Mongo DB 4.x Core Training

Course 4603 - 24 Hours

Overview

Learn and experience Mongo DB 4.x from installation to CRUD and Map Reduce, replication and sharding impact on development, Administration of Mongo DB and more.
This training introduces the popular Mongo Database. As part of this class you will learn the core skills required in order to work with Mongo DB from development to basic administration including data modeling and clustering architecture. The course is bundled with many labs. This course contains extra focus on good architecture design and impact on developers with respects to Highly Available and Scalable architectures.

Who Should Attend

- Developers
- DBAs
- Architects
- DevOps with development experience

Prerequisites

- Relational Database SQL experience

Course Contents

Lesson 1: Course Introduction

- Course Introduction
- Courseware walkthrough
- Documentation
- Lab – courseware installation

Lesson 2: Introduction to Mongo DB

- Why Mongo DB
- What is Mongo DB
- Performance
- High Availability
- Scaling
- ACID Transactions (V4.0)
- Document
- Cluster Architecture
- CRUD operations

- Mongo DB Shell
- Lab - Mongo DB Basic Installation and startup

Lesson 3: MongoDB Read Operations

- Read Operations Overview
- Data Model
- Query
- Projection
- Querying Arrays
- Cursor
- Sort Index Introduction
- Join using $lookup
- Lab: Practice Read commands

Lesson 4: MongoDB Write Operations

- Write Operations Overview
- Insert Document
- Update Document
- Update Arrays in Document
- Delete Document
- Strong Schema Definition
- Lab: Practice Data Manipulation Commands

Lesson 5: Mongo Shell

- Start the mongo Shell
- Working with the mongo Shell
- Tab Completion and Other Keyboard Shortcuts
- Configure the mongo Shell
- Write Scripts for the mongo Shell
- Data Types in the mongo Shell
- Lab - Experience mongo shell

Lesson 6: Mongo Indexes

- Index Introduction
- Sort Queries
- Index Types
- Index Properties
- Index Creation
- Intersection and Multikey Index Bounds
- Lab – Experience Mongo Indexes

Lesson 7: Aggregations

- Aggregation Introduction
- Aggregation Pipeline
- Aggregation Pipeline Optimization
- Aggregation Pipeline Limits
- Aggregation Pipeline and Sharded Collections
- Map-Reduce

- Map-Reduce and Sharded Collections
- Map Reduce Concurrency
- Single Purpose Aggregation Operations
- Lab: Experience Aggregations

Lesson 8: Replication

- Replication Introduction
- Replica Set
- Replica Set Deployment Architectures
- Replica Set Deployment Example
- ACID Transactions
- Retryable Writes
- Replica Set High Availability
- Replication Process
- Lab: Experience Replica Sets

Lesson 9: Sharding

- Sharding introduction
- Sharded Cluster Requirements
- Shard Key Indexes
- Development implications
- Sharded Cluster Metadata
- Sharded Cluster Installation
- Lab (Configure Sharding)

Lesson 10: Non-Functionals development impact

- Transactions and Atomicity
- High Availability Replica Set Read Concerns
- High Availability Replica Set Write Concerns
- Scalability: Distributed Queries
- Scalability: Distributed Write Operations
- Performance: Write Operations

Lesson 11: Data modeling Introduction

- Mongo DB Use Cases
- Modeling and best practices
- Capped Collections

Lesson 12: Administration concerns (If time permits)

- MongoDB Backup Methods
- Monitoring MongoDB
- Configure the Database
- Security Considerations
- Diagnostic Configurations
- Analyzing MongoDB Performance
- Schema Maintenance

Lesson 13: Summary

- Summary
- Wrap up