**What is mongodb**

* **MongoDB Features**

1. MongoDB supports document based data model. In which one collection can hold different documents.
2. In MongoDB we do not have to store data in multiple tables, data can be stored in a document.
3. MongoDB supports ad hoc queries- means the searching will be done on the basis of fields, some regular expression etc.
4. It also supports the feature called Indexing(we can make index of any field in a document).
5. Replication can be done in MongoDB.
6. MongoDB supports the process of distributing the data on to multiple servers and it is known as Sharding. This feature will keep the system renning even in the case of system failure.
7. It provides with high performance, high availability and easy scaling.
8. MongoDB is easy to use, light weight and faster than RDBMS.

* **MongoDB Example**

The following example will show how to store a data in MongoDB

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* **Key Components of MongoDB Architecture**

Following are some main components of MongoDB:

1. **Document**: MongoDB stores all data in the form of documents. The document consist of some field names, values etc. These documents can be stored in collection.
2. **Collection**: A collection holds different documents, it is a combination of all documents. A collection is same as the table in other RDBMS. Collection does not have any type of structure.
3. **Field**: The document consist of name-value pair and that is called as field. A mongodb document can have zero or more fields.
4. **Database**: It acts as a container for collections, like it is a container for tables in RDBMS. A MongoDB server can store multiple databases and each database has its own set of files.
5. **\_id**: The \_id field is required in every document of mongodb. It is a unique value in the document. If some developer will forgot to create this field then there is nothing to worry because mongodb will automatically create the field. The \_id field in mongodb acts like a primary key.

* **Why to use MongoDB**

There are some reasons given below:

1. MongoDB is a document oriented data model, NoSQL database. It stores the data in documents instead of storing in tables like in relational database. This feature makes MongoDB much more flexible and adaptable to market demands.
2. MongoDB supports the document searching process by fields, some regular expressions etc.
3. MongoDB provides with a high performance, it gives high availability to data and also it makes scaling easier.
4. MongoDB provides some new features such as Aggregation, sharding, Indexing, Replication etc. which makes it easy to use, learn for developers.
5. The sharding process in mongodb will distributes data onto multiple servers making it easy to get data back when there is a system failure.
6. mongoDB is easy to use, light weight and faster than RDBMS.

* **Data Modelling in MongoDB**

In RDBMS(SQL) where we have to define a schema to create table, but in mongodb we do not have to do the same. In MongoDB data has a flexible schema. The document data model of mongodb does not require any structure.

The data modelling needs to consider some basic terms like the need of the application, the characterisics of the database, and the retrieval patterns.

While designing the schema we need to consider the following things in mind:

* We have to always design a schema based on user requirements.
* The objects which we are going to use together that should be combined into one document.
* We should do join on write operations not on read operations.
* Make the best or most effective use of your schema for more frequent use cases.
* We should perform some complex aggregation in the schema.
* We should always duplicate the data but in a limit, because of the disc space.
* **Difference between MongoDB and RDBMS**

1. The RDBMS(SQL) is a relational databse whereas MongoDB(NoSQL) is a non-relational and document oriented database.
2. The main difference between MongoDB and RDBMS is the way they handle or store data. In RDBMS, data is stored in tables(rows and columns) while in MongoDB the document data model is used to store the data.
3. MongoDB supports JSON query language and RDBMS supports Structured query language.
4. The primary key in MongoDB is a default key (\_id).
5. MongoDB is a schema-less database whereas in RDBMS we have to define a schema to create tables.
6. RDBMS does not support hierarchical data storage, whereas MongoDB Is suitable for hierarchical data storage.
7. MongoDB is faster than RDBMS wheras RDBMS is slower as compared to NoSQL database.