

Database

What is Database?

→ Database is an organized collection of data.
and to manage data like - fetch or performing CRUD operation we use Data Base Management System.

DBMS is a Software that interact with end user, application and the database itself to capture and analyse the data

Types of Databases

1. Relational DB → MySQL, PostgreSQL, Oracle
2. No SQL DB → Mongo DB ← Mongo DB compass.
3. In memory DB → Redis ← used for caching.
4. Distributed SQL DB → ~~CockroachDB~~ Cockroach DB
5. Time Series DB → Influx DB
6. OODB → db4o
7. Graph DB → Neo4j
8. Hierarchical DB → IBM FMS
9. Network DB → IDMS
10. Cloud DB - Amazon RDS

WE WILL Learn more and in depth about Database later in session this is just a basic

NO SQL (Mongo DB) types.

types of NO SQL

- Document DB
- key value DB
- Graph DB
- Wide column DB
- multi-model DB

MongoDB is document DB

Form

MongoDB is very much comfortable.

flexible

dev. productivity.

RDBMS VS NO SQL (Document)

Relational database

(table form)

ID	name	telephone
1	Leslie	995

Hobbies table

ID	userid	hobby
10	1	cutting
11	1	sleeping
12	1	travelling

(collection form)

document

```
{
  "id": 1,
  "name": "Leslie",
  "telephone": 995,
  "hobbies": ["cutting", "sleeping", "travelling"]
}
```

Fields

[No need for joins
No need for data normalization]

RDBMS

MySQL

- Table, Rows, Column
- Structured Data
- Fixed Schema
- SQL
- Tough horizontal Scaling

- Relation Ship (Foreign key + Joins)
- Real heavy apps, transaction workload

Ex - Banking Apps

NOSQL (MongoDB)

- Collection, document, fields
- unstructured data
- flexible schema
- mongo [mgc], [no4], chypm.
- easy to scale horizontal + vertical.

- Nested (relationship)
- Real time, Big data, distributed computing (VI)

Ex - Real time analyzing
Social media

We will learn about MongoDB.

~~MongoDB is a Source-available, crossplatform,~~

MongoDB is a Document oriented database program
Classified as non-sql database.

There is two ways to use MongoDB.

(1) install MongoDB source software in your system
and use it → Self Managed

(2) use a feature given by MongoDB, it takes
a database install it on server and give us data

(1) Community version (2) Enterprise version
↓ free version ↓ paid version

Self managed → you have to take backup, and auto update, managed by your self.

if we give it to mongo DB they will manage by it self.

we will use second approach. (let mongoDB manage it self.)

go to the web site, login, fill the form and connect it. via string - (connection string) or we need a string to authenticate

go to drivers and copy code password
go to copy connection - string, and password

and save it like

```
const URI = "user with string";
```

Now How can we see what inside our database we use for MongoDB Compass software download and install it.

Click on add new connection.

Paste - Check connection string

we have now our db connected.

to use DB to our project we will use module. - MongoDB (NPM mongodb node.js Driver)

(Install Package NPM)

`api (npm i mongodb.)`

Always try to read documentation of module.

To use MongoDB in our project.

`const { MongoClient } = require ("mongodb");`

`const url = "URL which has created vehicle company" ;`
DB

`const client = from new MongoClient (url);`
`const dbName = "database name";`

To create client = new MongoClient (url);
you see it on git hub. or documentation.

To insert

`const insert = await collection.insertMany (Cdata);`
`const find = await collection.find ({}).toArray ();`

`const finddata = await collection.find ({ first name: "Pravin" })`
↑
exp to find all the d.
`toArray ();`

`const update = await collection.updateOne ({ first name: "Pinto" } ,`
`{ $set: { first name first name: "Poto" } });`

`const delete = await collection.deleteMany ({ a: 3 });`