



# Mecatredz Technology

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## MongoDB Training Syllabus

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Introduction to MongoDB

NoSQL Databases

CAP Theorem

Features of MongoDB?

Installation overview

Documents

Collections

Databases

Starting and stopping MongoDB

Introduction to Mongo Shell

Basic commands in Mongo shell

Data Types in Mongo shell

Inserting and saving documents

Batch Insert

Insert Validation

Removing documents

Updating documents

Update top level fields

Update an embedded field

Update multiple documents

Replace a document

Querying data in Mongo Shell

Introduction to find command

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Limitations in querying data

Query for All Documents in a Collection

Query by a Top Level Field

Query by a Field in an Embedded Document

Query by a Field in an Array

Specify Conditions with Operators

Combine Conditions

Data Aggregation

Indexes

Replication

Sharding

Pipeline Operations

\$match

\$project

\$group

\$unwind

\$sort

\$limit

\$skip

Integrating MapReduce and MongoDB

Example 1: Finding All Keys in a Collection

Example 2: Categorizing Web Pages

Aggregation Commands

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\$count

\$distinct

\$group

Create a Single-Field Index

Create a compound index.

Indexing Embedded Documents

Indexing Arrays

When Not to Index

Types of Indexes

Unique Indexes

Sparse Indexes

Introduction to Replication

Replication in MongoDB

Replica Set Elections

Rollbacks during Replica set Failover

Heartbeats

Syncing

Replica Set Members

Primary

Secondary

Arbitrary

Replica Set Read and Write Semantics

Consistency Considerations

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Introduction to Sharding

Purpose of sharding

Sharded Cluster Components

Sharding in MongoDB

Data Partitioning

Maintaining a Balanced Data Distribution

Choosing a shard key

Shard Key Limitations and guidelines

