#tutorial

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Learn MongoDB in 10 Mins

Lets Learn the Basics in 10 Minutes!

mongoDB

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- MongoDB is a rich open-source document-oriented and one of the widely recognised NoSQL database. It is written in C++ programming language.

- Database: A container for collections, where each database has its own set of files on the file system. A MongoDB server can host multiple databases.
- Collection: Similar to a table in a relational database, it's a group of documents within a single database. Collections don't enforce a fixed schema, meaning documents within a collection can have varying fields.
- Document: A document is a set of key-value pairs, serving as the fundamental unit of data in MongoDB.

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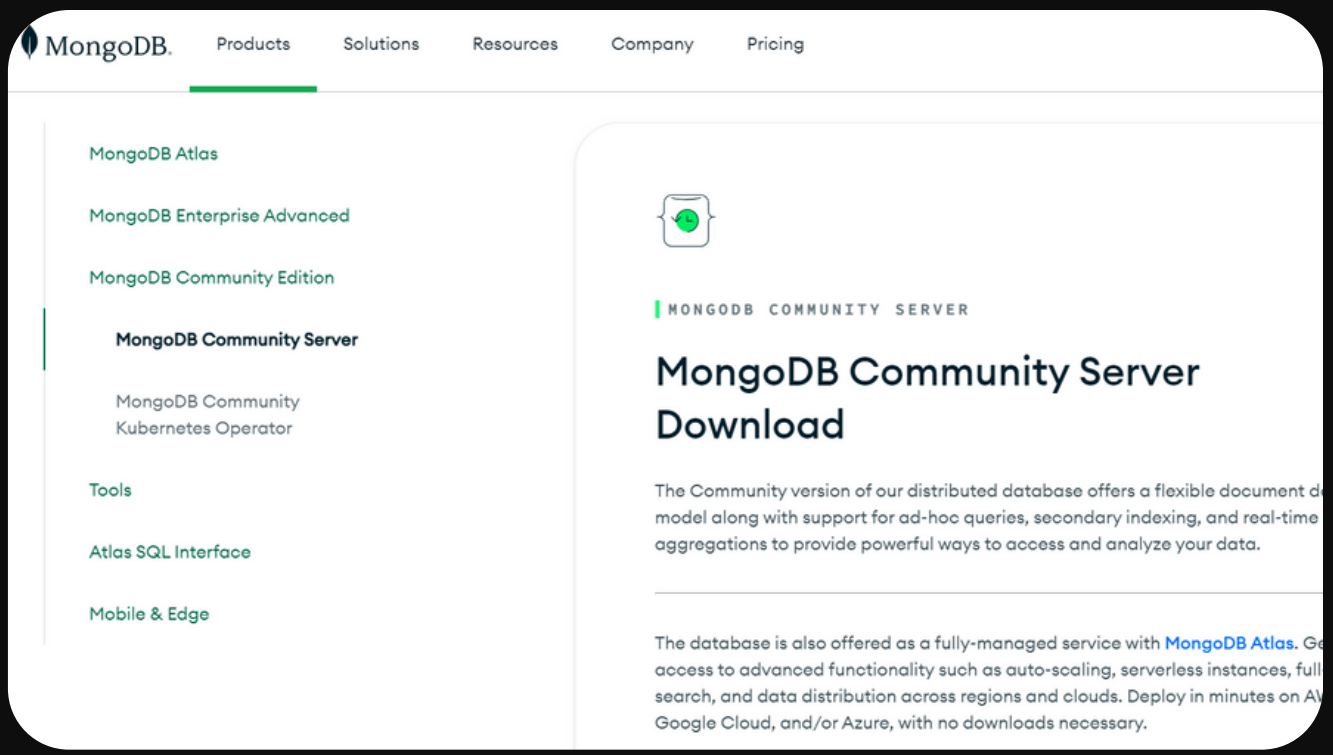
- **Install:**

Download and install MongoDB from the official website: (mongodb.com)



- **Start MongoDB:**

After installation, start the MongoDB server using the command **mongod** in your terminal or command prompt.

- **Access the MongoDB Shell:**

Open another terminal or command prompt window and enter **mongo** to access the MongoDB shell.

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Create a Database:

- MongoDB stores data in databases. To create a new database, use the use command

```
use mydb
```

- Create a Collection:
- In MongoDB, data is stored in collections. Create a collection using the db.createCollection() method

```
db.createCollection("mycollection")
```

- Insert Data:
- You can insert data into a collection using the insertOne() or insertMany() method. For example:

```
db.mycollection.insertOne({ name: "John", age: 30 })
```

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- Query Data:
- Retrieve data using the find() method

```
db.mycollection.find()
```

- Update Data:
- Update data using the updateOne() or updateMany() method:

```
db.mycoldb.mycollection.updateOne({
name: "John" }, { $set: { age: 31 } })
lection.find()
```

- Delete Data:
- Remove data using the deleteOne() or deleteMany() method:

```
db.mycollection.deleteOne({ name: "John" })
```

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- Indexing:
- Indexes can improve query performance. Create an index using the createIndex() method:

```
db.mycollection.createIndex({ name: 1 })
```

- Exit the MongoDB Shell:
- To exit the MongoDB shell, type exit.

- Stop MongoDB Server:
- In the terminal where you started the MongoDB server, press Ctrl + C to stop it.

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- Logical Operators
- MongoDB provides logical operators. The picture below summarizes the different types of logical operators.

Name	Description
`$and`	Joins query clauses with a logical `AND` returns all documents that match the conditions of both clauses.
`$not`	Inverts the effect of a query expression and returns documents that do *not* match the query expression.
`$nor`	Joins query clauses with a logical `NOR` returns all documents that fail to match both clauses.
`$or`	Joins query clauses with a logical `OR` returns all documents that match the conditions of either clause.

- Data types
- **String**: Used for storing UTF-8 valid text data.
- **Integer**: Stores numerical values (32-bit or 64-bit).
- **Boolean**: Holds true or false values.
- **Double**: Stores floating-point numbers.
- **Min/Max Keys**: Used for comparing values
- **Arrays**: Stores lists or multiple values within a single key.
- **Timestamp**: Handy for recording document times.
- **Object**: Used for embedding documents.
- **Null**: Stores a null value.
- **Symbol**: Similar to a string but often reserved for.
- **Date**: Stores current date/time in UNIX time format or a custom date/time object.
- **Object ID**: Stores a document's unique ID.
- **Binary Data**: Used for storing binary data.
- **Code**: Stores JavaScript code within a document.
- **Regular Expression**: Stores regular expressions for pattern matching.

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- Advantages of MongoDB over RDBMS

- Schema less – MongoDB is a document database in which one collection holds different documents. Number of fields, content and size of the document can differ from one document to another.
- Structure of a single object is clear.
- No complex joins.
- Deep query-ability. MongoDB supports dynamic queries on documents using a document-based query language that's nearly as powerful as SQL.
- Conversion/mapping of application objects to database objects not needed.
- Uses internal memory for storing the (windowed) working set, enabling faster access of data.

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