MongoDb Query

Q.Show databases

Ans : show databases   or show dbs

Q. Delete database

db.dropDatabase()

Q.Create database student

use student

Q.How can Switch database

Ans : use database_name

Q.Show Collection

Ans : Show collection

Q.How can use Collection

Ans : use Collection_name

Q.Create Collection

Ans : Create Collection db.createCollection('Base');

Q.How can Drop Collection

Ans : db.Collection_name.drop()

Q.Insertion Operation

db.Collection_name.insert({State: "Bihar", Marks: 500}) **or**

db.Collection_name..save({name: 'Tom', age: 28});

Q.Insert One

db Collection_name .insertOne({id:1,"Name":"Vivek",Age:20})

Note : This method inserts a single document into the collection.

Q.Insert Many

db.Collection_name.insert([

   {Name: "Anurag", Age: 19, Class: "12th", Mark: "65%"},

{Name: "Priyanshu", Age: 21, Mark: "76%"}])

Note : This method inserts multiple documents into the collection.

Q.Another way to Insertion

var studentData = [

   { name: "David", age: 19, city: "Boston", state: "MA", country: "USA" },

   { name: "Emma", age: 20, city: "San Francisco", state: "CA", country: "USA" }];

db.students.insertMany(studentData)

MongoDB

MongoDB : MongoDB is a document-oriented NoSQL database system that stores a large amount of data in the form of documents, providing high scalability, flexibility, and performance. MongoDB stores data in a JSON document structure form. It is an open-source and cross-platform database system.

MongoDB vs MySQL

MongoDB	MySQL
Database	Database
Collection	Table
Document	Row

Where to Use MongoDB?

- Mobile and Social Infrastructure
- Data Hub
- Previous Page
- Big Data
- User Data Management
- Content Management and Delivery (NoSQL Database)

Supported Languages by MongoDB

MongoDB provides official driver support for:

- C
- C++
- Java
- Node.js
- PHP
- Python

Types of NoSQL Databases

NoSQL databases can be classified into 4 basic types:

1. Key-value store NoSQL database
2. Document store NoSQL database
3. Column store NoSQL database
4. Graph-based NoSQL database

Why MongoDB is Known as the Best NoSQL Database?

MongoDB is considered the best NoSQL database because it is:

- Document Oriented
- Rich Query language
- High Performance
- Highly Available
- Easily Scalable

Does MongoDB Support Primary-Key, Foreign-Key Relationship?

No, by default, MongoDB doesn't support primary key-foreign key relationships.

MongoDB Document Representation

Yes, MongoDB uses BSON (Binary JSON) to represent document structure.

Language Used for MongoDB Implementation

MongoDB is written and implemented in C++.

Collections in MongoDB

Collections, documents, and databases are important parts of MongoDB. A database contains collections, and a collection contains documents. The documents contain data.

MYSQL	VS	MongoDB
Aspect		MySQL		MongoDB
Release Date		23 May 1995		11 February 2009
Written in		C and C++		C, C++, and Java
Data Model		Table, Row, Columns, Joins		Collection, Document, Field
Usage by Organizations		Twitter, YouTube, Netflix		Twitter, Paypal, NASA

```
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Schema Requirement          | Requires schema definition     | No prior schema required

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Join Operation Support      | Supports Joins                 | Doesn't support Joins
```

What are the advantages of MongoDB?

- It supports cross-platform
- It provides High Performance
- It is easily scalable
- It does not require any complex joins to retrieve data
- It supports both types of scaling – Horizontal & Vertical

What is MongoDB Shell

- MongoDB Shell is a JavaScript shell that allows us to interact with MongoDB instances using the command line. It is very useful to perform any administrative work along with any other data operations-related commands

What data types are supported by MongoDB?

MongoDB supports a wide range of data types in documents. Below are the available data types in the MongoDB.

Data Types	Descriptions
String	It is the most commonly used data type. A string must be UTF-8 valid in MongoDB
Integer	It is used to store numeric values. It may be either 32-bit or 64-bit.
Boolean	It is used to store Boolean data types. It's valued either true or false.
Double	It is used to store floating point values.
Arrays	This data type is used to store a list or multiple values in a single key
Objects	This data type is used to store embedded data
Null	It is used to store null data
Date	This data type is used to store the current date or time value in Unix time format.

Document

A document is set of key-value pairs stored in a Bason format in mongodb Bason in a binary representation of Json

Replica set

A replica set in mongodb is a group of mongodb servers that stores same data to provide redundancy and high avaliablity

Sharing

Sharing in mongodb is method of partitioning data across multiple servsers to improve performances and sacliblity

Indexing in MongoDB

 In MongoDB, indexing plays a crucial role in improving query performance by efficiently locating and retrieving documents from collections. Indexes are data structures that store a small portion of the collection's data set in an easy-to-traverse form.

BSON :
BSON, which stands for Binary JSON, is a binary-encoded serialization of JSON-like documents. It is the primary data representation format used by MongoDB to store and exchange data. BSON extends the JSON model by adding some additional data types

Data Types : BSON supports a wider range of data types compared to JSON. Some of the data types supported by BSON include:

- Double: 64-bit floating-point number.
- String: UTF-8 encoded string.
- Object: Embedded document (JSON-like object).
- Array: Ordered list of values.
- Binary Data: Binary data of varying types.
- Boolean: Boolean value (true or false).
- Null: Null value.
- Integer: 32-bit signed integer.
- Long: 64-bit signed integer.
- Date: Unix timestamp.

Json : In MongoDB, JSON (JavaScript Object Notation) plays a fundamental role in representing and interacting with data. MongoDB stores data in a binary-encoded format called BSON (Binary JSON), which is a binary representation of JSON-like documents. Here's how JSON is used in MongoDB:

Embedded Document : Embedded or Nested Document. Embedded document or nested documents are those types of documents which contain a document inside another document.

Introduction to NoSQL

NoSQL is a type of database management system (DBMS) that is designed to handle and store large volumes of unstructured and semi-structured data. NoSQL databases store data in the form of collections of documents in JSON or BSON format.

Example : Mongodb , Amazon DynamoDB

Advantage of Nosql :

1. Ideal for Data Storage: One of the exclusive NoSQL database advantages is its ability to store a large amount of data.

2.Performance: NoSQL databases are designed to handle large amounts of data and traffic, which means that they can offer improved performance compared to traditional relational databases.

3.Cost-effectiveness: NoSQL databases are often more cost-effective than traditional relational databases, as they are typically less complex and do not require expensive hardware or software.

4.Agility: Ideal for agile development.

Disadvantages of NoSQL:

Do you have Mongodb Schema : Mongodb uses dynamic Schemas Without defining the Structure you can cretye collection This dynamic schema allows for flexibility in data modeling and makes it easy to store heterogeneous data within the same collection.

Command Use to backup : Mongodump

Command restore backup : Mongorestore

Aggregation : The aggregation framework in MongoDB is a powerful feature that allows for data processing and transformation within the database. It provides a set of operators for performing complex aggregation operations on collections

What are the differences between the update and save methods in MongoDB?

`Update` **Method:**

- The `update` method is used to modify existing documents in a collection based on specified criteria

`save` **Method:**

- The `save` method is used to either update an existing document in a collection or insert a new document if the document does not already exist.