

MONGO DB Training



Course Description:

MongoDB Developer and Administrator certification from Simplilearn would equip you to master the skills to become MongoDB experienced professional.

By going through this MongoDB training you would become job ready by mastering data modelling, ingestion, query and Sharding, Data Replication with MongoDB along with installing, updating and maintaining MongoDB environment.

Course Prerequisites:

The prerequisites for the MongoDB Certification course are:

- Fundamental knowledge of any programming language
- Basic understanding of any database, SQL, and query language for databases
- Working knowledge of Linux or Unix based systems (not mandatory)

Target Audience:

This course is specially designed for the B.Tech /B.E(CSE/IT/EEE/ECE/Mech) and all other IT related Graduates and Post Graduate students. Mission Professionalism has conquered the job

scenario and companies seek for well qualified, professional and skilled manpower. Quality Education and Performance Oriented Training is our motto.

What Student/Professionals Will Learn?

- Develop an expertise in writing Java and Node JS applications using MongoDB
- Master the skills of Replication and Sharding of data in MongoDB to optimize read / write performance
- Perform installation, configuration and maintenance of MongoDB environment
- Get hands-on experience in creating and managing different types of indexes in MongoDB for query execution
- Develop skillsets in processing huge amounts of data using MongoDB tools
- Proficiently store unstructured data in MongoDB
- Gain proficiency in MongoDB configuration, backup methods as well as monitoring and operational strategies
- Acquire in-depth understanding of managing DB Notes, replica set & Master-Slave concepts

COURSE-CONTENT

Module 1: Nosql Database Introduction

- What is NoSQL?
- Why NoSQL?
- Difference Between RDBMS and NoSQL Databases
- Benefits of NoSQL
- Types of NoSQL
- Key-Value Database
- Document Database
- Column-Based Database
- Graph Database
- CAP Theorem

- Mongo DB as Per CAP

Module 2: Mongo DB

- JSON
- BSON
- MongoDB Structure
- Document Store Example
- MongoDB as a Document Database
- Transaction Management in MogoDB
- Easy Scaling
- Scaling Up vs. Scaling Out
- Vertical Scaling and Horizontal Scaling
- Features of MongoDB
- Secondary Indexes
- Replication
- Memory Management
- Replica Set
- Auto Sharding
- Aggregation and MapReduce
- Collection and Database
- Schema Design and Modeling
- Reference Data Model
- Embedded Data Model
- Data Types
- Core Servers of MongoDB
- MongoDB's Tools
- MongoDB Installation
- Use Cases

Module 3: CRUD Operations in Mongo DB

- Data Modification in MongoDB
- Batch Insert in MongoDB
- Ordered Bulk Insert and Unordered Bulk Insert

- Inserts: Internals and Implications
- Retrieving the documents
- Specify Equality Condition
- \$in, “AND” Conditions
- \$or Operator
- Specify AND/OR Conditions
- Regular Expression
- Array Exact Match
- Array Projection Operators
- \$Where Query
- Cursor
- Pagination
- Advance query option
- Update Operation
- \$SET
- \$Unset and \$inc Modifiers
- \$Push and \$addToSet
- Positional Array Modifications
- Upsert
- Removing Documents

Module 4: Indexing and Aggregation

- Introduction to Indexing
- Types and Properties of Index
- Sort Order
- Text Indexes
- Text Search
- Index Creation
- Index Creation on Replica Set
- Remove, Modify, and Rebuild Indexes
- Listing Indexes
- Measure Index Use
- Control Index Use
- Index Use Reporting

- Geospatial Indexes
- MongoDB's Geospatial Query Operators
- \$GeoWith Operator
- Proximity Queries in MongoDB
- Aggregation
- Pipeline Operators and Indexes
- Aggregate Pipeline Stages
- MapReduce
- Aggregation Operations

Module 5: Replication and Sharding

- Introduction to Replication
- Master-Slave Replication
- Replica Set in MongoDB
- Automatic Failover
- Replica Set Members
- Write Concern
- Write Concern Levels
- Write Concern for a Replica Set
- Modify Default Write Concern
- Read Preference
- Read Preference Modes
- Blocking for Replication
- Tag Set
- Configure Tag Sets for Replica set
- Replica Set Deployment Strategies
- Replica Set Deployment Patterns
- Oplog File
- Replication State and Local Database
- Replication Administration
- Sharding
- When to Use Sharding?
- What is a Shard?
- Choosing a Shard Key

- Range-Based Shard Key
- Hash-Based Sharding
- Impact of Shard Keys on Cluster Operation
- Production Cluster Architecture
- Config Server Availability
- Production Cluster Deployment
- Add Shards to a Cluster
- Enable Sharding for Database and a Collection
- Maintaining a Balanced Data Distribution
- Splitting
- Chunk Size and Type
- Shard Balancing
- Customized Data Distribution with Tag Aware Sharding
- Tag Aware Sharding

Module 6: Developing Java and Node JS Application with MongoDB

- TTL Collection Features
- GridFS
- MongoDB Drivers and Client Libraries
- Develop Java Application with MongoDB
- Connecting to MongoDB from Java Program
- Create Collection From Java Program
- Insert Documents From Java Program
- Retrieve Documents Using Java Code
- Update Documents Using Java Code
- Delete Documents Using Java Code
- Store Images Using GridFS API
- Retrieve Images Using GridFS API
- Remove Image Using GridFS API
- Connection Creation Using Node JS
- Insert Operations Using Node JS
- Update Operations Using Node JS
- Retrieve Documents Using Node JS
- Using DB Cursor to Retrieve Documents

- Mongoose ODM Module in Node JS
- Defining Schema Using Mongoose

Module 7: Administration of MongoDB Cluster Operations

- TTL Collection Features
- GridFS
- Memory-Mapped Files
- Journaling Mechanics
- Storage Engines
- Power of 2-Sized Allocations
- No Padding Allocation Strategy
- Diagnosing Performance Issues
- Optimization Strategies for MongoDB
- Configure Tag Sets for Replica Set
- Optimize Query Performance
- Monitoring Strategies for MongoDB
- MongoDB Utilities
- MongoDB Commands
- MongoDB Management Service (MMS)
- Data Backup Strategies in MongoDB
- Copying Underlying Data Files
- Backup with MongoDump
- Fsync and Lock
- MongoDB Ops Manager Backup Software
- Security Strategies in MongoDB
- Authentication Implementation in MongoDB
- Authentication in a Replica set
- Authentication on Sharded Clusters
- Authorization
- End-to-End Auditing for Compliance

INTEGER Innovation will provide:

- Training Slides taught during training by trainers

- Programmatic Examples
- Assignments of each topic in a module
- Demos executed during training session.
- Software's and installation guide (for future help)
- E-books for further reading in depth
- Reference links
- 24X7 online support for any queries or doubts.