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WEB 335 Introduction to NoSQL

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Discussion 4.1

MongoDB is a document-oriented NoSQL database. It allows storage of hierarchical data in a single record, without the strict constraints on structure imposed by relational databases. This allows records (and application developers) a great deal of freedom in choosing what fields to store or change.

In place of conventional tables, MongoDB uses collections, and rows are replaced by documents. These documents are comprised of key-value pairs, and collections are groupings of documents. The document-oriented approach also lends itself to scalability through automatic cluster management.

Several other important features are:

* **Indexing**: MongoDB supports indexing, which means it can limit queries to an examination of smaller data structures rather than scan the entire collection.
* **Aggregation**: Like SQL queries, aggregation allows data to be grouped, processed and computed.
* **TTL Collections**: Time To Live collections are data groupings with planned expirations, good for short term data storage planning and cleanup.
* **Large file support**: Baked-in large file protocols.
* **Fast Performance**: Uses WiredTiger storage engine to maximize RAM caching for high performance.

Select two MongoDB data types and explain what they are, how they are used, and why they are important.

The data stored in MongoDB documents is similar in structure to JSON objects. While JSON representation of data is limited to null, Boolean, numeric, string, array, and object, MongoDB expands that list. MongoDB datatypes include:

* Null
* Boolean
* Number
* String
* Date
* Regular Expression
* Array
* Embedded Document
* Object ID
* Binary
* Code

Let us examine two of these. The Number type is a 64-bit floating integer by default. It can be interpreted syntactically based on how it is stored. Both

{“myNum”: 34}

and

{“myNum”:34.19}

are considered valid floats. For numbers that are expressly integers, the NumberInt and NumberLong classes can be used for 4 or 8 byte integers:

{“myint”:NumberInt(“5”)}

{“myInt”:NumberLong(“5”)}

Another interesting MongoDB datatype is Code. Javascript snippets can be stored like so:

{“myFunction”: function(param){param.forEach(a,b){/\* \*/}}}

References:

*The MongoDB 4.4 Manual — MongoDB Manual*. (n.d.). Mongo DB. Retrieved November 6, 2020, from https://docs.mongodb.com/manual/

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Rungta, K. (2020c, November 1). *What is MongoDB? Introduction, Architecture, Features & Example*. Guru 99. https://www.guru99.com/what-is-mongodb.html