

Graph Databases New Opportunities For Connected Data

This book is simply the introduction to data modeling using a simple, straightforward scenario. There are plenty of opportunities throughout the upcoming guides to practice modeling domains and analyzing changes to the model that might need to be made. Neo4j is an open source NoSQL graph database. It is a fully transactional database (ACID) that stores data structured as graphs consisting of nodes, connected by relationships. Inspired by the structure of the real world, it allows for high query performance on complex data, while remaining intuitive and simple for the developer. Using this book, you'll get to learn the theory of graph database and how to use Neo4j to build up recommendations, relationships, and calculate the shortest route between two locations. With example data models, best practices, use-cases, and an application putting everything together, this book will give you everything you need to really get started with Neo4j. Starting with a brief introduction to graph theory, this book will show you the advantages of using graph databases along with data modeling techniques for graph databases. You'll gain practical hands-on experience with commonly used and lesser known features for updating graph store with Neo4j's Cypher query language. This book includes a lot of background information, helps you grasp the fundamental concepts behind this radical new way of dealing with connected data, and will give you lots of examples of use cases and environments where a graph database would be a great interest.

An easy-to-follow guide full of tips and examples of real-world applications. In each chapter, a thorough example will show you the concepts in action, followed by a detailed explanation. This book is intended for those who want to learn how to create, query, and maintain a graph database, or who want to migrate to a graph database from SQL. It would be helpful to have some familiarity with Java and/or SQL, but no prior experience is required.

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.

Run blazingly fast queries on complex graph datasets with the power of the Neo4j graph database About This Book Get acquainted with graph database systems and apply them in real-world use cases Use Cypher query language, APOC and other Neo4j extensions to derive meaningful analysis from complex data sets. A practical guide filled with ready to use examples on querying, graph processing and visualizing information to build smarter spatial applications. Who This Book Is For This book is for developers who want an alternative way to store and process data within their applications. No previous graph database experience is required; however, some basic database knowledge will help you understand the concepts more easily. What You Will Learn Understand the science of graph theory, databases and its advantages over traditional databases. Install Neo4j, model data and learn the most common practices of traversing data Learn the Cypher query language and tailor-made procedures to analyze and derive meaningful representations of data Improve graph techniques with the help of precise procedures in the APOC library Use Neo4j advanced extensions and plugins for performance optimization. Understand how Neo4j's new security features and clustering architecture are used for large scale deployments. In Detail Neo4j is a graph database that allows traversing huge amounts of data with ease. This book aims at quickly getting you started with the popular graph database Neo4j. Starting with a brief introduction to graph theory, this book will show you the advantages of using graph databases along with data modeling techniques for graph databases. You'll gain practical hands-on experience with commonly used and lesser known features for updating graph store with Neo4j's Cypher query language. Furthermore, you'll also learn to create awesome procedures using APOC and extend Neo4j's functionality, enabling integration, algorithmic analysis, and other advanced spatial operation capabilities on data. Through the course of the book you will come across implementation examples on the latest updates in Neo4j, such as in-graph indexes, scaling, performance improvements, visualization, data refactoring techniques, security enhancements, and much more. By the end of the book, you'll have gained the skills to design and implement modern spatial applications, from graphing data to unraveling business capabilities with the help of real-world use cases. Style and approach A step-by-step approach of adopting Neo4j, the world's leading graph database. This book includes a lot of background information, helps you grasp the fundamental concepts behind this radical new way of dealing with connected data, and will give you lots of examples of use cases and environments where a graph database would be a great fit

Find the right big data solution for your business or organization Big data management is one of the major challenges facing business, industry, and not-for-profit organizations. Data sets such as customer transactions for a mega-retailer, weather patterns monitored by meteorologists, or social network activity can quickly outpace the capacity of traditional data management tools. If you need to develop or manage big data solutions, you'll appreciate how these four experts define, explain, and guide you through this new and often confusing concept. You'll learn what it is, why it matters, and how to choose and implement solutions that work. Effectively managing big data is an issue of growing importance to businesses, not-for-profit organizations, government, and IT professionals Authors are experts in information management, big data, and a variety of solutions Explains big data in detail and discusses how to select and implement a solution, security concerns to consider, data storage and presentation issues, analytics, and much more Provides essential information in a no-nonsense, easy-to-understand style that is empowering Big Data For Dummies cuts through the confusion and helps you take charge of big data solutions for your organization.

"This book is a central reference source for different data management techniques for graph data structures and their applications, discussing graphs for modeling complex structured and schemaless data from the Semantic Web, social networks, protein networks, chemical compounds, and multimedia databases"--Provided by publisher.

Upgrade your machine learning models with graph-based algorithms, the perfect structure for complex and interlinked data. Summary In Graph-Powered Machine Learning, you will learn: The lifecycle of a machine learning project Graphs in big data platforms Data source modeling using graphs Graph-based natural language processing, recommendations, and fraud detection techniques Graph algorithms Working with Neo4J Graph-Powered Machine Learning teaches to use graph-based algorithms and data organization strategies to develop superior machine learning applications. You'll dive into the role of graphs in machine learning and big data platforms, and take an in-depth look at data source modeling, algorithm design, recommendations, and fraud detection. Explore end-to-end projects that illustrate architectures and help you optimize with best design practices. Author Alessandro Negro's extensive experience shines through in every chapter, as you learn from examples and concrete scenarios based on his work with real clients! Purchase of the print book includes a free

eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Identifying relationships is the foundation of machine learning. By recognizing and analyzing the connections in your data, graph-centric algorithms like K-nearest neighbor or PageRank radically improve the effectiveness of ML applications. Graph-based machine learning techniques offer a powerful new perspective for machine learning in social networking, fraud detection, natural language processing, and recommendation systems. About the book Graph-Powered Machine Learning teaches you how to exploit the natural relationships in structured and unstructured datasets using graph-oriented machine learning algorithms and tools. In this authoritative book, you'll master the architectures and design practices of graphs, and avoid common pitfalls. Author Alessandro Negro explores examples from real-world applications that connect GraphML concepts to real world tasks. What's inside Graphs in big data platforms Recommendations, natural language processing, fraud detection Graph algorithms Working with the Neo4J graph database About the reader For readers comfortable with machine learning basics. About the author Alessandro Negro is Chief Scientist at GraphAware. He has been a speaker at many conferences, and holds a PhD in Computer Science. Table of Contents PART 1 INTRODUCTION 1 Machine learning and graphs: An introduction 2 Graph data engineering 3 Graphs in machine learning applications PART 2 RECOMMENDATIONS 4 Content-based recommendations 5 Collaborative filtering 6 Session-based recommendations 7 Context-aware and hybrid recommendations PART 3 FIGHTING FRAUD 8 Basic approaches to graph-powered fraud detection 9 Proximity-based algorithms 10 Social network analysis against fraud PART 4 TAMING TEXT WITH GRAPHS 11 Graph-based natural language processing 12 Knowledge graphs

This book is a guide to designing and building knowledge graphs from enterprise relational databases in practice. It presents a principled framework centered on mapping patterns to connect relational databases with knowledge graphs, the roles within an organization responsible for the knowledge graph, and the process that combines data and people. The content of this book is applicable to knowledge graphs being built either with property graph or RDF graph technologies. Knowledge graphs are fulfilling the vision of creating intelligent systems that integrate knowledge and data at large scale. Tech giants have adopted knowledge graphs for the foundation of next-generation enterprise data and metadata management, search, recommendation, analytics, intelligent agents, and more. We are now observing an increasing number of enterprises that seek to adopt knowledge graphs to develop a competitive edge. In order for enterprises to design and build knowledge graphs, they need to understand the critical data stored in relational databases. How can enterprises successfully adopt knowledge graphs to integrate data and knowledge, without boiling the ocean? This book provides the answers.

This book constitutes the proceedings of the 16th Conference on Computability in Europe, CiE 2020, which was planned to be held in Fisciano, Italy, during June 29 until July 3, 2020. The conference moved to a virtual format due to the coronavirus pandemic. The 30 full and 5 short papers presented in this volume were carefully reviewed and selected from 72 submissions. CiE promotes the development of computability-related science, ranging over mathematics, computer science and applications in various natural and engineering sciences, such as physics and biology, as well as related fields, such as philosophy and history of computing. CiE 2020 had as its motto Beyond the Horizon of Computability, reflecting the interest of CiE in research transgressing the traditional boundaries of computability theory. Three of CouchDB's creators show you how to use this document-oriented database as a standalone application framework or with high-volume, distributed applications. With its simple model for storing, processing, and accessing data, CouchDB is ideal for web applications that handle huge amounts of loosely structured data. That alone would stretch the limits of a relational database, yet CouchDB offers an open source solution that's reliable, scales easily, and responds quickly. CouchDB works with self-contained data that has loose or ad-hoc connections. It's a model that fits many real-world items, such as contacts, invoices, and receipts, but you'll discover that this database can easily handle data of any kind. With this book, you'll learn how to work with CouchDB through its RESTful web interface, and become familiar with key features such as simple document CRUD (create, read, update, delete), advanced MapReduce, deployment tuning, and more. Understand the basics of document-oriented storage and manipulation Interact with CouchDB entirely through HTTP using its RESTful interface Model data as self-contained JSON documents Handle evolving data schemas naturally Query and aggregate data in CouchDB using MapReduce views Replicate data between nodes Tune CouchDB for increased performance and reliability

Discover how graph databases can help you manage and query highly connected data. With this practical book, you'll learn how to design and implement a graph database that brings the power of graphs to bear on a broad range of problem domains. Whether you want to speed up your response to user queries or build a database that can adapt as your business evolves, this book shows you how to apply the schema-free graph model to real-world problems. Learn how different organizations are using graph databases to outperform their competitors. With this book's data modeling, query, and code examples, you'll quickly be able to implement your own solution. Model data with the Cypher query language and property graph model Learn best practices and common pitfalls when modeling with graphs Plan and implement a graph database solution in test-driven fashion Explore real-world examples to learn how and why organizations use a graph database Understand common patterns and components of graph database architecture Use analytical techniques and algorithms to mine graph database information

This book presents a comprehensive overview of fundamental issues and recent advances in graph data management. Its aim is to provide beginning researchers in the area of graph data management, or in fields that require graph data management, an overview of the latest developments in this area, both in applied and in fundamental subdomains. The topics covered range from a general introduction to graph data management, to more specialized topics like graph visualization, flexible queries of graph data, parallel processing, and benchmarking. The book will help researchers put their work in perspective and show them which types of tools, techniques and technologies are available, which ones could best suit their needs, and where there are still open issues and future research directions. The chapters are contributed by leading experts in the relevant areas, presenting a coherent overview of the state of the art in the field. Readers should have a basic knowledge of data management techniques as they are taught in computer science MSc programs.

This book constitutes the refereed proceedings of the 32nd International Conference on Conceptual Modeling, ER 2014, held in Atlanta, GA, USA. The 23 full and 15 short papers presented were carefully reviewed and selected from 80 submissions. Topics of interest presented and discussed in the conference span the entire spectrum of conceptual

modeling including research and practice in areas such as: data on the web, unstructured data, uncertain and incomplete data, big data, graphs and networks, privacy and safety, database design, new modeling languages and applications, software concepts and strategies, patterns and narratives, data management for enterprise architecture, city and urban applications.

Introductory, theory-practice balanced text teaching the fundamentals of databases to advanced undergraduates or graduate students in information systems or computer science.

This practical book covers both strategies and tactics around managing a data governance initiative to help make the most of your data.

Graph Databases in Action teaches readers everything they need to know to begin building and running applications powered by graph databases. Right off the bat, seasoned graph database experts introduce readers to just enough graph theory, the graph database ecosystem, and a variety of datastores. They also explore modelling basics in action with real-world examples, then go hands-on with querying, coding traversals, parsing results, and other essential tasks as readers build their own graph-backed social network app complete with a recommendation engine! Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

"The purpose of this book is to introduce graphs and graph databases to technology practitioners, including developers, database professionals, and technology decision makers. Reading this book will give you a practical understanding of graph databases. We show how the graph model "shapes" data, and how we query, reason about, understand, and act upon data using a graph database. We discuss the kinds of problems that are well aligned with graph databases, with examples drawn from actual real-world use cases, and we show how to plan and implement a graph database solution."--Preface.

Data is everywhere - it's just not very well connected, which makes it super hard to relate dataset to dataset. Using graphs as the underlying glue, you can readily join data together and create navigation paths across diverse sets of data. Add Elixir, with its awesome power of concurrency, and you'll soon be mastering data networks. Learn how different graph models can be accessed and used from within Elixir and how you can build a robust semantics overlay on top of graph data structures. We'll start from the basics and examine the main graph paradigms. Get ready to embrace the world of connected data! Graphs provide an intuitive and highly flexible means for organizing and querying huge amounts of loosely coupled data items. These data networks, or graphs in math speak, are typically stored and queried using graph databases. Elixir, with its noted support for fault tolerance and concurrency, stands out as a language eminently suited to processing sparsely connected and distributed datasets. Using Elixir and graph-aware packages in the Elixir ecosystem, you'll easily be able to fit your data to graphs and networks, and gain new information insights. Build a testbed app for comparing native graph data with external graph databases. Develop a set of applications under a single umbrella app to drill down into graph structures. Build graph models in Elixir, and query graph databases of various stripes - using Cypher and Gremlin with property graphs and SPARQL with RDF graphs. Transform data from one graph modeling regime to another. Understand why property graphs are especially good at graph traversal problems, while RDF graphs shine at integrating different semantic models and can scale up to web proportions. Harness the outstanding power of concurrent processing in Elixir to work with distributed graph datasets and manage data at scale. What You Need: To follow along with the book, you should have Elixir 1.10+ installed. The book will guide you through setting up an umbrella application for a graph testbed using a variety of graph databases for which Java SDK 8+ is generally required. Instructions for installing the graph databases are given in an appendix.

This book is for developers who want an alternative way to store and process data within their applications. No previous graph database experience is required; however, some basic database knowledge will help you understand the concepts more easily. Discover how graph databases can help you manage and query highly connected data. With this practical book, you'll learn how to design and implement a graph database that brings the power of graphs to bear on a broad range of problem domains. Whether you want to speed up your response to user queries or build a database that can adapt as your business evolves, this book shows you how to apply the schema-free graph model to real-world problems.

This guideline defines ventilation and then natural ventilation. It explores the design requirements for natural ventilation in the context of infection control, describing the basic principles of design, construction, operation and maintenance for an effective natural ventilation system to control infection in health-care settings.

Summary Neo4j in Action is a comprehensive guide to Neo4j, aimed at application developers and software architects. Using hands-on examples, you'll learn to model graph domains naturally with Neo4j graph structures. The book explores the full power of native Java APIs for graph data manipulation and querying. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Much of the data today is highly connected—from social networks to supply chains to software dependency management—and more connections are continually being uncovered. Neo4j is an ideal graph database tool for highly connected data. It is mature, production-ready, and unique in enabling developers to simply and efficiently model and query connected data. About the Book Neo4j in Action is a comprehensive guide to designing, implementing, and querying graph data using Neo4j. Using hands-on examples, you'll learn to model graph domains naturally with Neo4j graph structures. The book explores the full power of native Java APIs for graph data manipulation and querying. It also covers Cypher, Neo4j's graph query language. Along the way, you'll learn how to integrate Neo4j into your domain-driven app using Spring Data Neo4j, as well as how to use Neo4j in standalone server or embedded modes. Knowledge of Java basics is required. No prior experience with graph data or Neo4j is assumed. What's Inside Graph database patterns How to model data in social networks How to use Neo4j in your Java applications How to configure and set up Neo4j About the Authors Aleksa Vukotic is an architect specializing in graph data models. Nicki Watt, Dominic Fox, Tareq Abedrabbo, and Jonas Partner work at OpenCredo, a Neo Technology partner, and have been involved in many projects using Neo4j. Table of Contents PART 1 INTRODUCTION TO NEO4J A case for a Neo4j database Data modeling in Neo4j Starting development with Neo4j The power of traversals Indexing the data PART 2 APPLICATION DEVELOPMENT WITH NEO4J Cypher: Neo4j query language Transactions Traversals in depth Spring Data Neo4j PART 3 NEO4J IN PRODUCTION Neo4j: embedded versus server mode

To start with you will cover the basics of graph analytics, Cypher querying language, components of graph architecture, and more. You will implement Neo4j techniques to understand various graph analytics methods to reveal complex relationships in data. You

will understand how machine learning can be used to perform smarter graph analytics.

Graph Databases New Opportunities for Connected Data

An effective guide to becoming an AWS Certified Developer About This Book This fast-paced guide will help you clear the exam with confidence Learn to design, develop, and deploy cloud-based solutions using AWS Enhance your AWS skills with practice questions and mock tests Who This Book Is For This book is for IT professionals and developers looking to clear the AWS Certified Developer – Associate 2017 exam. Developers looking to develop and manage their applications on the AWS platform will also find this book useful. No prior AWS experience is needed. What You Will Learn Create and manage users, groups, and permissions using AWS Identity and Access Management services Create a secured Virtual Private Cloud (VPC) with Public and Private Subnets, Network Access Control, and Security groups Get started with Elastic Compute Cloud (EC2), launching your first EC2 instance, and working with it Handle application traffic with Elastic Load Balancing (ELB) and monitor AWS resources with CloudWatch Work with AWS storage services such as Simple Storage Service (S3), Glacier, and CloudFront Get acquainted with AWS DynamoDB – a NoSQL database service Coordinate work across distributed application components using Simple Workflow Service (SWF) In Detail AWS Certified Developer - Associate Guide starts with a quick introduction to AWS and the prerequisites to get you started. Then, this book gives you a fair understanding of core AWS services and basic architecture. Next, this book will describe about getting familiar with Identity and Access Management (IAM) along with Virtual private cloud (VPC). Moving ahead you will learn about Elastic Compute cloud (EC2) and handling application traffic with Elastic Load Balancing (ELB). Going ahead you we will talk about Monitoring with CloudWatch, Simple storage service (S3) and Glacier and CloudFront along with other AWS storage options. Next we will take you through AWS DynamoDB – A NoSQL Database Service, Amazon Simple Queue Service (SQS) and CloudFormation Overview. Finally, this book covers understanding Elastic Beanstalk and overview of AWS lambda. At the end of this book, we will cover enough topics, tips and tricks along with mock tests for you to be able to pass the AWS Certified Developer - Associate exam and develop as well as manage your applications on the AWS platform. Style and approach This step-by-step guide includes exercises and mock tests to clear the AWS certification exam and become a successful AWS developer. Despite the recent rapid growth in machine learning and predictive analytics, many of the statistical questions that are faced by researchers and practitioners still involve explaining why something is happening. Regression analysis is the best 'swiss army knife' we have for answering these kinds of questions. This book is a learning resource on inferential statistics and regression analysis. It teaches how to do a wide range of statistical analyses in both R and in Python, ranging from simple hypothesis testing to advanced multivariate modelling. Although it is primarily focused on examples related to the analysis of people and talent, the methods easily transfer to any discipline. The book hits a 'sweet spot' where there is just enough mathematical theory to support a strong understanding of the methods, but with a step-by-step guide and easily reproducible examples and code, so that the methods can be put into practice immediately. This makes the book accessible to a wide readership, from public and private sector analysts and practitioners to students and researchers. Key Features: • 16 accompanying datasets across a wide range of contexts (e.g. academic, corporate, sports, marketing) • Clear step-by-step instructions on executing the analyses. • Clear guidance on how to interpret results. • Primary instruction in R but added sections for Python coders. • Discussion exercises and data exercises for each of the main chapters. • Final chapter of practice material and datasets ideal for class homework or project work.

Complete reference guide to Redis KEY FEATURES ? Complete coverage of Redis Modules. ? Best practices, tips and tricks, and expert techniques to scale Redis. ? Troubleshooting solutions to perform real-time faster data processing for client applications. DESCRIPTION This book begins with teaching you to set up your own Redis environment, followed by Redis data structures, their architecture, and use cases. You get to learn the details about Redis Modules such as RediSearch, RedisJSON, RedisTimeSeries, RedisAI, and RedisGraph with specific business use-case examples. This book makes you a Redis Expert by getting you hands-on with best practices on Redis and some tricks to scale Redis activities. WHAT YOU WILL LEARN ? Redis's advantages over the other NOSQL databases. ? Explore Redis Enterprise and its real gameplay in enterprise applications. ? Learn Redis data structures through practically demonstrated use cases. ? Learn from Industry expert to setup the Redis in production environment. ? Understand how Redis enterprise enhances Redis OSS. WHO THIS BOOK IS FOR This book is ideal for anyone who is interested in understanding the basic concepts of the Redis database. The book will help the IT professionals, Software developers, Technical leads, Architects. Readers should have a working knowledge of database designing, basic programming skills, and an understanding of the latest trends in cloud computing. TABLE OF CONTENTS 1. Introduction to NoSQL World 2. NoSQL database types 3. Are NoSQL databases better than traditional databases? 4. History of Redis 5. Getting started with Redis 6. Setting up Redis 7. Redis Data Structures in details 8. Scaling Redis 9. Modules 10. Redis use cases 11. Redis as database service - enterprise solutions 12. What is new in Redis 6? 13. Appendix A (i) Using Redis-cli (ii) RedisInsight tool (iii) Community helps

Graph data modeling and querying arises in many practical application domains such as social and biological networks where the primary focus is on concepts and their relationships and the rich patterns in these complex webs of interconnectivity. In this book, we present a concise unified view on the basic challenges which arise over the complete life cycle of formulating and processing queries on graph databases. To that purpose, we present all major concepts relevant to this life cycle, formulated in terms of a common and unifying ground: the property graph data model—the pre-dominant data model adopted by modern graph database systems. We aim especially to give a coherent and in-depth perspective on current graph querying and an outlook for future developments. Our presentation is self-contained, covering the relevant topics from: graph data models, graph query languages and graph query specification, graph constraints, and graph query processing. We conclude by indicating major open research challenges towards the next generation of graph data management systems.

Write your business book without wasting time or money—a “superb” guide for executives, entrepreneurs, and thought leaders (Henry DeVries, author of Persuade with a Story). Write Your Book in a Flash shows how to get focused fast, so you can write your book without tearing your hair out. As with any enterprise, writing a book requires a clear system—or nothing gets finished. Unlike books that show you why you should write a book, this book actually shows you how to write a book! You'll discover: How to write a simple outline that makes the writing process faster and easier How to get stunning testimonials to help sell your book How to find and manage beta readers who will share honest feedback before the book is published How to research interesting ideas, stories, and facts so you never run out of ideas or information How to overcome “The Imposter Syndrome” and other limiting beliefs that stifle nearly every would-be author Clear examples that show you what to do (and what not to do) Empowering

exercises that show you how to write better and faster Simple how-to steps anyone can follow to write a book Business leaders who write books get more clients at higher fees, have more impact, develop more credibility, and have more influence where it matters most: in front of clients, customers, and prospects. This is the perfect book to read if you are a thought leader, entrepreneur or business executive who wants to write a business book to build your personal brand, open doors to new opportunities, and leave a legacy of wisdom to future generations.

REST continues to gain momentum as the best method for building Web services, and this down-to-earth book delivers techniques and examples that show how to design and implement integration solutions using the REST architectural style. This book constitutes the proceedings of the 14th IFIP TC 8 International Conference on Computer Information Systems and Industrial Management, CISIM 2015, held in Warsaw, Poland, in September 2015. The 47 papers presented in this volume were carefully reviewed and selected from about 80 submissions. The main topics covered are biometrics, security systems, multimedia, classification and clustering with applications, and industrial management.

Discover how graph databases can help you manage and query highly connected data. With this practical book, you'll learn how to design and implement a graph database that brings the power of graphs to bear on a broad range of problem domains. Whether you want to speed up your response to user queries or build a database that can adapt as your business evolves, this book shows you how to apply the schema-free graph model to real-world problems. This second edition includes new code samples and diagrams, using the latest Neo4j syntax, as well as information on new functionality. Learn how different organizations are using graph databases to outperform their competitors. With this book's data modeling, query, and code examples, you'll quickly be able to implement your own solution. Model data with the Cypher query language and property graph model Learn best practices and common pitfalls when modeling with graphs Plan and implement a graph database solution in test-driven fashion Explore real-world examples to learn how and why organizations use a graph database Understand common patterns and components of graph database architecture Use analytical techniques and algorithms to mine graph database information

Wring more out of the data with a scientific approach to analysis Graph Analysis and Visualization brings graph theory out of the lab and into the real world. Using sophisticated methods and tools that span analysis functions, this guide shows you how to exploit graph and network analytic techniques to enable the discovery of new business insights and opportunities. Published in full color, the book describes the process of creating powerful visualizations using a rich and engaging set of examples from sports, finance, marketing, security, social media, and more. You will find practical guidance toward pattern identification and using various data sources, including Big Data, plus clear instruction on the use of software and programming. The companion website offers data sets, full code examples in Python, and links to all the tools covered in the book. Science has already reaped the benefit of network and graph theory, which has powered breakthroughs in physics, economics, genetics, and more. This book brings those proven techniques into the world of business, finance, strategy, and design, helping to extract more information from data and better communicate the results to decision-makers. Study graphical examples of networks using clear and insightful visualizations Analyze specifically-curated, easy-to-use data sets from various industries Learn the software tools and programming languages that extract insights from data Code examples using the popular Python programming language There is a tremendous body of scientific work on network and graph theory, but very little of it directly applies to analyst functions outside of the core sciences – until now. Written for those seeking empirically based, systematic analysis methods and powerful tools that apply outside the lab, Graph Analysis and Visualization is a thorough, authoritative resource.

Why have developers at places like Facebook and Twitter increasingly turned to graph databases to manage their highly connected big data? The short answer is that graphs offer superior speed and flexibility to get the job done. It's time you added skills in graph databases to your toolkit. In Practical Neo4j, database expert Greg Jordan guides you through the background and basics of graph databases and gets you quickly up and running with Neo4j, the most prominent graph database on the market today. Jordan walks you through the data modeling stages for projects such as social networks, recommendation engines, and geo-based applications. The book also dives into the configuration steps as well as the language options used to create your Neo4j-backed applications. Neo4j runs some of the largest connected datasets in the world, and developing with it offers you a fast, proven NoSQL database option. Besides those working for social media, database, and networking companies of all sizes, academics and researchers will find Neo4j a powerful research tool that can help connect large sets of diverse data and provide insights that would otherwise remain hidden. Using Practical Neo4j, you will learn how to harness that power and create elegant solutions that address complex data problems. This book: Explains the basics of graph databases Demonstrates how to configure and maintain Neo4j Shows how to import data into Neo4j from a variety of sources Provides a working example of a Neo4j-based application using an array of language of options including Java, .Net, PHP, Python, Spring, and Ruby As you'll discover, Neo4j offers a blend of simplicity and speed while allowing data relationships to maintain first-class status. That's one reason among many that such a wide range of industries and fields have turned to graph databases to analyze deep, dense relationships. After reading this book, you'll have a potent, elegant tool you can use to develop projects profitably and improve your career options.

Graph data closes the gap between the way humans and computers view the world. While computers rely on static rows and columns of data, people navigate and reason about life through relationships. This practical guide demonstrates how graph data brings these two approaches together. By working with concepts from graph theory, database schema, distributed systems, and data analysis, you'll arrive at a unique intersection known as graph thinking. Authors Denise Koessler Gosnell and Matthias Broecheler show data engineers, data scientists, and data analysts how to solve complex problems with graph databases. You'll explore templates for building with graph technology, along with examples that demonstrate how teams think about graph data within an application. Build an example application architecture with relational and graph technologies Use graph technology to build a Customer 360 application, the most popular graph data pattern today Dive into hierarchical data and troubleshoot a new paradigm that comes from working with graph data

Find paths in graph data and learn why your trust in different paths motivates and informs your preferences Use collaborative filtering to design a Netflix-inspired recommendation system

Discover how graph algorithms can help you leverage the relationships within your data to develop more intelligent solutions and enhance your machine learning models. You'll learn how graph analytics are uniquely suited to unfold complex structures and reveal difficult-to-find patterns lurking in your data. Whether you are trying to build dynamic network models or forecast real-world behavior, this book illustrates how graph algorithms deliver value—from finding vulnerabilities and bottlenecks to detecting communities and improving machine learning predictions. This practical book walks you through hands-on examples of how to use graph algorithms in Apache Spark and Neo4j—two of the most common choices for graph analytics. Also included: sample code and tips for over 20 practical graph algorithms that cover optimal pathfinding, importance through centrality, and community detection. Learn how graph analytics vary from conventional statistical analysis Understand how classic graph algorithms work, and how they are applied Get guidance on which algorithms to use for different types of questions Explore algorithm examples with working code and sample datasets from Spark and Neo4j See how connected feature extraction can increase machine learning accuracy and precision Walk through creating an ML workflow for link prediction combining Neo4j and Spark

Updated for the latest database management systems -- including MySQL 6.0, Oracle 11g, and Microsoft's SQL Server 2008 -- this introductory guide will get you up and running with SQL quickly. Whether you need to write database applications, perform administrative tasks, or generate reports, Learning SQL, Second Edition, will help you easily master all the SQL fundamentals. Each chapter presents a self-contained lesson on a key SQL concept or technique, with numerous illustrations and annotated examples. Exercises at the end of each chapter let you practice the skills you learn. With this book, you will: Move quickly through SQL basics and learn several advanced features Use SQL data statements to generate, manipulate, and retrieve data Create database objects, such as tables, indexes, and constraints, using SQL schema statements Learn how data sets interact with queries, and understand the importance of subqueries Convert and manipulate data with SQL's built-in functions, and use conditional logic in data statements Knowledge of SQL is a must for interacting with data. With Learning SQL, you'll quickly learn how to put the power and flexibility of this language to work.

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