Difference Between NoSQL and MongoDB

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Key Difference - NoSQL vs MongoDB

Relational database management systems (RDBMS) are used by many organizations. Structured Query Language (SQL) is used to store, retrieve and modify data in relational databases. They are not efficient in storing a tremendous range of data, and it is hard to do horizontal scaling. Therefore, NoSQL was introduced. NoSQL stands for “Not only SQL” or “No SQL.” There are various types of NoSQL databases such as a document, key-value, graph, etc. MongoDB is a type of NoSQL. It is an easy to use, open source software written in C++ which is fast and flexible. The key difference between NoSQL and MongoDB is that NoSQL is a mechanism to store and retrieve data in a non-relational database and MongoDB is a document-oriented database which belongs to NoSQL.

What is NoSQL?

There are many databases such as MySQL, Oracle, etc. These databases are known as Relational Databases. A relational database consists of tables, and they are related to each other using constraints such as Primary Key, Foreign Key. Relational databases are not effective in storing Big Data / Big data. Big Data is a large sum of data which are hard to store using traditional storage devices or relational databases.

NoSQL stands for Non-relational databases and can handle Big Data. Also, it is easy to manage the NoSQL databases. Data can be scaled out or clustered into machines. Clustering reduces the cost of maintaining data. There are several types of NoSQL databases. Document databases are using for dynamic data. Such databases are MongoDB and Couch DB. In these databases, data is stored in the form of JavaScript Object Notation (JSON) format.

Another type is Column databases. An example would be Apache Cassandra. In relational databases, the data is read and write row vise. But in column databases, the data reading and writing is done column-wise. This is useful for data analytics.

Figure – NoSQL databases
A simple NoSQL database type is Key-Value stored databases like Couchbase Server, Redis. They are fast but not very customizable. Cache databases can store data into the disk or the cache. One example of a cache database is Memcache. Graph databases consist of nodes and relationships are created using edges. Neo4J and Oracle NoSQL are some of the graph databases.

What is MongoDB?

MongoDB is a document-oriented database. It is open source software. A relational database has tables, and the tables have rows and columns. Similarly, MongoDB has collections and documents. A document is a record in MongoDB collection. A collection is a set of MongoDB documents. Normally, all documents have a similar purpose. A single MongoDB server has multiple databases. ‘mongod.exe’ is the database server and ‘mongo.exe’ is the interactive shell.

The programmer writes documents in JSON format. MongoDB internally converts JSON objects to BSON. BSON is binary objects and have quotation marks in both key and value. MongoDB is useful in agile based software development because it can change to a large amount of data. It is easy to change documents by easily adding and deleting existing ones. MongoDB can store different type of data types such as string, number, date, array, Booleans, etc. It also has buffer data type for storing video, images, and audio. The mixed data type can combine different type of data. MongoDB has easy syntax, so it is easy to write queries. It can also provide map-reduce programs in distributed architecture.

What are the Similarities Between NoSQL and MongoDB?

- Both can handle Big Data.
- Supports horizontal scalability without expensive hardware.
- Supports distributed architecture.
- Both do not support joins.
- Both cannot handle complex transactions.
- The schema is dynamic.
- Flexible and easy to use.

What is the Difference Between NoSQL and MongoDB?

<table>
<thead>
<tr>
<th>NoSQL vs MongoDB</th>
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<tbody>
<tr>
<td>NoSQL is used to store and retrieve data in a non-relational database.</td>
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<td>MongoDB is a scalable, high performance, document-oriented databases which is a non-relational database management system.</td>
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<tr>
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<tr>
<td>NoSQL</td>
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<td>MongoDB</td>
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**Summary - NoSQL vs MongoDB**

NoSQL databases have a distributed architecture and can increase data consistency. MongoDB is an open source NoSQL database. It provides scalability and high performance. In agile development, the requirements can change, and MongoDB allows to change the schema. The difference between NoSQL and MongoDB is that NoSQL is a mechanism to store and retrieve data in the non-relational database and MongoDB is a document-oriented database which belongs to NoSQL.

**Reference:**

2. edurekaIN. “MongoDB Tutorial-1 | MongoDB Tutorial for Beginners-1 | Edureka.” YouTube, 17 Sept. 2014. [Available here](https://www.youtube.com/watch?v=QyW2yQz8JjA)

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