MongoDB Tutorial

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MongoDB tutorial provides basic and advanced concepts of SQL. Our MongoDB tutorial is designed for beginners and professionals.

MongoDB is a No SQL database. It is an open-source, cross-platform, document-oriented database written in C++.

Our MongoDB tutorial includes all topics of MongoDB database such as insert documents, update documents, delete documents, query documents, projection, sort() and limit() methods, create a collection, drop collection, etc. There are also given MongoDB interview questions to help you better understand the MongoDB database.

What is MongoDB

MongoDB is an open-source document database that provides high performance, high availability, and automatic scaling.

In simple words, you can say that - Mongo DB is a document-oriented database. It is an open source product, developed and supported by a company named 10gen.

MongoDB is available under General Public license for free, and it is also available under Commercial license from the manufacturer.

The manufacturing company 10gen has defined MongoDB as:

"MongoDB is a scalable, open source, high performance, document-oriented database." - 10gen

MongoDB was designed to work with commodity servers. Now it is used by the company of all sizes, across all industry.

History of MongoDB

The initial development of MongoDB began in 2007 when the company was building a platform as a service similar to window azure.

Window azure is a cloud computing platform and infrastructure, created by Microsoft, to build, deploy and manage applications and service through a global network.

MongoDB was developed by a NewYork based organization named 10gen which is now known as MongoDB Inc. It was initially developed as a PAAS (Platform as a Service). Later in 2009, it is introduced in the market as an open source database server that was maintained and supported by MongoDB Inc.

The first ready production of MongoDB has been considered from version 1.4 which was released in March 2010.

MongoDB2.4.9 was the latest and stable version which was released on January 10, 2014.

Purpose of Building MongoDB

It may be a very genuine question that - "what was the need of MongoDB although there were many databases in action?"

There is a simple answer:

All the modern applications require big data, fast features development, flexible deployment, and the older database systems not competent enough, so the MongoDB was needed.

The primary purpose of building MongoDB is:

- Scalability
- Performance
- High Availability
- Scaling from single server deployments to large, complex multi-site architectures.
- Key points of MongoDB
- Develop Faster
- Deploy Easier
- Scale Bigger

First of all, we should know what is document oriented database?

Example of Document-Oriented Database

MongoDB is a document-oriented database. It is a key feature of MongoDB. It offers a document-oriented storage. It is very simple you can program it easily.

MongoDB stores data as documents, so it is known as document-oriented database.

1. FirstName = "John",

2. Address = "Detroit",
3. Spouse = [{**Name**: "Angela"}].

4. FirstName ="John",
5. Address = "Wick"

There are two different documents (separated by ".").

Storing data in this manner is called as document-oriented database.

Mongo DB falls into a class of databases that calls Document Oriented Databases. There is also a broad category of database known as No SQL Databases.

Features of MongoDB

These are some important features of MongoDB:

1. Support ad hoc queries

In MongoDB, you can search by field, range query and it also supports regular expression searches.

2. Indexing

You can index any field in a document.

3. Replication

MongoDB supports Master Slave replication.

A master can perform Reads and Writes and a Slave copies data from the master and can only be used for reads or back up (not writes)

4. Duplication of data

MongoDB can run over multiple servers. The data is duplicated to keep the system up and also keep its running condition in case of hardware failure.

5. Load balancing

It has an automatic load balancing configuration because of data placed in shards.

Provides high performance.

- JSON data model with dynamic schemas
- Auto-sharding for horizontal scalability
- Built in replication for high availability
- Now a day many companies using MongoDB to create new types of applications, improve performance and availability.

All MongoDb commands you will ever need

we will see a comprehensive list of all the MongoDB commands you will ever need as a MongoDB beginner. This list covers almost all the most used commands in MongoDB.
I will assume that you are working inside a collection named 'comments' on a MongoDB database of your choice

1. Database Commands

View all databases

```
show dbs
```

Create a new or switch databases

```
use dbName
```

View current Database

```
db
```

Delete Database

```
db.dropDatabase()
```

2. Collection Commands

Show Collections

```
show collections
```

Create a collection named 'comments'

```
db.createCollection('comments')
```

Drop a collection named 'comments'

```
db.comments.drop()
```

3. Row(Document) Commands

Show all Rows in a Collection

```
db.comments.find()
```

Show all Rows in a Collection (Prettified)

```
db.comments.find().pretty()
```

Find the first row matching the object

```
db.comments.findOne({name: 'Sachin'})
```

Insert One Row

```
db.comments.insert({
    'name': 'Sachin',
    'lang': 'JavaScript',
    'member_since': 5
 })
```

Insert many Rows

```
db.comments.insertMany([{
    'name': 'Sachin',
    'lang': 'JavaScript',
    'member_since': 5
    },
    {'name': 'Rohan',
    'lang': 'Python',
    'member_since': 3
    },
    {'name': 'Gita',
    'lang': 'Java',
    'member_since': 4
}])
```

Search in a MongoDb Database

```
db.comments.find({lang:'Python'})
```

Limit the number of rows in output

```
db.comments.find().limit(2)
```

Count the number of rows in the output

```
db.comments.find().count()
```

Update a row

```
db.comments.updateOne({name: 'Sachin'},
{$set: {'name': 'Ram',
    'lang': 'JavaScript',
    'member_since': 51
}}, {upsert: true})
```

Mongodb Increment Operator

```
db.comments.update({name: 'Rohan'},
{$inc:{
    member_since: 2
}})
```

Mongodb Rename Operator

```
db.comments.update({name: 'Rohan'},
{$rename:{
    member_since: 'member'
}})
```

Delete Row

```
db.comments.remove({name: 'Sachin'})
```

Less than/Greater than/ Less than or Eq/Greater than or Eq

```
db.comments.find({member_since: {$lt: 90}})
db.comments.find({member_since: {$lte: 90}})
db.comments.find({member_since: {$gt: 90}})
db.comments.find({member_since: {$gte: 90}})
```