Comparison Between MongDB and SQL

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DEFINITION

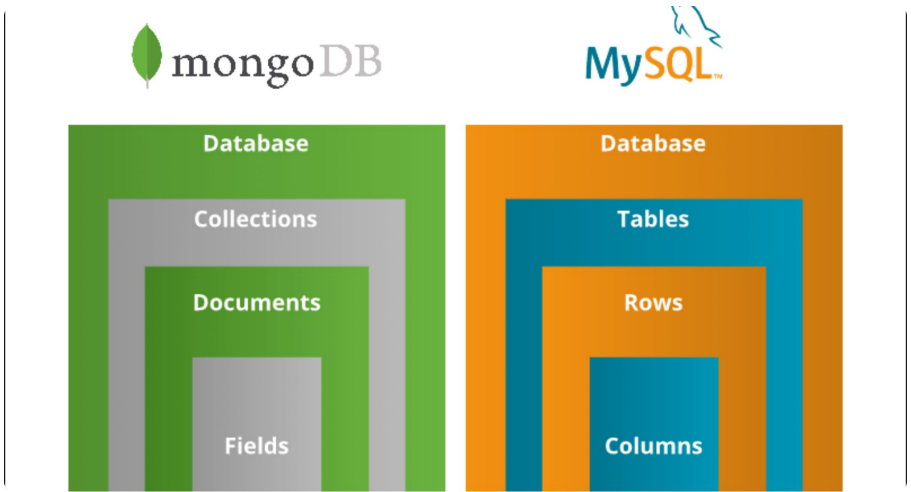
MongoDB is a cross-platform, free, and open-source document-oriented database application. It is a NoSQL database tool that employs JSON-like documents with schemas.

SQL (Structured Query Language) is a domain-specific language developed for managing data stored in a Relational Database Management System (RDBMS). It is especially beneficial when dealing with structured data that contains relationships between multiple entities/variables of the data.

DATABASE MODEL

SQL

Relational database with tables format.



MongoDB

Document-oriented non-relational database (key-value structure).

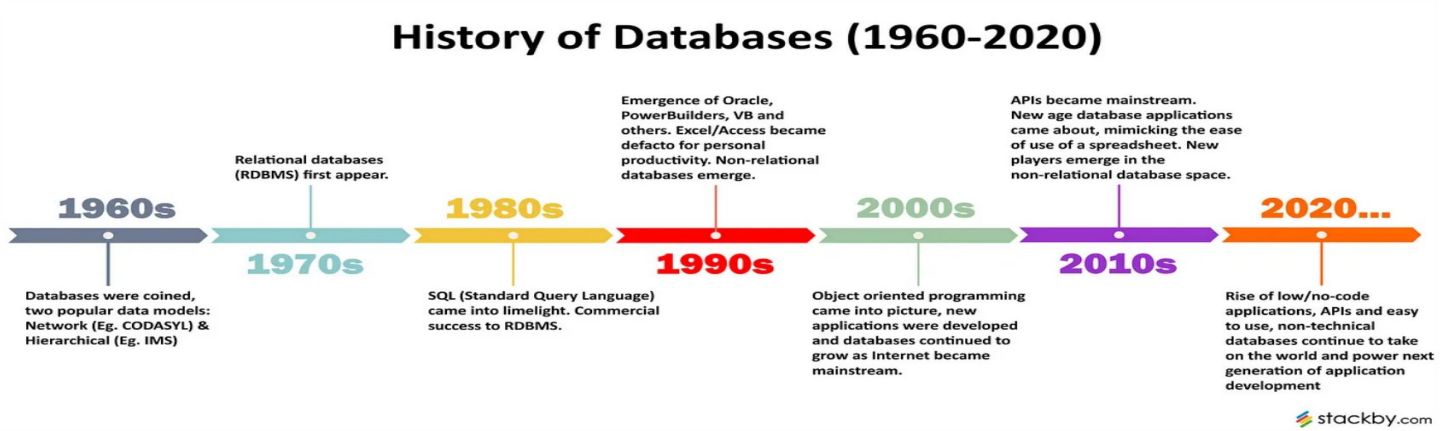
DEVELOPMENT HISTORY

SQL

SQL was developed by Microsoft Corporation and launched on April 24, 1989.

MongoDB

t was developed by MongoDB Inc. and released on February 11, 2009.



IMPLEMENTATION LANGUAGE

SQL

C, C++

MongoDB

C, C++, Java, Python, JavaScript, PHP, Ruby, Perl

SCHEMA

MongoDB

This offers a flexible, dynamic schema that is easily updated when data, applications, or businesses evolve.

SQL

In SQL, a fixed schema is predefined before inserting any data. A fixed schema is one that cannot be altered as data, applications, or business requirements change.

QUERY LANGUAGE

MongoDB

queries unstructured data from the database using MongoDB Query Language.

SQL

Server uses SQL Query Language to create tables, insert, fetch, and update data in the database.

Enter MySQL Query:

```
SELECT Type FROM Places
WHERE Type IN('Type1','Type 2')
ORDER BY Type;
```

MongoDB Syntax:

```
db.Places.find({
    "Type": {
        "$in": ["Type1", "Type 2"]
    }
}, {
    "Type": 1
}).sort({
    "Type": 1
});
```

SCALABILITY

MongoDB

Horizontal scaling, in which data is dispersed across clusters. Sharding is used to implement horizontal scaling, resulting in an always-up server.

SQL

Vertical scaling involves the addition of physical or virtual resources to the database's hosting server.

PERFORMANCE

MongoDB

Optimized for read and write performance, especially with large datasets.

SQL

Performance can be fine-tuned with indexing, query optimization, and normalization.

CONCLUSION

- MongoDB is a more complex database with dynamic schema features that can handle large amounts of data. SQL Server is a relational database management system (RDBMS) that provides end-to-end business data solutions. MongoDB is an excellent choice for unstructured data. Also, MongoDB is open source, making it easily accessible.
- Companies must consider their data volume and demands when deciding whether to use MongoDB vs SQL. SQL is better suited for smaller datasets, whereas MongoDB can handle massive unstructured information.
- SQL is known for its great performance, versatility, dependable data security, high availability, and ease of management. On the other hand, MongoDB is a popular solution due to its open and straightforward philosophy and helpful, collaborative community.
- If your data is unstructured, complex, and there is no predetermined format, and you need to manage massive volumes of data and store it as documents, MongoDB is a better choice than SQL.
- No doubt, SQL Server has been around for a long time, but in the age of Big Data, MongoDB appears to have a promising future. However, this does not imply that SQL Server will be fully eliminated. The choice of database between MongoDB and SQL Server is entirely dependent on the demands of the user.