



Information Technology

**MongoDB**

## Course Introduction

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A multitude of new databases is created every year. MongoDB has found a home in so many different businesses and functions because it does a great job solving many longstanding problems in data management and software development. This training course is designed to provide participants with the foundational concepts of MongoDB and how its document-oriented nature allows quick building of highly scalable applications. Through the topics, participants will learn skills to develop, administer, secure, and scale MongoDB-based applications, and acquire low-cost, data-driven applications with MongoDB as the back-end database.

## Target Audience

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- Cloud Computing Engineer
- Computer Network Specialist
- Computer Support Specialist
- Database Administrator
- Information Technology Analyst
- Information Technology Leadership
- Information Security Specialist
- Software/Application Developer
- Web Developer
- Technology sales consultant

## Learning Objectives

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- Develop highly scalable and cost-efficient applications with MongoDB
- Build efficient MongoDB data models for enterprise-scale applications
- Enhance performance with indexing and sharding

- Manage consistency with write concern and read preference
- Process data and compute results with aggregation pipelines and MapReduce

## Course Outline

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### • Day 01

#### RECOGNIZING THE NEED FOR NOSQL DATA STORES

- Justifying non-relational data stores
- Listing the categories of NoSQL Data Stores
- FOCUSING ON MONGODB
- Defining the MongoDB architecture
- Reviewing the JSON standard
- Enumerating the MongoDB data types

#### INTERACTING WITH MONGODB

- Querying at the Command Line Interface
- Running Scripts
- Manipulating MongoDB data from Python and Java

### • Day 02

#### SURVEYING CLUSTER TOPOLOGY

- Creating a standalone mongod
- Achieving redundancy with replica sets
- Replicating data with the oplog

#### DISSECTING MONGODB STORAGE STRATEGIES

- Identifying storage engines
- Improving data safety with journaling
- Investigating record allocation strategies
- STORING LARGE FILES WITH GRIDFS
- Weighing the advantages and disadvantages of GridFS
- Leveraging the mongofiles utility tool
- Compressing data for economy of drive space

### • Day 03

## **ORGANIZING DATA**

- Storing data in Databases, collections and documents
- Inserting and updating Documents
- Running scripts from the Mongo Shell

## **QUERYING DOCUMENTS**

- Restricting find() with a query document
- Specifying keys for queries to return
- Constraining the number of results with limit and skip

## **MODELING RELATIONSHIPS**

- Express relationships using references
- Embedding sub-documents

### **• Day 04**

## **CONFIGURING READ AND WRITE CONSISTENCY**

- Reading from primary and secondary nodes
- Setting the read preference level
- Selecting the Appropriate Write Concern
- Writing with a timeout

## **CUSTOMIZING WRITE CONCERN AND READ PREFERENCE**

- Applying tags to replicas
- Adding logical names to write concerns
- Reading from a tagged mongod

## **LEVERAGING THE DIFFERENT MODES OF THE AGGREGATION FRAMEWORK**

- Invoking single-purpose aggregation functions
- Performing operations with the Aggregation Pipeline framework
- Executing MapReduce on MongoDB

### **• Day 05**

## **IMPROVING ACCESS SPEED WITH INDEXES**

- Investigating a query with the explain() function
- Getting statistics from explain()
- Choosing an index with the hint() function

CONSIDERING THE COST AND BENEFIT OF INDEXING

- Designing a better index
- Opting out of using an index
- Profiling to identify slow queries

TAKING ADVANTAGE OF INDEXES

- Sorting and finding ranges with an index
- Guaranteeing uniqueness with indexes
- Skipping missing fields with a sparse index

MANAGING COLLECTIONS WITH SPECIAL INDEXES

- Aging data out of a capped collection
- Searching for text fragments with \$text
- Deleting documents automatically using time to live indexes
- Permitting queries by location

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
April 14, 2025	April 18, 2025	5 days	4250.00 \$	UAE - Dubai
June 30, 2025	July 4, 2025	5 days	4950.00 \$	Spain - Barcelona
Oct. 6, 2025	Oct. 10, 2025	5 days	4250.00 \$	UAE - Abu Dhabi