

NoSQL: Introduction to Document Store

Databases such as MongoDB, DynamoDB or Firestore are one type of NoSQL databases in which data are stored in a document type. The most common document type in this respect is a JSON file which often has a unique title (a key) and a semi-structured content (a value). In this sense, it is similar to a key-value mapping that is essential for NoSQL database structures like Riak or BerkeleyDB but the main difference is that the value section represents an entire data file on its own (Groves, 2020).

Comparing a document storage DB to a SQL (relational) DB appears therefore useful when you want to contain some flexibility into the storage of your data. The term of scalability becomes here much more understandable. Taking the example of a JSON file, imagine a case where the content is a text (of an author for example), it has a key-value mapping by paragraph and perhaps it is possible that one file includes a lot more paragraphs than others. In SQL (because of its structured way) you can imagine that there would be a lot of insertions for one file which becomes large in storage capacity only by mentioning/inserting always the same key (at least when the content is inserted by paragraph into SQL). On the other side, taking consistency as a reference, a SQL database would easily indicate when no author of a text has been mentioned (NA value) whereas in a document storage DB you could go easier away with this (but it also depends on your insertion constraints handled by an application logic file for example). Searching then for an author by different words (“author”, “writer”, “creator”, etc.) could lead to wasted time in a document store. The question is at the end also what developer and user want to prefer: Consistency vs. Flexibility (Scalability) (Fowler, 2012) (Kuszera et al., 2022).

Reference List:

Fowler Martin (2012) introduction to NoSQL. Available from:

https://www.youtube.com/watch?v=ql_g07C_Q5I [Accessed 27 April 2022]

Groves Matthew (2020) JSON Data Modeling in Document Databases. Available

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NoSQL **document store** conversion process. *Information Systems*. 105

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