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de-12> mkdir text-

eNodeJs\episode-12

WPS Office - Microsoft Word

Database

Article Talk

From Wikipedia, the free encyclopedia

This article is about the computing concept. For instances of the general concept, see Database (disambiguation).

In computing, a **database** is an organized collection of data or a type of data store based on the use of a **database management system (DBMS)**, the software that interacts with end users, applications, and the database itself to capture and analyze the data. The DBMS additionally encompasses the core facilities provided to administer the database. The sum total of the database, the DBMS and the associated applications can be referred to as a **database system**. Often the term "database" is also used loosely to refer to any of the DBMS, the database system or an application associated with the database.

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Episode-12 | Databases - SQL & NoSQL

SQL: Understand the fundamental concepts of SQL

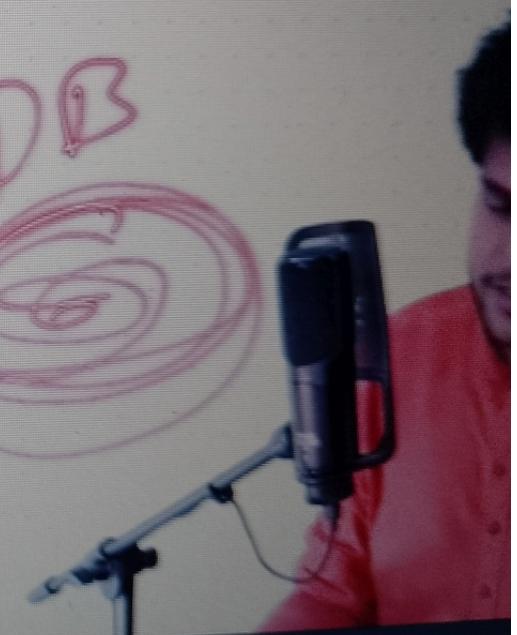
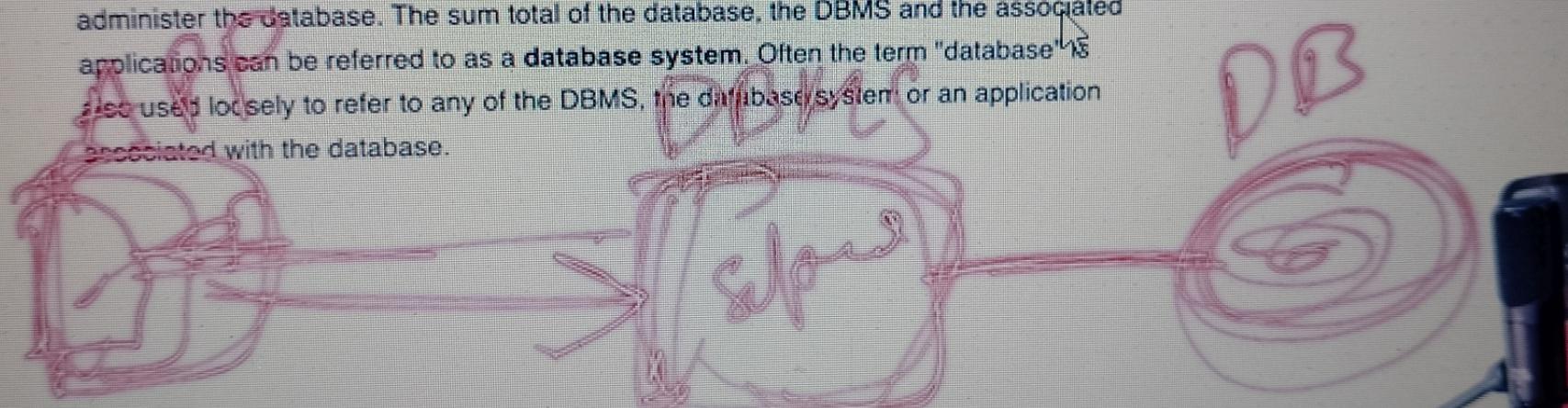
# Database

[Article](#) [Talk](#)

From Wikipedia, the free encyclopedia

This article is about the computing concept. For instances of the general concept, see [database](#).

In computing, a **database** is an organized collection of [data](#) or a type of [data store](#) based on the use of a **database management system (DBMS)**, the [software](#) that interacts with [end users](#), [applications](#), and the database itself to [capture](#) and [analyze](#) the data. The DBMS additionally encompasses the core facilities provided to administer the database. The sum total of the database, the DBMS and the associated applications can be referred to as a **database system**. Often the term "database" is also used loosely to refer to any of the DBMS, the database system or an application associated with the database.



## Types of Databases

1. Relational DB - MySQL, PostgreSQL
2. NoSQL DB - MongoDB
3. In memory DB - Redis
4. Distributed SQL DB - Cockroach DB
5. Time series DB - Influx DB
6. OO DB - db4o
7. Graph DB - Neo4j
8. Hierarchical DB - IBM IMS
9. Network DB - IDMS
10. Cloud DB - Amazon RDS



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Pin (P) Minimize Maximize Close Namaste Node JS

RDBMS (MySQL, PostgreSQL)

EF Codd - Codd's 12 Rules [0-12]

RDB - Relational DB

Michael Widenius

My MySQL Sun M. fork Oracle

Max MaxDB

Maria MariaDB

Episode-04 | mod

Episode-05 | Divi repo

Episode-06 | libuv

Episode-07 | sync code

Episode-08 | Deep

Episode-09 | libuv

Episode-10 | Threa

Episode-11 | Creati

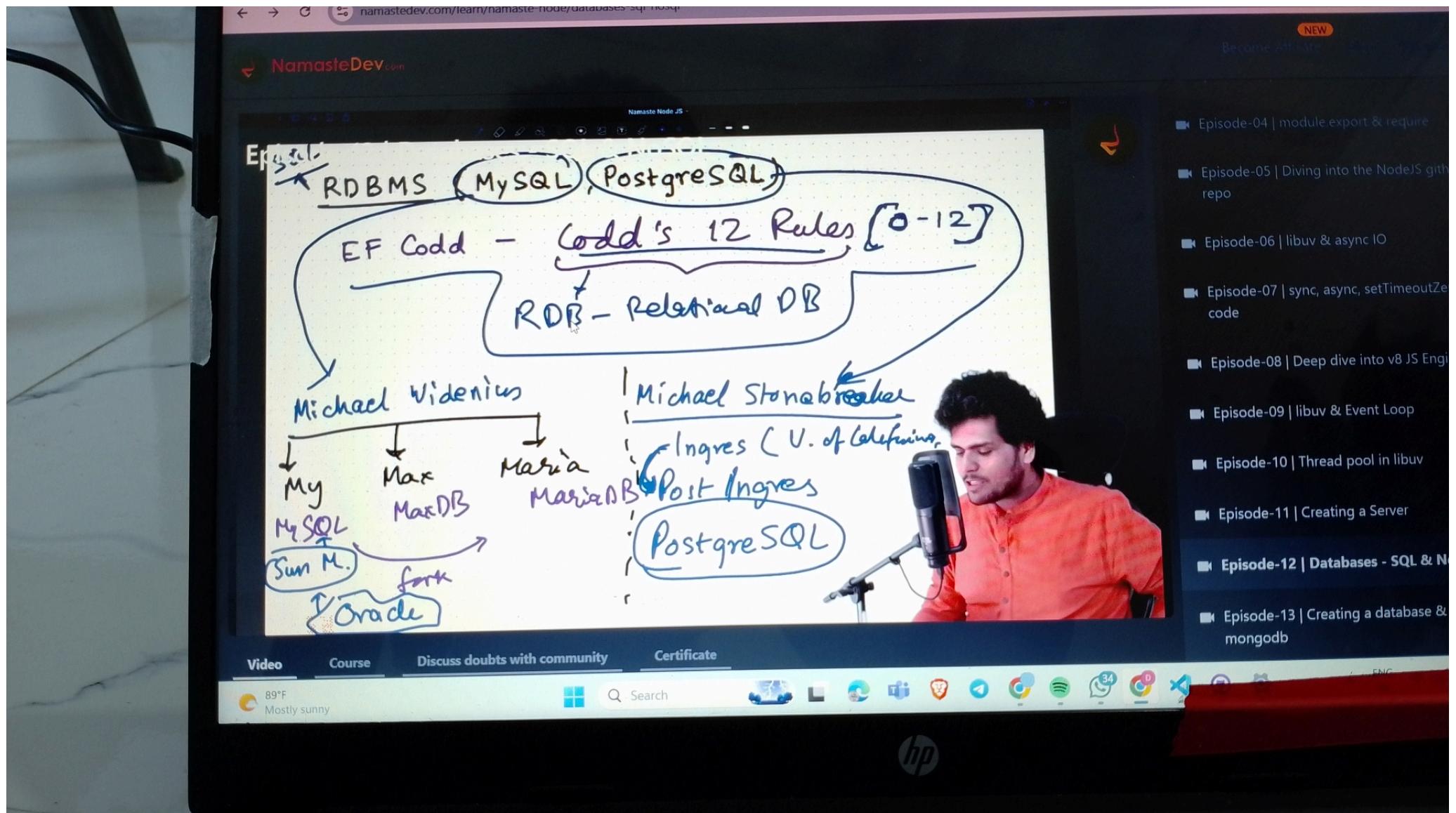
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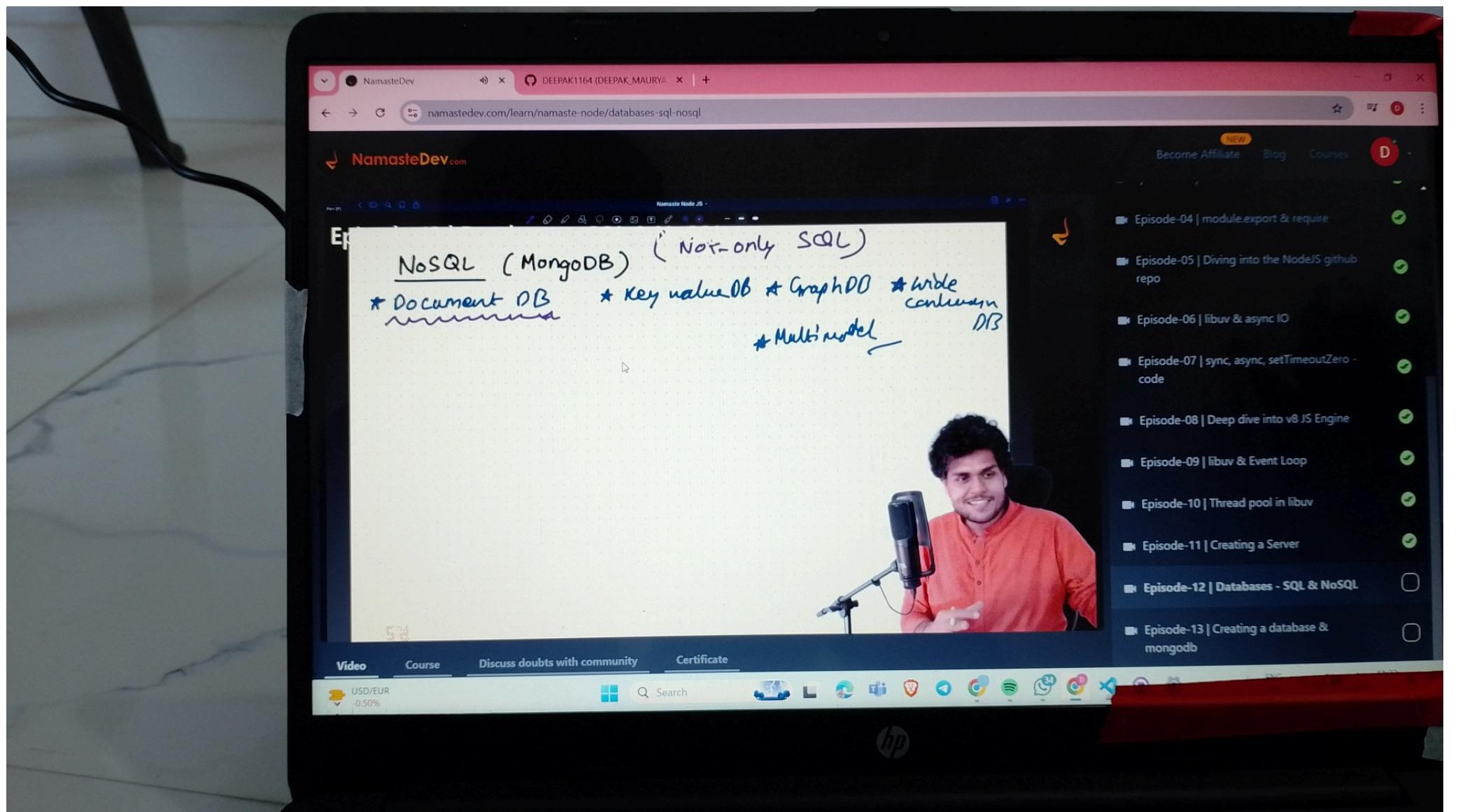
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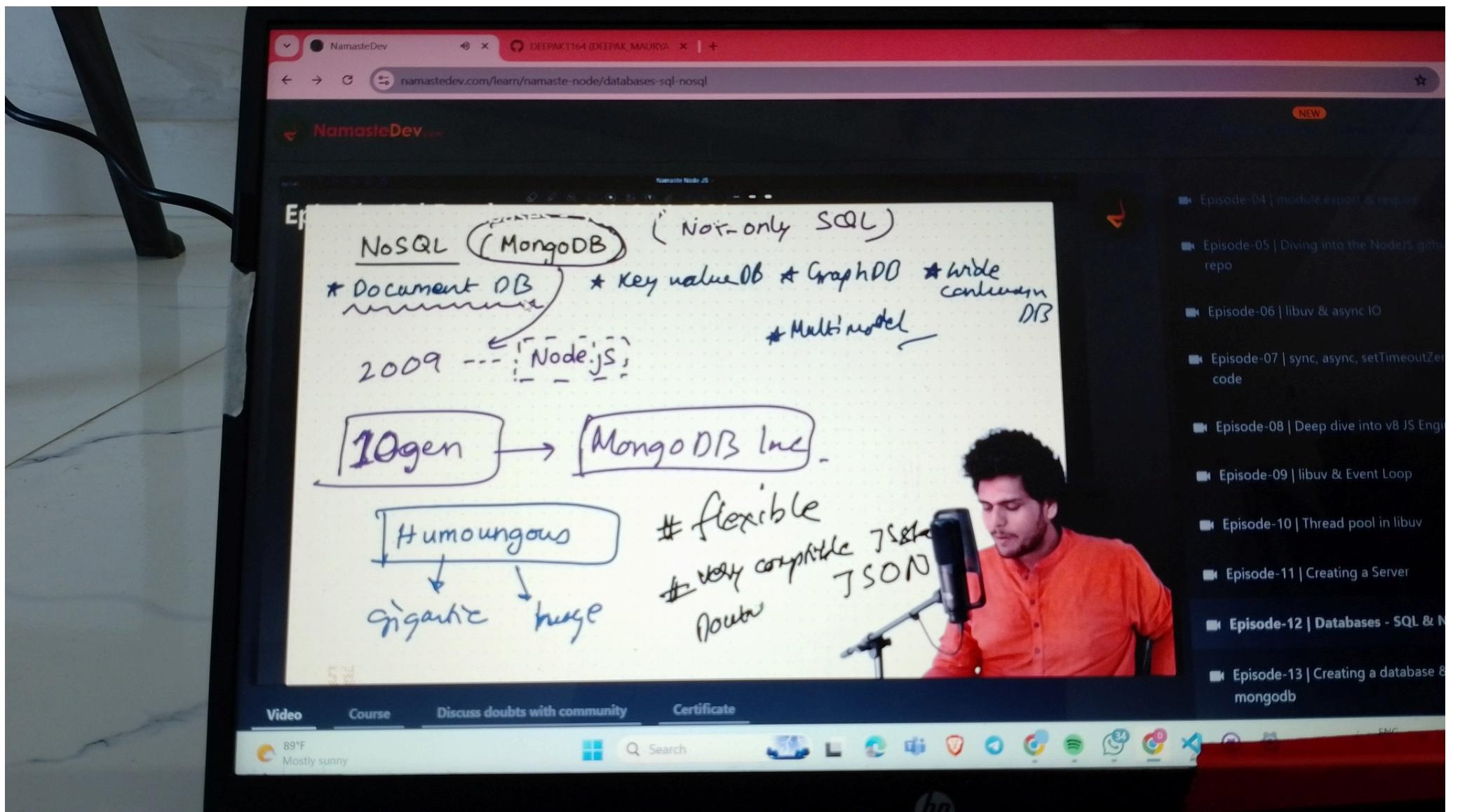
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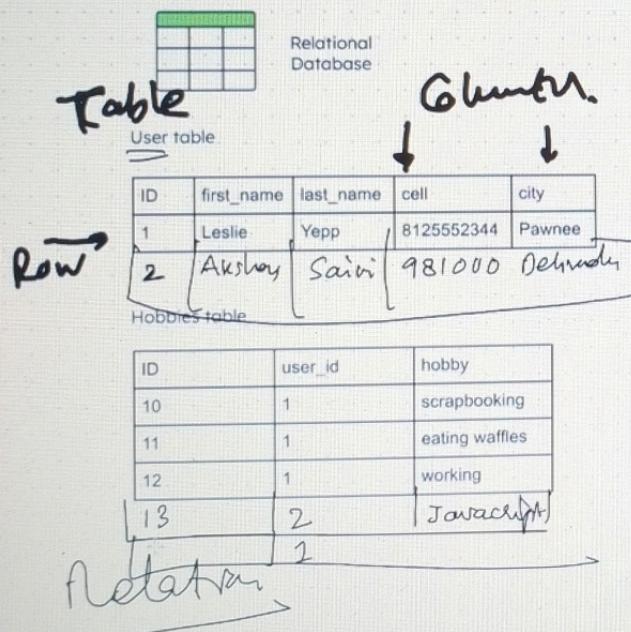
Cloudflare







## RDBMS vs NoSQL (Document)



MongoDB

```
{  
  "_id": 1,  
  "first_name": "Leslie",  
  "last_name": "Yepp",  
  "cell": "8125552344",  
  "city": "Pawnee",  
  "hobbies": ["scrapbooking", "eating  
waffles", "working"]  
}
```

- No need for joins
- No need for data normalization



## RDBMS vs NoSQL (Document)

**Table**  
User table

Relational Database

The diagram illustrates a relational database structure. On the left, there is a grid icon labeled "Table" and "User table". Below it is a table with columns: ID, first\_name, last\_name, cell, and city. Two rows are shown: row 1 with Leslie and Yep, and row 2 with Akshay and Saini. A bracket under the first two columns is labeled "Row". To the right, another table is shown with columns: ID, user\_id, hobby. Rows 10 through 14 are listed: 10 (user\_id 1, hobby scrapbooking), 11 (user\_id 1, hobby eating waffles), 12 (user\_id 1, hobby working), 13 (user\_id 2, hobby JavaScript), and 14 (user\_id 2, hobby by 2). A bracket under the first two columns is labeled "Relation".

ID	first_name	last_name	cell	city
1	Leslie	Yep	8125552344	Pawnee
2	Akshay	Saini	981000	Delhi

ID	user_id	hobby
10	1	scrapbooking
11	1	eating waffles
12	1	working
13	2	JavaScript
14	2	by 2

Glue them  
↓  
↓  
document == Collection

```
{  
  "_id": 1,  
  "first_name": "Leslie",  
  "last_name": "Yep",  
  "cell": "8125552344",  
  "city": "Pawnee",  
  "hobbies": ["scrapbooking", "eating  
waffles", "working"]  
}
```

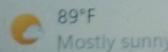
- No need for joins
- No need for data normalization

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- Episode-07 | sync, async, promises
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- Episode-09 | libuv & Event loop
- Episode-10 | Thread pool
- Episode-11 | Creating a REST API
- Episode-12 | Database integration
- Episode-13 | Creating a MongoDB application

[namastedev.com/learn/namaste-node/databases-sql-nosql](https://namastedev.com/learn/namaste-node/databases-sql-nosql)

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**RDBMS (MySQL)**

- Table, Rows, columns.
- Structured Data
- Fixed Schema
- SQL
- Tough horizontal scaling
- Relationships - foreign keys + joins
- Read-heavy apps, transaction workloads
- Ex. Banking apps.

**NoSQL (MongoDB)**

- Collection, document, fields
- Unstructured Data
- flexible schema
  - Mongo (MQL), Neo4J (Cypher)
- Easy to scale horizontally + vertically
- Nested [Relationships]
- Real Time, Big data, distributed computing
  - Ex. Real Time analytics, social media

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Episode-05 | Diving into the Node.js repo

Episode-06 | libuv & async IO

Episode-07 | sync, async, setTimout code

Episode-08 | Deep dive into v8.js

Episode-09 | libuv & Event Loop

Episode-10 | Thread pool in libuv

Episode-11 | Creating a Server

**Episode-12 | Databases - SQL**

Episode-13 | Creating a database using mongodb