad, Telangana, India. Discussing current trends in machine learning, Internet of things, and smart cities applications, with a focus on multi-disciplinary research in the area of artificial intelligence and cyber-physical systems, this book is a valuable resource for scientists, research scholars and PG students wanting formulate their research ideas and find the future directions in these areas. Further, it serves as a reference work anyone wishing to understand the latest technologies used by practicing engineers around the globe.

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.

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: Know why a data model is needed and which ER/Studio models are the most appropriate for each situation Understand each component on the data model and how to represent and create them in ER/Studio Know how to leverage ER/Studio's latest features including those assisting agile teams and forward and reverse engineering of NoSQL databases Know how to apply all the foundational features of ER/Studio Be able to build relational and dimensional conceptual, logical, and physical data models in ER/Studio Be able to apply techniques such as indexing, transforms, and forward engineering to turn a logical data model into an efficient physical design Improve data model quality and impact analysis results by leveraging ER/Studio's lineage functionality and compare/merge utility Be able to apply ER/Studio's data dictionary features Learn ways of sharing the data model through reporting and through exporting the model in a variety of formats 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, you will have created and saved your first data model in ER/Studio and be ready to start modeling in Section II! Section II explains all of the symbols and text on a data model, including entities, attributes, relationships, domains, and keys. By the time you finish this section, you will be able to 'read' a data model of any size or complexity, and create a complete data model in ER/Studio. Section III explores the three different levels of models: conceptual, logical, and physical. A conceptual data model (CDM) ... 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.

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.

Learn best practices for building bots by focusing on the technological implementation and UX in this practical book. You will cover key topics such as setting up a development environment for creating chatbots for multiple channels (Facebook Messenger, Skype, and KiK); building a chatbot (design to implementation); integrating to IFTT (If This Then That) and IoT (Internet of Things); carrying out analytics and metrics for chatbots; and most importantly monetizing models and business sense for chatbots. Build Better Chatbots is easy to follow with code snippets provided in the book and complete code open sourced and available to download. With Facebook opening up its Messenger platform for developers, followed by Microsoft

opening up Skype for development, a new channel has emerged for brands to acquire, engage, and service customers on chat with chatbots. What You Will Learn Work with the bot development life cycle Master bot UX design Integrate into the bot ecosystem Maximize the business and monetization potential for bots Who This Book Is For Developers, programmers, and hobbyists who have basic programming knowledge. The book can be used by existing chatbot developers to gain a better understanding of analytics and the business side of bots. This powerful new book introduces cross-platform app design as an excellent starting point for mastering app development. The book contains numerous applications that can be adapted to different projects. The book introduces HTML5, CSS3, JavaScript, jQuery Mobile, Node.js, JSON, localStorage, sessionStorage, NoSQL using MongoDB, SQL using MySQL, templating using handlebars, and maps. A strong app-centric view emphasizes appropriate subsets of these technologies to help readers develop non-trivial apps. While apps continue to evolve and change, the technologies presented form the backbone of future cross-platform app development. Readers learn to work with all major mobile and web platforms using the book's active learning approach that has users type code in parallel as apps are developed. Exercises further encourage readers to make changes to the code and evaluate resulting app behavior. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Data Modeling Made Simple will provide the business or IT professional with a practical working knowledge of data modeling concepts and best practices. This book is written in a conversational style that encourages you to read it from start to finish and master these ten objectives: Know when a data model is needed and which type of data model is most effective for each situation Read a data model of any size and complexity with the same confidence as reading a book Build a fully normalized relational data model, as well as an easily navigatable dimensional model Apply techniques to turn a logical data model into an efficient physical design Leverage several templates to make requirements gathering more efficient and accurate Explain all ten categories of the Data Model Scorecard Learn strategies to improve your working relationships with others Appreciate the impact unstructured data has, and will have, on our data modeling deliverables Learn basic UML concepts Put data modeling in context with XML, metadata, and agile development Book Review by Johnny Gay In this book review, I address each section in the book and provide what I found most valuable as a data modeler. I compare, as I go, how the book's structure eases the new data modeler into the subject much like an instructor might ease a beginning swimmer into the pool. This book begins like a Dan Brown novel. It even starts out with the protagonist, our favorite data modeler, lost on a dark road somewhere in France. In this case, what saves him isn't a cipher, but of all things, something that's very much like a data model in the form of a map! The author deems they are both way-finding tools. The chapters in the book are divided into 5 sections. The chapters in each section end with an exercise and a list of the key points covered to reinforce what you've learned. I find myself comparing the teaching structure of the book to the way most of us learn to swim.

This book is intended for developers who wish to use PhoneGap to develop useful, rich, secure mobile applications for their enterprise environment. The book assumes you have working knowledge of PhoneGap, HTML5, CSS3, and JavaScript, and a reasonable understanding of networking and n-tier architectures.

This book highlights the recent research on hybrid intelligent systems and their various practical applications. It presents 58 selected papers from the 20th International Conference on Hybrid Intelligent Systems (HIS 2020) and 20 papers from the 12th World Congress on Nature and Biologically Inspired Computing (NaBIC 2020), which was held online, from December 14 to 16, 2020. A premier conference in the field of artificial intelligence, HIS - NaBIC 2020 brought together researchers, engineers and practitioners whose work involves intelligent

systems, network security and their applications in industry. Including contributions by authors from 25 countries, the book offers a valuable reference guide for all researchers, students and practitioners in the fields of science and engineering.

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.

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.

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 ForDevelopers and professionals who work with MongoDB.

Learn how to build apps for mobile devices on Cloud platforms The marketplace for apps is ever expanding, increasing the potential to make money. With this guide, you'll learn how to build cross-platform applications for mobile devices that are supported by the power of Cloud-based services such as Amazon Web Services. An introduction to Cloud-based applications explains how to use HTML5 to create cross-platform mobile apps and then use Cloud services to enhance those apps. You'll learn how to build your first app with HTML5 and set it up in the Cloud, while also discovering how to use jQuery to your advantage. Highlights the skills and knowledge you need to create successful apps for mobile devices with HTML5 Takes you through the steps for building web applications for the iPhone and Android Details how to enhance your app through faster launching, touch vs. click, storage capabilities, and a cache Looks at how best to use JSON, FourSquare, jQuery, AJAX, and more Shares tips for creating hybrid apps that run natively If you're interested in having your application be one of the 200,000+ apps featured in the iPhone store or the 50,000+ in the Android store, then you need this book.

Solve your Go problems using a problem-solution approach. Each recipe is a self-contained answer to a practical programming problem in Go. Go Recipes contains recipes that deal with the fundamentals of Go, allowing you to build simple, reliable, and efficient software. Other topics include working with data using modern NoSQL databases such as MongoDB and RethinkDB. The book provides in-depth guidance for building highly scalable backend APIs in Go for your mobile client applications and web client applications. All this means that you'll be able to write programs that get the most out of multicore and networked machines, using Go's novel type system that enables flexible and modular program construction. You'll see how to test your Go applications so they are ready for deployment, as well as learning how to write HTTP servers to offer you maximum flexibility when dealing with remote clients. What You'll Learn Work with the core fundamentals of Go Persist data into NoSQL databases Build scalable backend APIs Test your Go applications Create HTTP web servers in Go Who This Book Is For Experienced programmers who have some or no prior experience with Go. Build Azure functions and integrate them with Azure Cosmos DB data models DESCRIPTION This book provides examples to start with Azure functions and Azure Cosmos DB. It demonstrates the features available in both of the mentioned Azure services and discusses them in detail with some real-world examples. Reading a csv file and write to a Cosmos DB table store, Read emails using Microsoft Graph API and save them in a Cosmos DB, Cosmos DB trigger function to send SMS notifications to clients, A queue trigger to create new nodes in the Cosmos DB graph data store are some of them. You will be able to see the above case studies with code samples implemented in C# .NET Core, TypeScript, and Python. It consists of a very basic example, two intermediate samples, then and an advanced level one. You will experience the triggers and input/output bindings available for a function, like queue trigger, blob trigger, and Cosmos DB trigger to name a few. Also, you will be able to see some interesting features available in Azure functions like performance optimizations, scalability of a function app, geographical distribution of the function in different locations, error handling, writing unit tests for the functions to avoid breaking changes, how to ensure a function app is secure, and then how to deploy a function, and monitor and troubleshoot a function app. At the end of this book, you will gain strong experience in using Azure functions and how to manage serverless applications seamlessly without any failure with utmost performance. KEY FEATURES ? Expert-led coverage on integrating Azure functions ? Industry-proven examples and best practices on implementation of Azure Cosmos DB ? Learn to work on performance optimization and error handling ? Integration of Azure function with other Azure services WHAT YOU WILL LEARN ? You will be able to create an Azure function and integrate it with many Azure services including the Azure Cosmos DB ? You will get experience implementing a function using programming languages like C# .NET Core, TypeScript, and Python. ? You will get hands-on experience on the performance optimizing of a function, how to scale them, how to apply security to the function app, error handling and testing in a function. WHO THIS BOOK IS FOR This book is for developers who want to get the knowledge and experience in Azure Functions and Azure Cosmos DB. If you have a programming knowledge of .NET, TypeScript, Python, or any other programming language, it will be enough to understand the concepts and samples in this book. If you have worked with a cloud technology or have experience in any of the Azure cloud

services, then it will be a definite advantage. TABLE OF CONTENTS 1. Beginning Azure Function Apps 2. Your First Azure Function App 3. Let's Get Started with Cosmos DB 4. Structure Your Data in Cosmos DB 5. Your First Cosmos DB 6. Serverless Design Patterns 7. Performance and Scalability of a Function App 8. Geo-Distribution in a Function App 9. Error Handling and Testing 10. Secure Your Function App 11. Deployments in a Function App 12. Monitor and Troubleshoot Function Apps 13. Azure Functions with Cosmos DB Table API 14. Azure Functions with Cosmos DB SQL API 15. Cosmos DB Trigger in Azure Function 16. Azure Functions with Cosmos DB Gremlin API

Gain all the essentials you need to create scalable microservices, which will help you solve real challenges when deploying services into production. This book will take you through creating a scalable data layer with polygot persistence. You'll cover data access and query patterns in Spring and JPA in high-performance environments. As part of this topic, you'll see the advantages of multiple persistence frameworks in Java and especially the easy persistence offered by NoSQL databases and reactive web solutions. The last few chapters present advanced concepts that are useful for very high-performance real-time applications: you'll implement applications using Spring's good support for Web sockets in their raw form as well as for connecting to message brokers such as RabbitMQ. This can be useful for applications such as navigation systems and gaming platforms. What You Will Learn Build end-to-end modern applications using microservices, persistence essentials, reactive web, and other high-performance concepts Master Spring's configuration options Secure microservices efficiently Monitor your services post deployment Who This Book Is For Java developers and architects interested in microservices.

The Definitive Guide to MongoDB, Third Edition, is updated for MongoDB 3 and includes all of the latest MongoDB features, including the aggregation framework introduced in version 2.2 and hashed indexes in version 2.4. The Third Edition also now includes Python. MongoDB is the most popular of the "Big Data" NoSQL database technologies, and it's still growing. David Hows from 10gen, along with experienced MongoDB authors Peter Membrey and Eelco Plugge, provide their expertise and experience in teaching you everything you need to know to become a MongoDB pro. 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.

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.