MongoDB
for Academia

Recommended Reading

MongoDB for Academia would like to share some of the top text resources for those interested in learning and/or teaching non-relational databases, with a focus on MongoDB. These resources are applicable to anyone who is in the field of computing and looking for more information on modern databases.

Learn more about MongoDB from the experts

These texts are dedicated to non-relational databases and/or MongoDB specifically. We recommend these for a deep dive into the concepts and to become familiar with the systems on a proficient level.
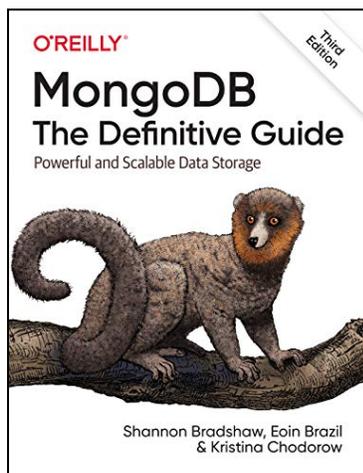
Title: MongoDB: The Definitive Guide: Powerful and Scalable Data Storage 3rd Edition

Authors: Shannon Bradshaw, Eoin Brazil, Kristina Chodorow

Description: Updated for MongoDB 4.2, the third edition of this authoritative and accessible guide walks you through the key features and advantages of using document-oriented databases. The text provides comprehensive guidance for database developers and system administrators on advanced configuration, as well as use cases for a variety of projects. Authors Bradshaw, Brazil, and Chodorow cover with expertise the critical concepts including querying, indexing, aggregation, transactions, replica sets, ops management, sharding and data administration, durability, monitoring, and security.
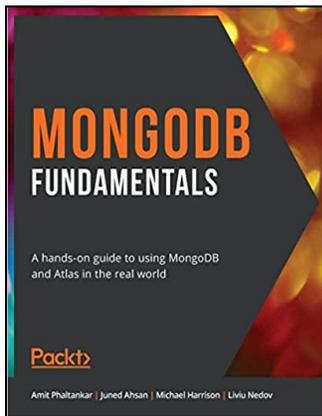
Title: MongoDB Fundamentals: A hands-on guide to using MongoDB and Atlas in the real world

Authors: Amit Phaltankar, Juned Ahsan, Michael Harrison, and Liviu Nedov

Description: This book is unique from other guides on MongoDB in that it focuses on cloud computing from the start, teaching how to set up Atlas in the first chapter. It further goes into how to create, manage, and optimize a database in the cloud using Atlas. Suited for learners at all levels who are interested in learning and working in MongoDB, the text outlines the fundamentals of non-relational databases and provides detailed, hands-on exercises using real-world datasets to apply the concepts covered.
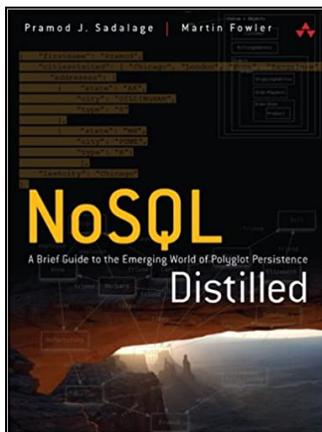
Title: NoSQL Distilled: A Brief Guide to the Emerging World of Polyglot Persistence

Authors: Pramod J. Sadalage and Martin Fowler

Description: A more concise option to other popular texts, Sadalage and Fowler cover the main features shared by non-relational databases and their advantages to help readers determine if these systems meet the needs of their applications. In the first part of the book, the authors outline the core concepts including schemaless data models, aggregates, new distribution models, the CAP theorem, and map-reduce. Then the text dives into practical use cases using the most popular non-relational examples such as MongoDB, Cassandra, Neo4j, and Riak. The text also has a free PDF version available to download.

Learn about all databases and systems

The following recommended texts are not solely focused on non-relational systems, but databases as a whole with some excellent chapters covering non-relational and MongoDB. These will be beneficial if teaching or learning at a 101 level where a broad look at database structures is needed.
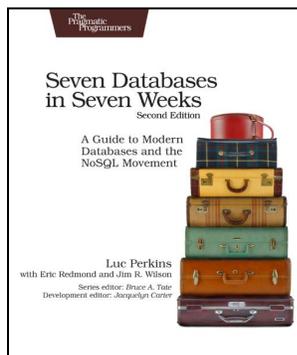
Title: [Seven Databases in Seven Weeks: A Guide to Modern Databases and the NoSQL Movement 1st Edition](#)

Recommended Sections: Chapter 4, "MongoDB"

Authors: Eric Redmond and Jim Wilson

Description: While most of the databases covered in this book are non-relational, it does give a broad overview of the top modern databases in the field, including relational, and their defining features. The book goes through Redis, Neo4J, CouchDB, MongoDB, HBase, Riak and Postgres, each with a real-world data problem that highlights the main concepts. It further explores the five data models employed by these databases - relational, key/value, columnar, document and graph - and the kinds of problems that are best suited to each.
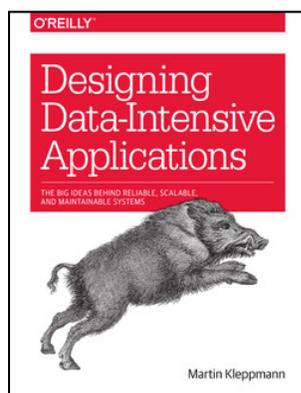
Title: [Designing Data-Intensive Applications: The Big Ideas Behind Reliable, Scalable, and Maintainable Systems, 1st Edition](#)

Recommended Sections: Chapter 2, "Data Models and Query Languages"

Author: Martin Kleppmann

Description: Kleppman expertly outlines the foundations and key concepts of data system design highlighting the most important considerations: scalability, consistency, reliability, efficiency, and maintainability. With no focus on one particular data system or store, this text is a great resource for those looking to understand the emerging technologies in the world of data and what will work best for any situation they will encounter in the field of application development.
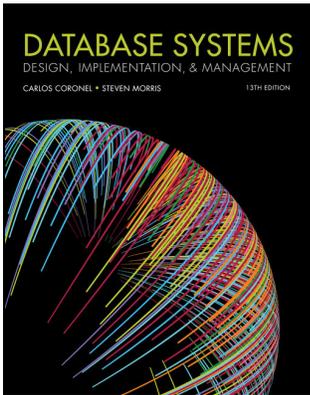
Title: [Database Systems: Design, Implementation, & Management 13th Edition](#)

<u>Recommended Sections:</u> Chapter 14 (esp. Section 5), "Big Data and NoSQL" and Appendix P (available via cengagebrain.com)

Authors: Carlos Coronel and Steven Morris

Description: This text is a more recent addition to the literature on database systems compared to other predominant texts. As such, it covers a wide breadth of concepts including database implementations and design using detailed real-world examples, chats, and exercises. For a broad and hands-on approach to learning database systems, this text is well-suited. The text is also available to download as a [free PDF](#).