

# NoSQL Databases

An overview of commonly used NoSQL databases.

## We'll cover the following

- MongoDB
- Apache CouchDB
- Redis
- Test your understanding!

In the previous lesson, we discussed SQL databases that can be used to develop an efficient database-backed web application. Now, we will look into the NoSQL options that exist and discuss how NoSQL database management systems compare to SQL database management systems.

## MongoDB #

[MongoDB](#), which is perhaps the most popular NoSQL DBMS, is an open-source non-relational database management system that has come to be known as the leading option when it comes to developing modern web applications. The reason for this is that MongoDB uses a document-based storage system that stores key-value pairs and allows for highly efficient lookups, making data retrieval much faster and easier than any typical SQL DBMS. To add to this, the document model ensures that data can be mapped directly to objects within the application code, and is, therefore, makes data handling significantly easy by eliminating the need for adding code to process queried data. In addition to this, MongoDB stores data in a highly flexible manner, thus allowing for fields to vary from document to document and the structure of data to be open to change over time. Data can also be indexed and queried according to specific user requirements and then updated in real-time. This makes MongoDB an exceptionally powerful system for data analysis, and that shows in its popularity. However, the most important aspect of quality that MongoDB covers is reliability; MongoDB is a distributed database at its core

which means that it is available, scalable, and easily distributable across

locations, thus making it well equipped for modern applications that require quick access to data at all times.

MongoDB commands are fairly simple and easy to learn. Given below is an example that creates a new database called newDB:

```
1 use newDB
```



The simplicity and ease of use of MongoDB show for why it has become so popular in recent times and it is, therefore, an essential tool to learn before you delve into web development.

## Apache CouchDB #

[CouchDB](#) is an open-source NoSQL database management system that aims primarily to provide ease of use. CouchDB combines an intuitive document storage model with a powerful query engine to allow users to store their data safely on personal servers or with any leading cloud provider. In addition to this, CouchDB not only has the ability to store all types of data, but it also allows web applications to conveniently extract this data without having to add translational commands since CouchDB supports the formatting web applications typically use.

## Redis #

[Redis](#) is an open-source in-memory data structure store that is often used as a database. It supports all kinds of data structures ranging from strings, hashes, lists, and sets to sorted sets with range queries, bitmaps, hyperloglogs, and geospatial indexes with radius queries and streams. This means that Redis provides a wide variety of data structures that can be used to store your application data in the most optimal way according to how the data is structured. In addition to this, because Redis stores data in-memory, it allows for fast data retrievals and, therefore, significantly speeds up the process of responding to user requests.



#### Common NoSQL Databases

## Test your understanding! #

### Quiz on NoSQL databases

1

MongoDB makes sure data is stored in one universal location to ensure reliability

☐ A) True

☐ B) False

COMPLETED 0%

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That concludes the discussion on popular NoSQL database management systems. As we have already seen, there are certain limitations to relying completely on databases in your web applications that NoSQL counter by caching and in the next lesson, we will be discussing caching as an approach to optimize data storage on web applications in further detail.

