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SWDV 665

A Base of Data: MongoDB vs PostgreSQL

PostgreSQL and MongoDB are databases that can be used to store data for both mobile and web applications. They share some key similarities as well as numerous differences in storage types, query languages, indexing, architecture, and data relationships. While they would both work for many applications, they have benefits and detriments that would make one better than the other for different applications as well.

MongoDB and PostgreSQL are both databases that can handle large-scale data for enterprise applications both large and small. Both database structures are scalable – Postgres scales upwards while MongoDB is better at scaling outwards for data types, however. They both contain access for concurrency though they operate on different models – MongoDB uses document-level control (MongoDB, n.d.) while PostgreSQL uses multi-version variable control (PostgreSQL - about, n.d.).

MongoDB is a NoSQL database that prides itself on being flexible, efficient, and scalable for large projects – it advertises itself as being widely used across Azure, AWS, and Google for example (MongoDB, n.d.). It uses its own query language – aptly named MongoDB Query Language – and also makes use of APIs and visual search methods through its User Interface in the Atlas version currently being used for the larger scale products. MongoDB is also not a relational database. It stores data in JSON files that store related data together. MongoDB excels at storing widely varied data – images, text, and videos all together – and handling a lot of reading traffic. This makes MongoDB an excellent candidate for storage for an application such as a parenting app – storing photos of formula or concerns for a pediatrician, records of feeding time and amounts, videos of first steps and speaking, and access to web pages and videos for common parenting concerns can all be stored and accessed through one database.

PostgreSQL is a “powerful, open source object-relational database system with over 35 years of active development that has earned it a strong reputation for reliability, feature robustness, and performance” (PostgreSQL, n.d.). Postgres is a SQL-based database that can use basic SQL but also has its own expanded version of SQL queries that expands on the functionality and capabilities of SQL as well. Data is stored and rows and tuples like most relational databases and uses entity relationships to define how tables are related to each other. This database system supports a number of indexing methods like B-tree, multi-column, and expression indexing that aren’t supported in NoSQL databases like MongoDB (PostgreSQL - about, n.d.). SQL databases are often considered more secure than the newer NoSQL databases as well and are more ideal when data security is an important consideration for sensitive applications (PostgreSQL, n.d.). Added security along with relational data that is good at connecting transactions tables to stock tables and potentially updating a purchase table for goods you want to purchase would make PostgreSQL a good match for an app like the class groceries app being concurrently developed.

In conclusion, both MongoDB and PostgreSQL are scalable databases that will fit different applications and corporate structures with different needs. MongoDB is a better application for storing broad categories of data that need to be accessed quickly with flexible searching. PostgreSQL is better for storing large amounts of data that should be well connected and would benefit from a relational database that can be used with SQL.

# Works Cited

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