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DeepScience

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DeepScience

*Published, marketed, and distributed by:*

Deep Science Publishing, 2025
USA | UK | India | Turkey
Reg. No. MH-33-0523625
www.deepscienceresearch.com
editor@deepscienceresearch.com
WhatsApp: +91 7977171947

ISBN: 978-93-7185-375-0

E-ISBN: 978-93-7185-934-9

https://doi.org/10.70593/978-93-7185-934-9



**Citation:** Sriram, N., Dhanusha, C., Kanagalakshmi, (2025). *Mastering NoSQL with MongoDB*. Deep Science Publishing. https://doi.org/10.70593/978-93-7185-934-9

# Preface

The fast-paced development of the data-intensive applications has changed the manner, in which organizations store, process, and analyse data. With the continued generation of large amounts of unstructured and semi-structured data in modern systems, relational databases are commonly not required to be flexible, scalable, and provide real-time responses. With this changing trend, the trend has given way to the emergence of NoSQL technologies with MongoDB as one of the most robust as well as popular document-oriented databases. The book has been developed in such a way that it can be used as a great resource by students, teachers, and practitioners who want to be well-grounded in the concepts of MongoDB and NoSQL. Starting with best tenets of NoSQL databases, the text discusses why non-relational databases are important in modern software structure. The chapters are logically structured to present the basic ideas, shed light on the hidden principles, and develop the practical knowledge at a certain pace.

The readers are taken through critical areas such as the data modeling, CRUD operations, indexing, aggregation structures, sharding, replication and performance tuning as factors that are important in building efficient scalable and reliable database-driven applications. Understandings of MongoDB Shell, installation and configuration procedures, and generalized best practices in using the product in real-life situations are also presented in the book. Though the subject matter is quite technical, there are clear explanation of it and it comes with illustration, examples as well as articulated breakdowns. We will do so as we want to make sure that the learners acquire not only theoretical knowledge but also practical knowledge in working with MongoDB in a project, research and industrial setting with a high level of confidence. Hopefully, this book may become a helpful guide that enables a person to become curious, to develop a proper conceptual knowledge, and to become capable of fulfilling the capabilities of MongoDB and the NoSQL technologies. You may be on your way to modern database systems, or you may be expanding your knowledge base, either way, this text is supposed to put you on the right path, with sufficient clarity, accuracy, and intent.

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