Topic 6 MongoDB

Interview Questions and Answers

Q1. What is MongoDB?

MongoDB is an open-source database management system (DBMS) that uses a document-oriented database model which supports various forms of data.

- It holds a set of collections and stores the data as documents.
- MongoDB supports BSON (Binary JSON) data structures and complex query language
- The BSON document storage is a binary representation of JSON-like documents. It gives high-speed admittance to store the mass data.

Q2. What are the important facets of application that can be realized by implementing proper data models?

Scalability: Collection and data entries should be modeled based on current and feature demand.

Capacity: Data modeling helps in creating optimally sized documents, reducing redundant data in each document

Data consistency: Data consistency helps in reducing redundant data, and understanding relationships, their update patterns, and taxonomy

Application needs: Different applications have different demands from the database. Different Data Modelling strategies can be

Performance: A data model helps in understanding the read and write needs of an application and deciphering data

Q3. What are the different approaches in Data Modeling?

Top-down approach: In the top-down approach, an overview of the system is formulated, specifying the first-level subsystems. Each greater subsystem is then refined in detail or additional subsystem levels until the entire specification is reduced to base elements.

Bottom-down approach: In the bottom-up approach, individual parts of the system are specified

Q4. Explain different types of data models.

The following are different types of data models:

Flat: Consists of a single, two- dimensional array

of data elements. All members of the provided column are assumed to be similar.

Star Schema: Data is organized in facts and dimensions,

diagramed by surrounding each fact with its associated dimensions

Hierarchical Schema: Data is organized in a tree-like structure, where each record features a single parent or root.

Relational: Data is sorted into tables, also referred to as relations, each of which consists of columns and rows.

Object-relational: Allows designers to include objects in the familiar table structure.

Q5. Explain Data Modeling in MongoDB.

MongoDB is schema-less i.e., data has no fixed schema type. This makes MongoDB flexible, and it is easy to declare, extend and alter extra fields to the data model, and optional nulled fields

MongoDB is a document-based database that provides high performance, high availability, and easy scalability

This flexibility comes in handy when the mapping of documents to an entity or an object is done

One of the major challenges is to balance the requirements of the application, the performance characteristics of the database engine, and the data retrieval patterns

While designing data models, always consider the application's usage of data and the data's

inherent structure.

Q6. What is a Collection in MongoDB?

A collection is a grouping of MongoDB documents. Documents within a collection can have different fields. A collection is the equivalent of a table in a relational database system. A collection exists within a single database.

Q7. Explain Hierarchical Schema.

Represents a one-to-many relationship.

Parent-Child relationship between tables forming a tree structure diagram.

Each parent can relate to more than one child, however, a child table can be related to one parent only.

When a data search is requested, the DBMS runs through the complete model from top to bottom until the required data is found. This makes queries very slow.

Q8. What are the benefits of Object-relational Schema?

- Extensibility – You can extend in-built features by defining new data types, user-defined patterns, etc.
- Complex types – You can combine user-defined data types to one or more existing data type
- Inheritance – You can define properties existing in another object and can add new properties specific to this object

Q9. What is a document in MongoDB?

- MongoDB is an object-oriented database. The basic building block or basic unit of MongoDB is a document.

- Each document in MongoDB stores an order set of key-value pairs, the key can be referred to as a field, and each filed consists of the associated value.
- Documents are more like JavaScript objects and every document/object in a collection is represented in JSON-like (key-value) pairs format.
- Data is stored and queued in BSON; it is a binary representation of JSON-like data.

Q10. What are the advantages of MongoDB?

- Full cloud-based application data platform
- Flexible document schemas
- Widely supported and code-native data access
- Change-friendly design
- Powerful querying and analytics
- Easy horizontal scale-out with sharding
- Simple installation
- Cost-effective
- Full technical support and documentation

Q11. Which command is used to insert data into MongoDB?

Insert method is used to insert a document into MongoDB. insertOne is used to one document and insertMany is used to insert many documents.

Following is the command used to insert one value into the document.

db.collection.insert({<data>});

Following is the command used to insert multiple values into the document.

db.collection.insertMany(<data>);

Q12. Which command is used to find a document from a collection in MongoDB?

The find command is used to find all the documents from the collection. Find also helps us to filter the document based on specific values such as all the documents

whose filed value is greater/lesser or equal to the given value. Following is the command to find a document.

db.collection.find({<value>})