MongoDB Definition

Congrats! You have made it this far!

After we have created the server using Express.js, we are going to learn how to store the data. To do that, we are going to use the famous MongoDB.

In the following chapter, we are going to learn:

How to install MongoDB.

How to manage our database.

The best ways to create, query, update and delete documents in MongoDB.

MongoDB Definition

MongoDB is an object-oriented, simple, dynamic and scalable NoSQL database. It is based on the NoSQL document storage model where the data objects are stored as separate and flexible JSON-like documents. The data objects are stored in a collection instead of columns and rows like a traditional relational database. This means that the fields can differ from one document to another and data structure can be changed over time.

The goal and purpose of MongoDB is to offer a data store that has high-performance, high-availability and horizontal scaling. MongoDB is easy to install and free to use.

Versions released prior to October 16, 2018, are published under the AGPL and its general distributions support Windows, Linux, Mac OS X, and Solaris.

Why is using MongoDB better than using MySQL? 🤔

Organizations of all sizes are choosing MongoDB because it helps them build applications faster and handle multiple different types of data. It also assists them in managing applications more efficiently depending on the size of the project.

Development is now simplified with MongoDB. That is because MongoDB documents map and integrate naturally with modern and object-oriented programming languages.

Using MongoDB can remove the complex object-relational mapping (ORM) layer that translates objects in code to relational tables. Added to that, MongoDB's flexible data model means that your database can evolve and meet business requirements.

MySQL's rigid and inflexible relational structure adds overhead to applications and slows developers down as they must adapt objects in code to relational structure.

Some keywords before we start

During this course, we are going to use some technical terms. So it's best if we define them before we start:

Schema: A database schema is the skeleton structure that represents the logical view of the entire database. It defines how the data is organized and how the relations among them are associated. It formulates all the rules that are to be applied on the data. It is like a blueprint or a roadmap that guides the user..

Document: the document is the unit that is stored in the MongoDB database. Document uses JSON (JavaScript Object Notation, is a lightweight, thoroughly explorable format used to exchange data between various applications) data format. We can think of it like a row in an excel sheet.

Collection : a collection is where the documents are stored. We can compare it to the excel sheet that contains many rows.

Key Advantages of Using MongoDB

Schema less – MongoDB is a document database in which one collection holds different documents. The number of fields, content and size of the document can differ from one document to another. Optionally, schema validation can be used to apply data governance controls over each collection.
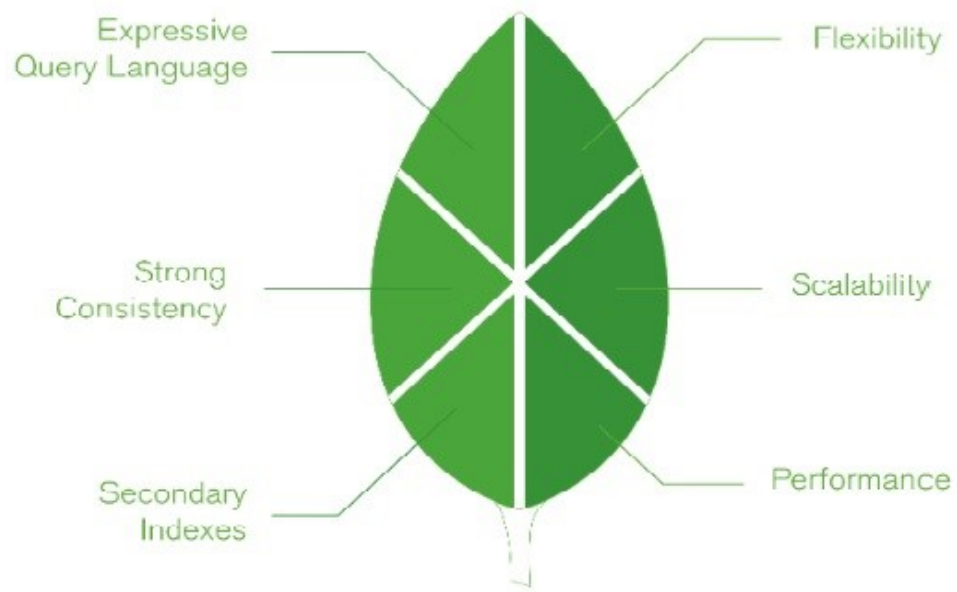
Deep query-ability. MongoDB supports dynamic queries on documents using a document-based query language that is called MongoDB Query Language (MQL). It is nearly as powerful as SQL.

Higher Availability – MongoDB automatically replicates your data to additional nodes for high availability and security. In the event of a system failure, the procedure of failover completes automatically - typically in less than 5 seconds.

Faster Development: MongoDB's document data model maps naturally to objects in application code, making it simple for developers to learn and use.

Scale Infinitely and Cheaply (Ease of scale-out) – MongoDB includes native support for distributing or sharding a database across any number of commodity machines in a way that is clear to the application.

Expressive
Query Language

Flexibility

Strong
Consistency

Scalability

Secondary
Indexes

Performance