



Introduction to MongoDB

Course ID: ITG-BIG-300

ITG Software Engineering

MongoDB for Developers

ITG-BIG-300

Course Overview:

In this 3 day class students will start by learning how to install and configure MongoDB on a Mac and Windows operating system, as well as learning to use the Mongo built-in JavaScript shell. Then they will learn to perform queries, add information, and perform modifications. The course also teaches students about data modeling, including one to one and one to many relationships and MongoDB database management, such as adding and managing user administrators, authenticating and handling errors, and backup procedures.

Prerequisites:

Basic experience with programming languages as well as understanding of database modeling.

Who Should attend this course?

Those interested in developing MongoDB databases.

Topics:

<ul style="list-style-type: none">• Introduction to MongoDB	<ul style="list-style-type: none">• Installation
<ul style="list-style-type: none">• Configuration	<ul style="list-style-type: none">• Create Operations
<ul style="list-style-type: none">• Update Operations	<ul style="list-style-type: none">• Read Operations
<ul style="list-style-type: none">• Delete Operations	<ul style="list-style-type: none">• Data Modeling
<ul style="list-style-type: none">• MongoDB Database Management	<ul style="list-style-type: none">• Sharding
<ul style="list-style-type: none">• Performing Queries	<ul style="list-style-type: none">• Data Modeling
<ul style="list-style-type: none">• Database Security Overview	<ul style="list-style-type: none">• Configuring a Replica Set
<ul style="list-style-type: none">• Authenticating Users	<ul style="list-style-type: none">• Managing Users
<ul style="list-style-type: none">• Adding Information	<ul style="list-style-type: none">• Deleting Information
<ul style="list-style-type: none">• Indexing	<ul style="list-style-type: none">• Backup & Restore

Module 01: Getting Started

- Important working files (Download)
- What this course covers
- Setting up for the course
- How to access the working files

Module 02: Introduction to MongoDB

- NoSQL
- Why use MongoDB
- Common terms in MongoDB
- Important features in MongoDB – Part 1
- Important features in MongoDB – Part 2
- Aggregation

Module 03: Installation and Configuration

- General considerations
- Installing MongoDB on Windows – Part 1
- Drivers – JavaScript, Python
- Management Tools
- MongoDB configuration (Import & Export)
- Using the MongoDB Built-in JavaScript Shell (Access, Insert And Find)
- Using the MongoDB Built-in JavaScript Shell (Update, Remove And Functions)

Module 04: Create, Read, Update and Delete Operations

- Performing Queries: Overview
- Performing Queries: Using the cursor
- Performing Queries: Query Modifications – Part 1
- Performing Queries: Query Modifications – Part 2
- Adding Information : Database, Collection and Document
- Adding Information : Arrays
- Adding Information : Objects
- Adding Information : The _Id Field
- Performing Modifications: Basic Document Updates
- Performing Modifications: Updating Arrays and Fields
- Performing Modifications : Deleting Documents

Module 05: Data Modeling

- One to One Relationships : Overview
- One to One Relationships : Manual Approach
- One to One Relationships : Embedded Approach
- One to One Relationships : Dbref Approach
- One to Many Relationships : Overview
- One to Many Relationships : Normalized Approach
- One to Many Relationships : Embedded Approach
- One to Many Relationships : Dbref Approach
- Tree Structures : Overview
- Tree Structures : Parent References
- Tree Structures : Child References

Module 06: MongoDB Database Management

- Database Security Overview
- How to add Database and User Administrators
- Managing Users
- Authenticating and Handling errors
- Replication Overview
- Configuring a Replica Set : Adding the First Member
- Configuring a Replica Set : Adding a Secondary
- Configuring a Replica Set : Reconfiguring or Removing
- Replica Set Troubleshooting
- Sharding Overview
- Implementing Sharding
- Indexing and Performance Considerations
- Backup Procedures