What is Mongo DB and Why do We Need it?

No comments

The MongoDB document database is an open-source platform with horizontal scale-out architecture and a flexible schema for storing data. It was founded in 2007 and has gained a widespread following among developers across the globe. MongoDB databases store data as documents, not as tables of rows and columns. each record is described as a document in BSON, a binary representation of the data. In JSON format, applications can retrieve this information. MongoDB offers a replacement for traditional relational database systems that use SQL. In a relational database, data is stored in tables, rows, and columns with relationships between entities. In MongoDB, the data is stored in documents using JSON-like structures to represent and interact with data.

Mongo DB Overview:

The MongoDB database was developed in 2009 as a highly scalable, robust, and free NoSQL database. it also has a commercial version. its source code can be found on GitHub. As a versatile, flexible database, MongoDB has established itself as a popular choice for many high-profile organizations and companies, including Forbes, Facebook, Google, IBM,

and Twitter. MongoDB is a non-relational database system. There are two primary types of databases: SQL (relational) and NoSQL (non-relational).

Relational databases store data arranged in columns and rows. Microsoft SQL Server Oracle and Sybase are relational database management systems (RDBMS). However, NoSQL databases store unstructured, schema-less data in multiple collections and nodes. Non-relational databases do not require fixed table structures. NoSQL databases can be scaled horizontally and support limited join queries. NoSQL stands for "Not Only SQL".

Mongo DB Use cases

The MongoDB database is best suited for unstructured data, so it is a great choice for Big Data systems, MapReduce applications, news site forums, and social networking sites. Below are some of the use case categories that MongoDB is appropriate for:

1. Internet of Things (IoT)
2. Blog and Content Management systems
3. Catalog Management
4. E-Commerce type of product-based applications
5. High-Speed operations in the Real-time
6. If you need to maintain location data.
8. If the application design may change at any point in time.
7. In Personalizations.

When shouldn't You use MongoDB?

Despite the fact that Mongo DB has a lot of useful applications and use cases, there are circumstances in which you shouldn't use this database. These situations are:

1. You need ACID compliance. The ACID acronym stands for Atomicity, Consistency, Isolation, and Durability. Applications that require database-level transactions (like a banking system) must be ACID compliant. MongoDB isn't as strong as most RDBMS systems in terms of ACID.
2. When you deal with complex transactions.
3. You work with stored procedures. Unfortunately, MongoDB has no provisions for stored procedures.
4. You don't need a database like MongoDB if your business isn't experiencing explosive growth and its data is consistent.

Advantages of Mongo DB

there are many benefits to using Mongo DB. In this section of the article, you will see why so many great companies like Twitter, IBM, Sony, HTC, Cisco, and so on, use this popular database:

1. It has no schema and it is a document-type database.
2. It supports field, range-based query, regular expression or regex, etc for searching the data from the stored data.

3. It is very easy to scale up or down.

4. For working temporary datasets, it uses internal memory, which is much faster than external memory.

5. MongoDB support primary and secondary index in any field.

6. It supports the replication of the database.

7. Mongo DB is utilized with a sharding mechanism to perform load balancing. By using Sharding, the database can be scaled horizontally.

8. MongoDB can be used as a file storage system which is known as a GridFS.

9. In addition to aggregation pipelines, map-reduce techniques, and single objective aggregation commands, it also provides different ways to aggregate data.

10. It can store Any file type of any size without affecting our stack.

11. MongoDB basically uses JavaScript objects in place of the procedure.

12. In addition, it supports special collection types such as TTL (Time-To-Live) for storing data that expires after a certain period of time.

MongoDB vs. Postgres

Among the main differences between MongoDB vs. PostgreSQL are their systems, architecture, and syntax. MongoDB is a document database, whereas PostgreSQL is a relational database. MongoDB has a distributed architecture, while PostgreSQL is monolithic. Postgres uses SQL, whereas MongoDB uses BSON.

What is PostgreSQL

Open source PostgreSQL is an object-relational database management system (ORDBMS) with an emphasis on extensibility and standards compliance. It is based on the SQL language and incorporates many features to store, scale, and manage the most complex data workloads safely. PostgreSQL is an ACID-compliant, transactional database management system that stores data in tabular format and uses constraints, triggers, roles, stored procedures, and views as its core components.

Postgres Advantages:

1. It is free and open source.

2. Postgres has a wide variety of community and commercial support options are available for PostgreSQL users. these include mailing lists and IRC channels.

3. It supports several languages.

4. It is highly Extensible.

5. Postgres protects data integrity.

6. It builds fault-tolerant environments.

7. Postgres has a robust access-control system

8. It supports almost all international characters.

MongoDB compared to Postgres:

Using MongoDB, users can create schemas, databases, tables, and other objects that are characterized by key-value pairs, similar to JSON objects with schemas. It is a NoSQL database that is flexible and allows users to create documents that are identified by a primary key. The MongoDB shell provides a JavaScript interface through which users can interact and perform CRUD operations. Its interface provides a JavaScript interface through which users can interact. In other words, MongoDB is a general-purpose, document-based, distributed database created for modern application developers.

In general, PostgreSQL is suitable for the situations when you need a database that is Standard compliant, transactional, ACID (Atomicity, Consistency, Isolation, Durability) compliant and has a large range of NoSQL features.

On the other hand, Mongo DB is best For real-time analytics, for when you need scalability and caching, but this database is not built for accounting applications.

Wrapping Up:

In this article, you got familiar with MongoDB, its use cases, pros and cons, limitations, and its comparison with the PostgreSQL database. In addition to being widely used in different industries and use cases, MongoDB is one of the most popular NoSQL databases. A highly versatile data management system, MongoDB enables rapid development and low downtime operations by providing powerful features such as scaling, consistency, fault tolerance, agility, and flexibility.

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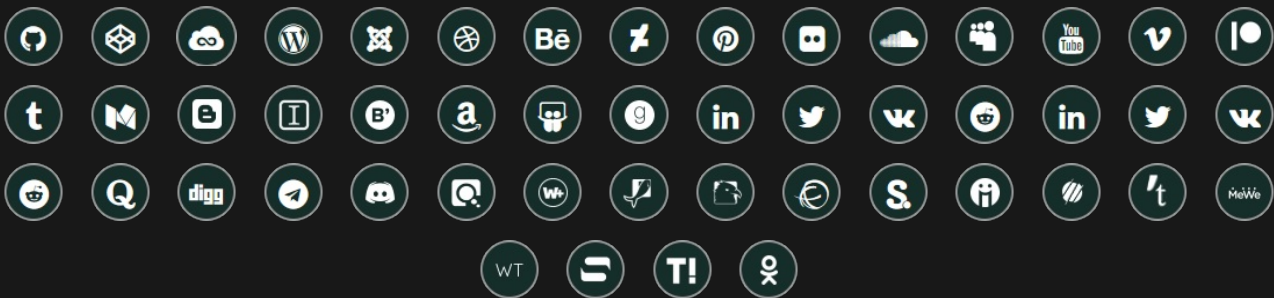
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