MongoDB Course Curriculum

Objectives:

- 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

  By the end of the MongoDB training, the students will be able to:

- Install and setup the MongoDB database

- Use the MongoDB shell to access the database

- Create, retrieve, update and delete data

- Use aggregation queries

- Appreciate the APIs used to interface with MongoDB

- Understand the document based structure of the database

- Use an API to develop applications

- Optimise queries with indexes

- Document based data modelling

- Create document collections

- CRUD operations with the Mongo shell

- Aggregation pipelines

- MongoDB transactions

- MongoDB access using programming languages

- Create indexes

Introduction to NoSQL Architecture with MongoDB

- What Is MongoDB?

- Downloading the required Software

- Installation and Configuration

- MongoDB Advantages

- MongoDB Data Modelling

- MongoDB Tools, Collection and Documents

- Configuration Files

- Touring the File Structure

- Securing the Installation

CRUD and the MongoDB Shell

- Introduction to CRUD

- Introduction to the MongoDB API

- Creating a Database, Collection and Documents

Data Modelling and Schema Design

- MongoDB Database References

- Model Tree Structures

- MongoDB Analyzing Queries

- MongoDB Atomic Operations

- MongoDB Map Reduce

- MongoDB Text Search

- MongoDB Regular Expression

- MongoDB Capped Collections

- Data Storage

- Working with Datatypes

- Collections

- Document Datatypes

- Creating _id Fields

Querying Data

- Databases and Collections

- Querying Collections

- Working with Operators

- Referencing a Database

- Querying Dates

Manipulating Data

- Inserting Data into Collections

- Updates

- Deletes

- Atomic Operations

- Removing Data

- Capped Collections

High Performance Options

- Creating Indexes

- Manipulating Index Behaviour

- Index Properties

- Specialised Index Types

- Replication

- Sharding

Aggregation Framework

- Aggregating Results

- Single Purpose Functions

- The Aggregation Pipeline

- Date Aggregation Operators

Indexing

- Indexing and Aggregation

- Indexing, query profiling and the query optimizer

- Geospatial Indexes

- Index types, Index Properties

- MongoDB Advanced Indexing

- MongoDB Indexing Limitations

- Aggregation Introduction

Replication

- Replication Concept

- Failover& Recovery

Administration

- MongoDB Deployment and Cluster setup

- MongoDB GridFS

- Trident Spout

- Working with Replica Sets

- MongoDB Sharding

- MongoDB Create Backup

Using an API

- Introducing Drivers

- Java

- PHP

- Ruby

- Python