

MongoDB for Developers

Course Duration: 24 Hours (3 Days)

Overview

The MongoDB for Developers course is an extensive program designed to equip learners with the knowledge and skills necessary to work with MongoDB, a leading NoSQL database. It introduces developers to the world of non-relational databases, offering a deep dive into the nuances of working with document-based data structures as opposed to traditional relational databases. Starting with an Overview - SQL/NoSQL, the course addresses when to choose between relational and NoSQL databases, the types of NoSQL stores, and key design considerations. Data Formats educates learners on the importance of JSON and BSON data formats and their benefits in MongoDB. In MongoDB Concepts, the course covers fundamental components like databases, collections, and documents, and details CRUD operations and indexing. As the course progresses, participants learn advanced topics such as Querying, Aggregation, Replication, and Indexing Strategies. The curriculum also includes lessons on MongoDB CRUD operations, advanced Querying techniques, Replication mechanisms, and Effective Indexing to optimize database performance. By the end of the course, learners will be well-versed in MongoDB operations and best practices, which can aid them in earning valuable MongoDB certifications. With hands-on exercises and practical knowledge, developers can leverage this course to build scalable and efficient applications using MongoDB.

Audience Profile

Koenig Solutions' MongoDB for Developers course offers comprehensive training on NoSQL databases, specifically designed for software professionals.

- Software Developers and Engineers
- Database Administrators (DBAs)
- Backend Developers
- Full Stack Developers
- Data Architects
- System Administrators
- DevOps Engineers
- IT Professionals looking to expand their database management skills
- Data Analysts seeking to understand NoSQL databases
- Application Developers working with large-scale, distributed systems
- Professionals working with big data technologies
- Technical Leads and Managers overseeing development teams
- Graduates aiming to specialize in modern database technologies

Course Syllabus

1. Overview – SQL vs. NoSQL

- Relational vs. NoSQL stores
- When to use Relational or NoSQL databases?
- Categories of NoSQL stores
- Examples of NoSQL databases
- Datastore design considerations

2. Data Formats

- What are data formats?
- Difference between data formats and data structures
- The JSON data format
- The BSON data format
- Advantages of BSON

3. MongoDB Concepts

- Servers
- Connections
- Databases
- Collections
- Documents
- CRUD operations
- Indexes

4. Querying MongoDB

- Query expression objects
- Query options
- Cursors
- MongoDB Query Language
- Dot notation
- Full-text search

5. MongoDB CRUD

- Insert (Create - C)
- Simple query examples (Read - R)
- Update (Update - U)
- Remove (Delete - D)

6. Advanced Querying

- Joins
- Server-side vs. Client-side querying
- Retrieving a subset of fields
- Conditional operators
- Aggregation
- Grouping
- Projections
- Cursor methods
- Introduction to MapReduce

7. Replication

- Master-Slave replication
- Adding and removing sources
- Replica sets
- Nodes in a replica set
- Using slaves for data processing
- Replication state and the local database

8. Indexing in MongoDB

- Introduction to indexes
- Creating and querying with indexes
- Types and properties of indexes
- Covered query indexes
- Using the \$ operator with indexes
- Indexes in replica sets and sharded clusters

9. Backup

- Import & export
- Backup & restore
- Customizing import & export