

## **MongoDB**

**Duration- 4 Days**

**Prerequisite** - MySQL or any other database experience , Experience with Java programming Language , Basic Understanding of Big Data Platforms.

### **Course Objective -**

Philosophy & Features: performance, JSON, BSON, fault tolerance, disaster recovery, horizontal scaling, and the Mongo shell

CRUD: Create, Read, Update, and Delete operations

Indexing: Single key, Compound, multi-key, mechanics, and performance

Aggregation: pipeline, operators, memory usage, sort, skip, and limit

Replication: configuration, oplog concepts, write concern, elections, failover, and deployment to multiple data centers

### **Lab Setup Details :**

#### **Hardware requirement:**

CPU : I4/I5 , Hard Disk : 50GB , RAM :8 GB

#### **Software Requirement:**

- XAMPP <https://www.apachefriends.org/download.html> (DOWNLOAD VERSION 5.6.31)
- MSOFFICE 2010
- NOTEPAD++ <https://notepad-plus-plus.org/download/v7.5.1.html> (DOWNLOAD VER 7.5.1)
- SUBLIME TEXT3 <https://www.sublimetext.com/3>
- Visual Studio Code <https://code.visualstudio.com/download>
- PDF READER <https://adobe-reader.en.softonic.com/download>
- Browser Google Chrome OS Window 10

## **MONGODB COURSE CONTENTS**

**(DURATION 4 DAYS)**

MongoDB (4 days)

### **Overview - SQL/NoSQL**

- Datastore design considerations
- Relational v/s NoSQL stores
- Entities, Relationships and Database modelling
- When to use Relational/NoSQL
- Relational Storage Structures

- Categories of NoSQL stores
- Examples of NoSQL stores
- NoSQL Storage Structures

## Data Formats

- What are Data Formats
- Difference between Data Formats and Data Structures
- Serializing and de-serializing data
- JavaScript Fundamentals
- The JSON Data Format
- BSON Data Format
- Advantages of BSON

## Introduction to MongoDB

- Key Features of MongoDB
- Installing MongoDB
- Starting and Stopping the server
- Important file system locations
- Using the shell
- Integrating with other languages

## MongoDB Concepts

- Servers
- Connections
- Databases
- Collections
- Documents
- Fields
- Indexes

## MongoDB CRUD

- A look at a few use cases
- Insert (C)
- Simple Query Examples (R)
- Update (U)
- Remove (D)

## Indexing

- Capped Collections

- Setting up Profiling
- Indexing concepts
- Types of Indexes
- Indexes covering queries

## Querying MongoDB

- Query Expression Objects
- Query Options
- Cursors
- Mongo Query Language
- Dot Notation
- Full Text Search
- Cursors
- Adding Custom JavaScript

## Advanced querying

- Joins
- Server-side v/s Client-side querying
- Retrieving a subset of fields
- Conditional operators
- Aggregation
- Grouping
- Projections

## Replication

- Why Replication?
- Difference between replication and backup
- Replication Setups
- Master/Slave Replication
- Replica sets
- Setting up an Arbiter
- Failover
- Using data for replication analysis
- Oplogs
- Heartbeats
- Removing replica set members
- Overriding the default sync target
- Write concerns

## Case Study/ Post Assessment