

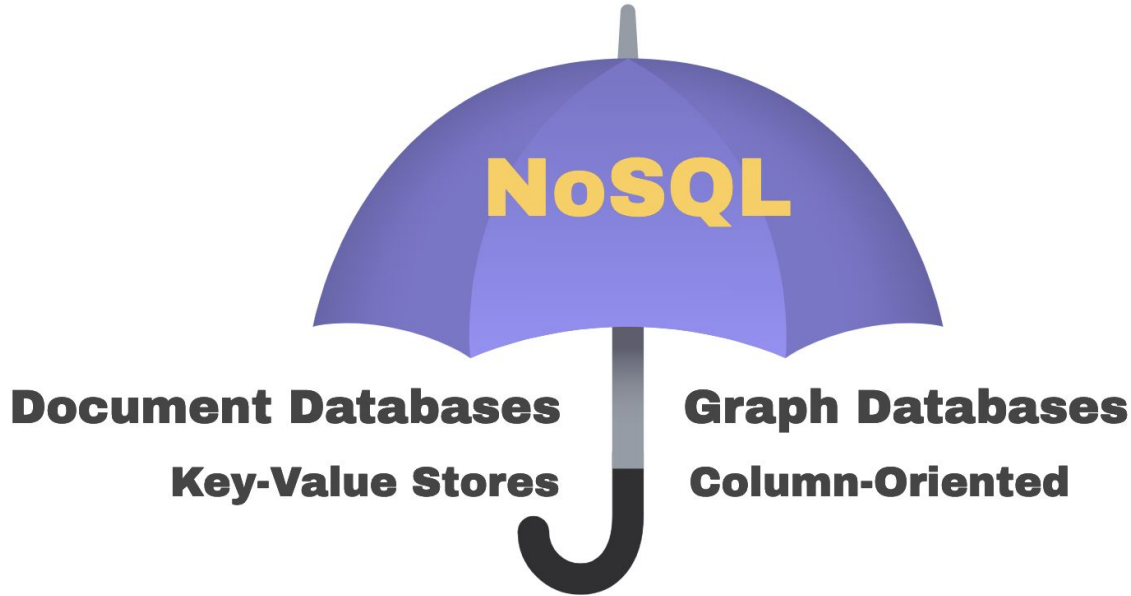
Web Development Boot Camp

Unit 18



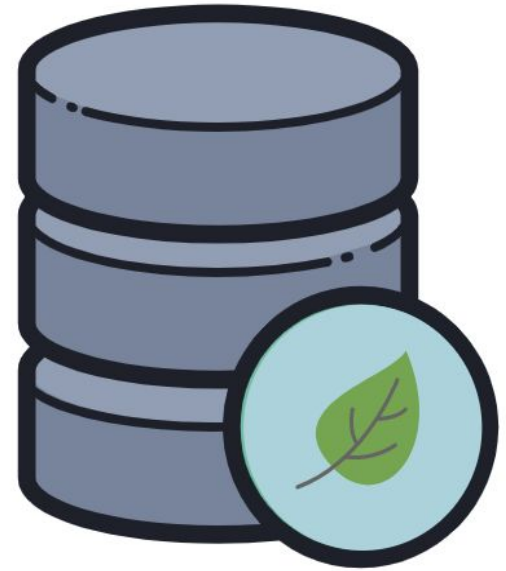
What Is NoSQL?

NoSQL is an umbrella term for any database that is not a traditional, relational SQL database. There are four main types of NoSQL databases.



How Do NoSQL Databases Store Data?

While NoSQL databases are all non-relational, each type of NoSQL database stores data in a unique way and is used differently by developers. In this unit, we focus on MongoDB, a general purpose NoSQL, **document database** that uses documents to store data. MongoDB works well with JavaScript because it stores data in objects.





How Does MongoDB Store Data Differently from SQL Databases?

SQL Is a Relational Database

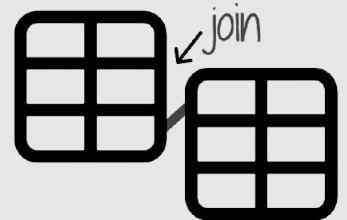
SQL uses **rows** and **tables** to store data, enforcing a rigid schema.

table →

ID	Title	Author	Published
1	The History of Blah	Blah Matic	2010
2	The Chronicles of Blahnria	Sir Blahston	2011
3	Love in the Time of Blah	Gabriel Garcia Blah	2013

row ↗

Because SQL is a relational database, SQL also relies on **joins** to combine related data from different tables.



MongoDB Uses Documents and Objects Instead of Tables and Rows

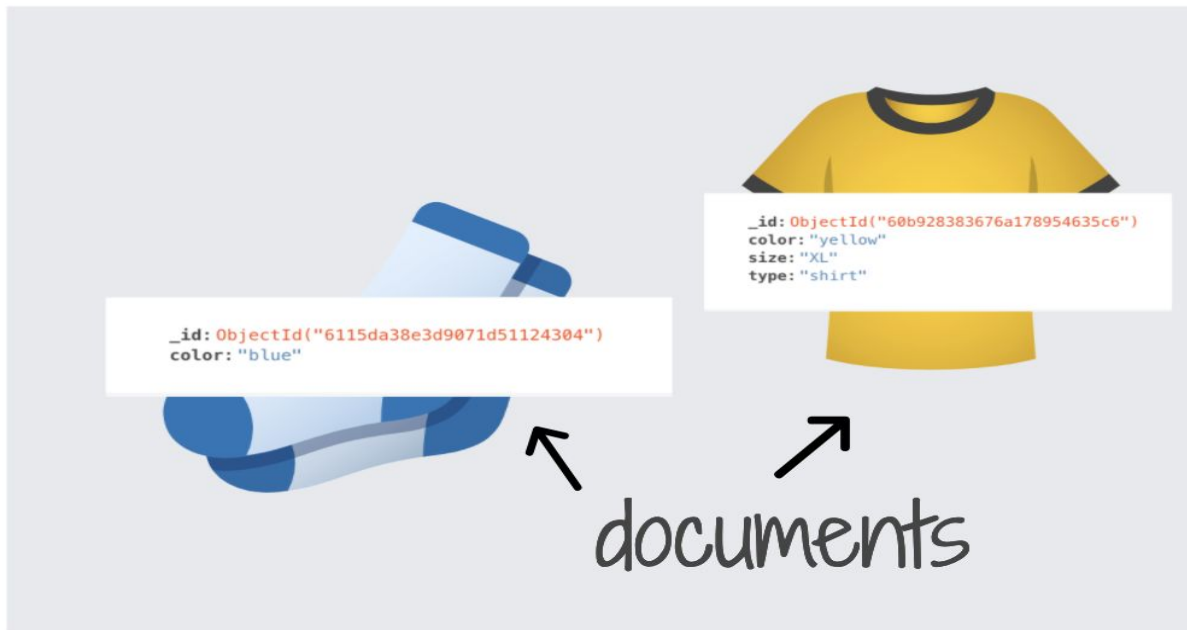
MongoDB stores data in **objects** stored in a format called BSON, or Binary JSON. BSON looks and acts just like JSON, but is optimized for faster parsing.



Groups of Documents Are Stored in Collections

Unlike SQL tables, collections do not have an enforced **schema** to limit the type of data stored. Each document in a collection can have different fields (keys) and can contain different types of data.

collection →



Related Data Can Be Stored in Embedded Documents

Unlike SQL, related data in MongoDB is not split between tables. Instead, related data is nested within a single object as an **embedded document**.



SQL vs. MongoDB

Let's compare how data is stored in SQL vs. MongoDB databases:

SQL, Relational Database	MongoDB, NoSQL, Non-Relational
Database	Database
Table (rigid schema)	Collection (No enforced schema)
Row	Document (BSON object)
Column	Field (Key)
Related data split between tables	Related data nested in embedded document

So Why Use MongoDB?

The following are some reasons for why developers choose MongoDB:



MongoDB stores data as a BSON object, making it a great fit for JavaScript apps.



MongoDB does not use tables or enforce a rigid schema, allowing more flexibility for developers.



MongoDB is a great choice for heterogeneous data, and scales easily.



MongoDB is capable of storing related data well.



Instructor Demonstration

Mini-Project