Objectives

- Learn to integrate MongoDB with tools like Jaspersoft and Pentaho
- Integration of MongoDB with GUI Tool Robomongo
- Develop an expertise in writing Java and Node JS applications using MongoDB
- Troubleshoot Performance issues.
- Understand MongoDB Aggregation framework
- Learn MongoDB Backup and Recovery options and strategies
- How to setup a replicated cluster, Managing ReplicaSets etc.

Getting started with MongoDB

- Execution of a JavaScript file in MongoDB
- Making the output of find readable in shell
- Complementary Terms
- Installation
- Basic commands on mongo shell
- Hello World

CRUD Operation

- Create
- Update
- Delete
- Read
- Update of embedded documents
- More update operators
- "multi" Parameter while updating multiple documents

Getting database information

- List all collections in the database
- List all databases

Querying for Data (Getting Started)

- Find()
- FindOne()
- limit, skip, sort and count the results of the find() method
- Query Document – Using AND, OR and IN Conditions
- find() method with Projection
- Find() method with Projection

Update Operators

- $set operator to update specified field(s) in document(s)

Upserts and Inserts

- Insert a document

Collections

- Create a Collection

- Drop Collection

Aggregation

- Count
- Sum
- Average
- Operations with arrays
- Aggregate query examples useful for work and learning
- Match
- Get sample data
- Remove docs that have a duplicate field in a collection (dedupe)
- Left Outer Join with aggregation ($Lookup)
- Server Aggregation
- Aggregation in a Server Method
- Java and Spring example

Indexes

- Index Creation Basics
- Dropping/Deleting an Index
- Sparse indexes and Partial indexes
- Get Indices of a Collection
- Compound
- Unique Index
- Single field
- Delete
- List

Bulk Operations

- Converting a field to another type and updating the entire collection in Bulk

2dsphere Index

- Create a 2dsphere Index

Pluggable Storage Engines

- WiredTiger
- MMAP
- In-memory
- mongo-rocks
- Fusion-io
- TokuMX

Java Driver

- Fetch Collection data with condition
- Create a database user
- Create a tailable cursor

Python Driver

- Connect to MongoDB using pymongo
- PyMongo queries
- Update all documents in a collection using PyMongo

Mongo as Shards

- Sharding Environment Setup

Replication

- Basic configuration with three nodes

Mongo as a Replica Set

- MongoDB as a Replica Set
- Check MongoDB Replica Set states

MongoDB – Configure a ReplicaSet to support TLS/SSL

- How to configure a ReplicaSet to support TLS/SSL?
- How to connect your Client (Mongo Shell) to a ReplicaSet?

Authentication Mechanisms in MongoDB

- Authentication Mechanisms

MongoDB Authorization Model

- Built-in Roles

Configuration

- Starting mongo with a specific config file

Backing up and Restoring Data

- Basic mongodump of local default mongod instance
- Basic mongorestore of local default mongod dump
- mongoimport with JSON
- mongoimport with CSV

Upgrading MongoDB version

- Upgrading to 3.4 on Ubuntu 16.04 using apt