



MONGODB

DOCUMENTS . COLLECTIONS . SHARDING . AGGREGATION . INDEXES . REPLICAS . SHARD SETS . SHARDING . OPS

DURATION

35 Hours

LEVEL

**Beginner to
Advanced**

MODULES

8

MODE

**Classroom ·
Online · Hybrid**

01 COURSE OVERVIEW

A MongoDB course covering document modelling, the aggregation framework and cluster operations. Schema design gets the most attention, because document modelling decisions determine everything downstream: embedding versus referencing, cardinality patterns, and index support for the actual query set. Aggregation, transactions, replica sets and sharding follow.

Learners model and operate a database for a real application workload.

WHO IT IS FOR

Backend and full stack developers

Data engineers

Developers on MERN or MEAN stacks

Administrators supporting MongoDB

PREREQUISITES

Basic programming and data modelling awareness.

02 LEARNING OUTCOMES

01 Model documents around query patterns.

03 Write CRUD and aggregation pipelines.

05 Use transactions where they are needed.

07 Plan shard keys and understand their consequences.

02 Choose between embedding and referencing.

04 Design indexes including compound and text.

06 Deploy replica sets and understand elections.

08 Operate MongoDB Atlas with backups and alerts.

01 MONGODB FOUNDATIONS

Documents and BSON

Shell and Compass

Atlas setup

Databases and collections

Drivers

02 CRUD AND QUERIES

Insert, find, update, delete

Projections

Array queries

Query operators

Sorting and pagination

LAB

QUERY SET

03 SCHEMA DESIGN

Embedding vs referencing

Bucket and outlier patterns

One-to-few, one-to-many, many-to-many

Schema validation

LAB

MODEL DESIGN

04 AGGREGATION FRAMEWORK

match, group, project

unwind

Window functions

lookup

facet

Pipeline optimisation

LAB

REPORTING PIPELINE

05 INDEXES AND PERFORMANCE

Single and compound indexes

Text and geospatial

Covered queries

Multikey

explain()

Working set

06 TRANSACTIONS AND CONSISTENCY

Write concern

Read concern and preference

Multi-document transactions

Idempotency

Change streams

07 REPLICATION AND SHARDING

Replica set architecture

Elections

Oplog

Shard keys

Chunk balancing

Zones

08 OPERATIONS

Backups and restore

Monitoring and alerts

Users and roles

Field-level encryption basics

Migration from SQL

PROJECT

MODELLED AND OPERATED APPLICATION DATABASE

04 ASSESSMENT & CERTIFICATION

Module assignments and labs

25%

Mini projects

20%

Internal assessments

15%

Final project and review

40%

CERTIFICATION

Learners who complete all modules, submit the final project and clear the review receive a course completion certificate from Kaizen Infinities Private Limited. Project work is documented for the learner's portfolio, and interview preparation is included in the closing sessions.

05 CAREER OUTCOMES

ROLES THIS PROGRAMME PREPARES FOR

MONGODB DEVELOPER

BACKEND DEVELOPER

FULL STACK DEVELOPER

DATA ENGINEER

DATABASE ADMINISTRATOR

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