

MongoDB - Interview Questions and answers

Topics : [MongoDB](#)

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Basic MongoDB Questions:

1. What is MongoDB?

- MongoDB is a NoSQL document-oriented database that provides high performance, high availability, and easy scalability.

2. Explain BSON.

- BSON (Binary JSON) is a binary-encoded serialization of JSON-like documents used by MongoDB.

3. What is a Document in MongoDB?

- A document is a basic unit of data in MongoDB, similar to a JSON object. It consists of key-value pairs and represents a single record.

4. What is a Collection in MongoDB?

- A collection is a group of MongoDB documents. It is the equivalent of a table in relational databases.

5. Differentiate between MongoDB and SQL databases.

- MongoDB is a NoSQL database, whereas SQL databases are relational. MongoDB uses a flexible schema, while SQL databases have a fixed schema.

Querying and Indexing:

6. Explain how indexes work in MongoDB.

- Indexes in MongoDB improve query performance by providing efficient access to data. They are similar to indexes in relational databases.

7. What is the purpose of the `_id` field in MongoDB?

- The `_id` field is a unique identifier for a document in a collection. MongoDB automatically adds this field if not provided.

8. How can you find all documents in a collection?

- You can use the find() method without any criteria: `db.collection_name.find()`.

9. Explain the \$elemMatch operator.

- \$elemMatch is used to query embedded arrays. It ensures that at least one element in the array matches all specified criteria.

10. How do you create an index in MongoDB?

- You can create an index using the createIndex method:
`db.collection_name.createIndex({ field_name: 1 }).`

Aggregation Framework:

11. What is the Aggregation Framework in MongoDB?

- The Aggregation Framework is a powerful tool for data transformation and analysis. It processes data records and returns computed results.

12. Explain the \$group stage in the Aggregation Framework.

- \$group is used to group documents by specified criteria and perform aggregate functions on grouped data.

13. What is the \$lookup stage used for?

- \$lookup performs a left outer join to another collection in the same database, providing the ability to combine documents from two collections.

14. How do you unwind an array in the Aggregation Framework?

- The \$unwind stage is used to deconstruct an array field, creating a separate document for each array element.

MongoDB Indexing:

15. Why are indexes important in MongoDB?

- Indexes improve query performance by allowing MongoDB to quickly locate and retrieve specific documents.

16. What is a compound index?

- A compound index is an index on multiple fields. It can improve the efficiency of queries that involve multiple fields.

17. How can you create a unique index in MongoDB?

- You can create a unique index using the createIndex method with the unique: true option.

18. What is a covered query in MongoDB?

- A covered query is a query in which all the fields in the query are part of an index. It allows MongoDB to fulfill the query using only the index.

MongoDB Data Modeling:

19. Explain embedding vs. referencing in MongoDB.

- Embedding involves storing related data in a single document, while referencing involves storing references to related data in separate documents.

20. When to use MongoDB instead of a relational database?

- MongoDB is suitable for scenarios where flexibility in data representation is important, and the data structure is expected to evolve over time.

Advanced MongoDB Questions:

21. What is Sharding in MongoDB?

- Sharding is the process of splitting a large dataset across multiple servers to improve scalability and performance.

22. Explain the differences between replica sets and sharding.

- Replica sets provide data redundancy and high availability, while sharding improves scalability by distributing data across multiple shards (servers).

23. How do you create a replica set in MongoDB?

- Use the `rs.initiate()` command to initiate a replica set, and then add members using `rs.add()`.

24. What is the significance of the "Write Concern" in MongoDB?

- Write Concern determines the level of acknowledgment requested from MongoDB for write operations. It ensures the desired level of data consistency and durability.

25. How does MongoDB provide high availability?

- MongoDB achieves high availability through features like replica sets, automatic failover, and data redundancy.

Performance Optimization:

26. Explain the importance of the covered query in MongoDB.

- A covered query is crucial for performance because it can be satisfied entirely using an index, reducing the need to fetch documents from the collection.

27. What is the purpose of the profiler in MongoDB?

- The profiler collects data about MongoDB operations to help analyze and optimize performance.

28. How can you optimize a MongoDB query?

- Optimization techniques include creating appropriate indexes, using covered queries, and analyzing query execution plans.

Security in MongoDB:

29. How do you enable authentication in MongoDB?

- Authentication is enabled by starting the mongod process with the --auth option and creating user accounts.

30. Explain role-based access control in MongoDB.

- MongoDB uses role-based access control, where roles define the privileges granted to users for specific actions.

31. What is the purpose of SSL/TLS in MongoDB?

- SSL/TLS is used to encrypt data in transit between MongoDB clients and servers, enhancing security.

MongoDB Atlas:

32. What is MongoDB Atlas?

- MongoDB Atlas is a fully managed cloud database service that provides automated backups, scaling, and monitoring.

33. How do you migrate data to MongoDB Atlas?

- MongoDB Atlas supports various methods for data migration, including mongodump and mongorestore, as well as tools like MongoDB Compass.

Miscellaneous:

34. Explain GridFS in MongoDB.

- GridFS is a specification for storing large files in MongoDB by dividing them into smaller chunks.

35. What is the MongoDB WiredTiger storage engine?

- WiredTiger is the default storage engine for MongoDB, known for its performance, compression, and support for document-level locking.

36. How does MongoDB handle transactions?

- MongoDB supports multi-document transactions starting from version 4.0, allowing

operations on multiple documents to be grouped in a transaction.

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