



## MongoDB Database Administration Training

### Hands-on Training on MongoDB

- Introduction to NoSQL
- What Is NoSQL?
- Why NoSQL databases are required.
- Types of NoSQL Database
- NoSQL vs SQL Comparison
- ACID & BASE Property
- CAP Theorem
- Benefits of NoSQL databases
- Installation
- Start and Stop the mongod process

### Architecture

- Document, Collection, Databases
- JSON and BSON
- Storage Engines (WiredTiger and MMAP)
- Read Path
- Journaling
- Write Path
- Working Set
- Capped Collection
- Oplog collection
- TTL Index
- GridFS

### CRUD Operations

- MongoDB Data Types
- Inserting, Update, Deleting the documents
- Querying the documents
- Bulk insert operation
- Updating multiple document



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- Limiting documents
- Filtering documents

## Schema Design and Data modeling

- Dynamic Schema
- What is Data modeling?
- RDBMS and MongoDB Data modeling difference
- Embedding Document
- Reference Document

## Indexes

- Index concepts in MongoDB
- Types of indexes
- Indexes and its use cases
- Creating Indexes and Managing Indexes
- Index strategies

## Database Administration

- Database status
- Troubleshooting issues
- Current Operations
- Rotating log files
- Users and Roles
- Copy and Clone database
- DB and Collection Stats
- Explain plan
- Profiling
- Changing configuration files
- Upgrading the database

## Backup and Security

- Concept of backups



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- mongoexport/mongoimport
- mongodump/mongorestore
- Oplog backups
- LVM Backups
- Backups using MMS/Ops Manager
- Purpose of security
- Authentication and authorization
- Role based access control

## Replication

- Concept of replication
- ReplicaSet member roles
- Voting and Electing primary
- Role of Oplog in replication
- Read and Write Concern
- Arbiter,Hidden and Delayed replica node
- Priority settings
- Replicaset nodes health check
- Concept of resyncing the nodes
- Rollbacks during failover
- Keyfile authentication

## Scalability

- Concept of Scalability and Sharding
- Shardkey and Chunks
- Choosing shardkey
- Sharding components
- Types of Sharding
- Balanced data distribution
- Sharded and Non-sharded collection
- Sharded Replicaset
- Tag aware sharding

## Monitoring and Other Tools



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- MMS Manager
- Ops Manager
- Mongo utility commands
- Mongo developer tools
- MongoDB Atlas
- MongoDB client drivers

## Upgrading MongoDB to Latest Stable Version

- Upgrading MongoDB to Latest Stable Version
- Upgrade Process
- Post Upgrade Checks

## MongoDB Performance Tuning

- Monitoring of Performance
- Logging database operations
- Capturing queries - Database Profiler
- Checking operating system parameters
- Explain plan-MongoDB provides an explain facility
- Measuring replication lag performance

**For Any Clarification please feel free to contact @ +91 9867328291.**

Cheers,

Ambasa S. Ladwa

Ph# +91 9867328291

**Ambasa.Ladwa@aalokinstitute.com**