

SESSIONS 2



mongoDB

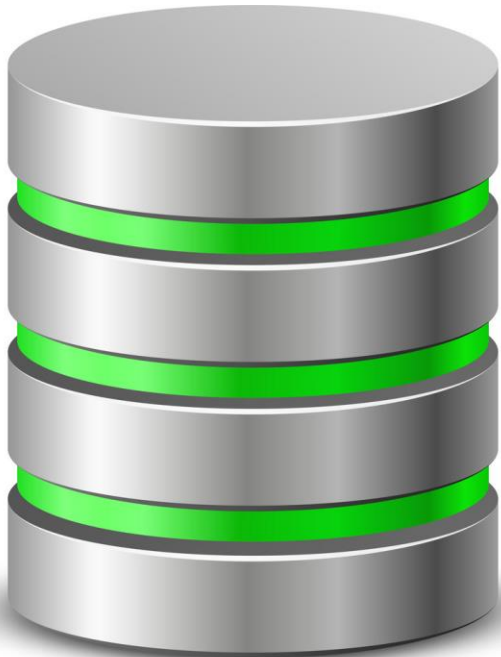
Installation & Introduction

Data Science Program

What is a Database?

NoSQL Databases

Database



- A **database** is an organized collection of data.
- The **main purpose** of database is to operate large amount of information by storing, retrieving and managing.
- There are many dynamic websites on the world wide web nowadays which are handled through databases. For example, a model to checks the availability of rooms in a hotel. It is an example of dynamic website that uses database.

NON-RDBMS / NoSQL

- **NoSQL** or **Non-RDBMS** (*Non Relational Database Management Systems*) is database that is not modeled like relational model based.
- The data structure used by NoSQL databases are different from relational databases. It's faster and more flexible than relational db. That's why it's increasingly used in *big data & real time web application*.
- Here are the example of NoSQL database: MongoDB, Cassandra, CouchDB, OrientDB, IBM Domino, ArangoDB & Apache Ignite.

What is MongoDB?

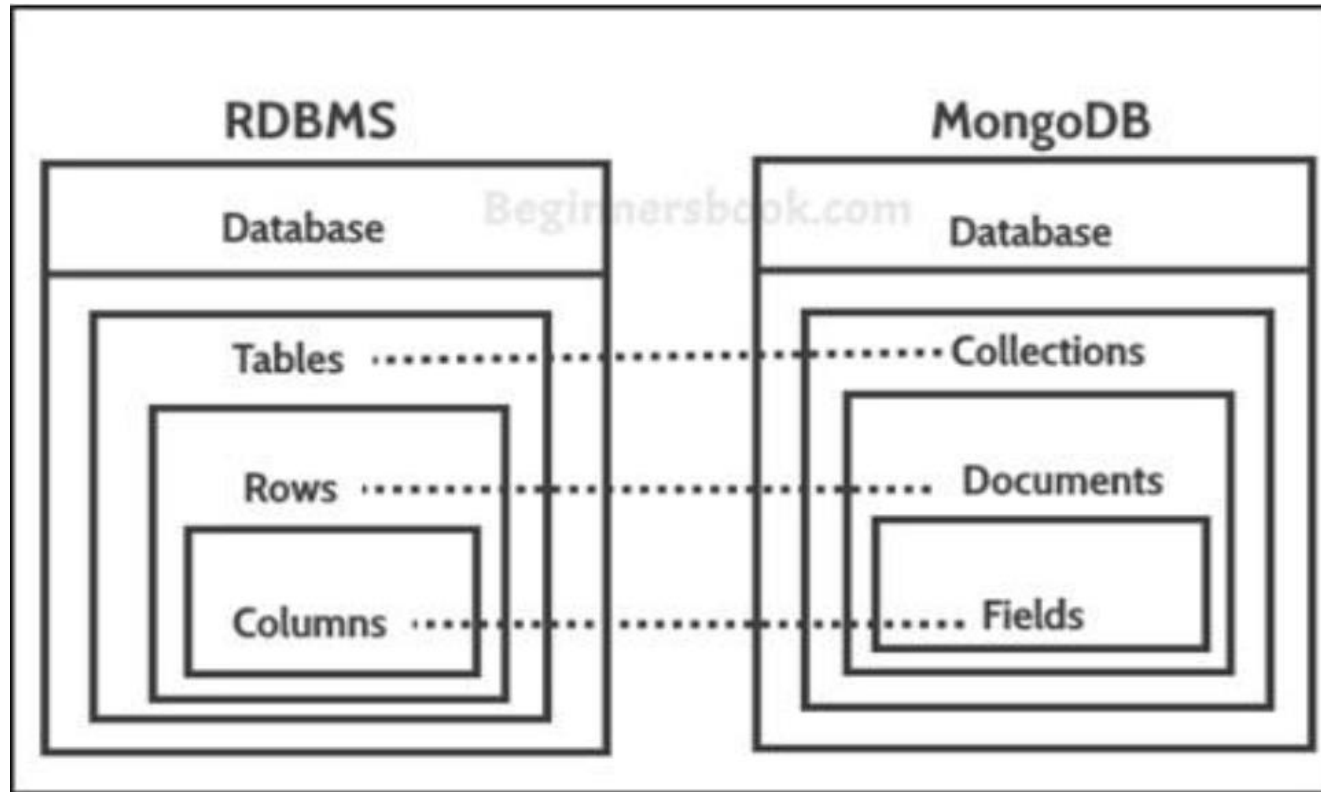
NoSQL Databases

MongoDB



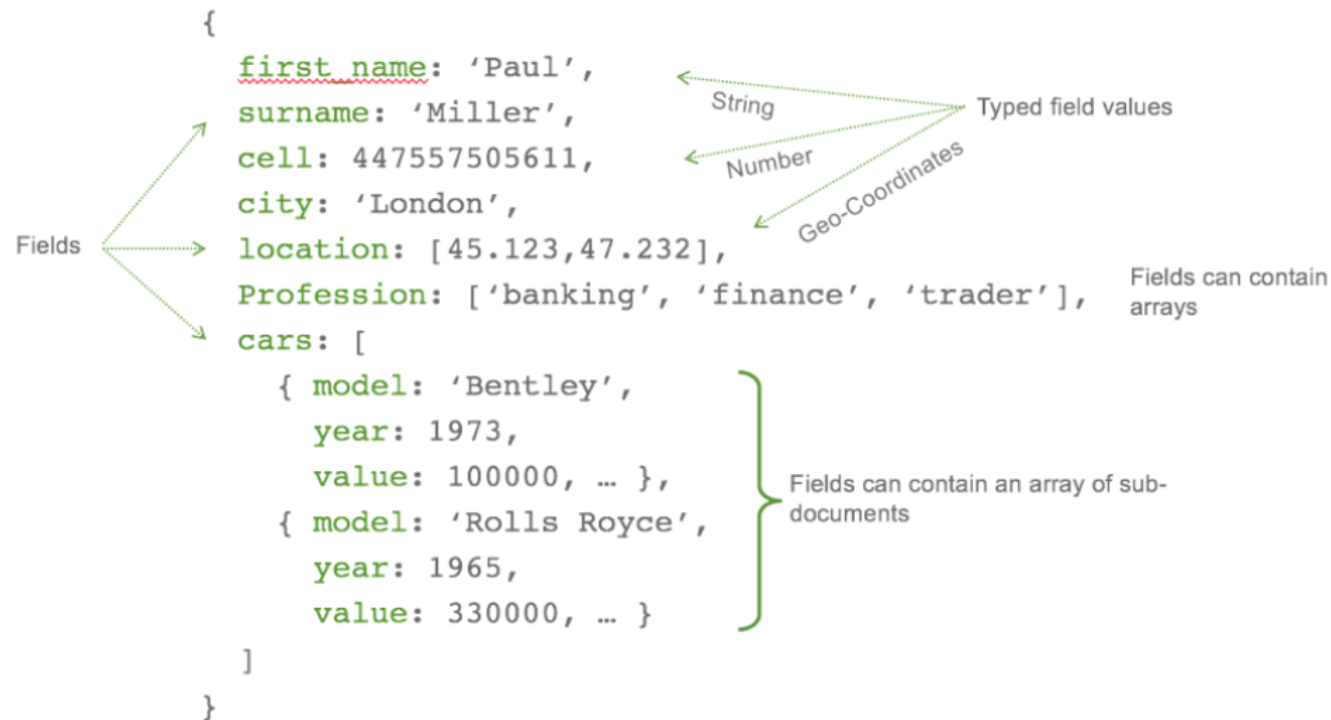
- **MongoDB** is an object-oriented, simple, dynamic, and scalable NoSQL database. It is based on the NoSQL document store model. The data objects are stored as separate documents inside a collection — instead of storing the data into the columns and rows of a traditional relational database.
- MongoDB has been developed by MongoDB Inc. since 11th February 2009, and is published under GNU Affero General Public License & the Apache License.

RDBMS vs MongoDB



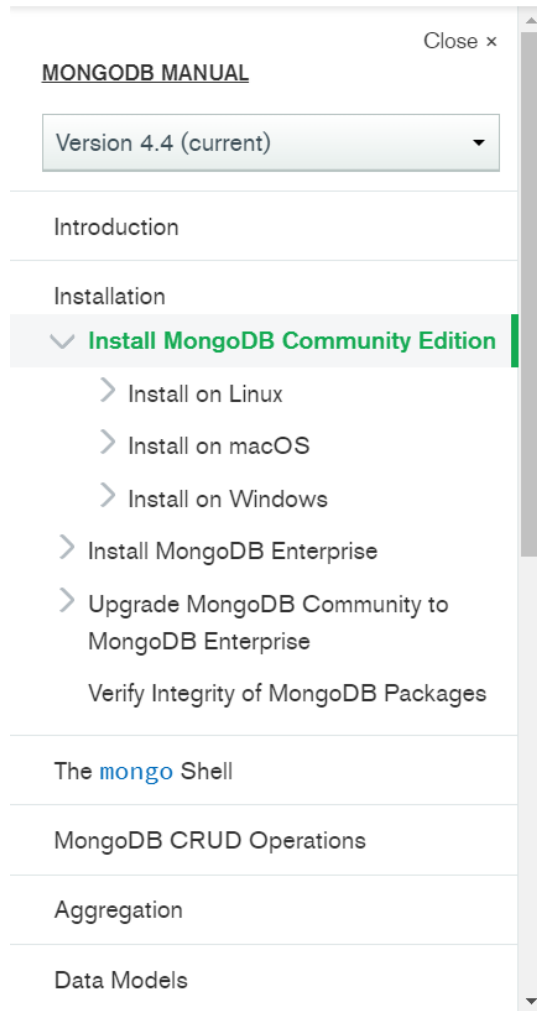
- This is RDBMS structure compare with mongoDB structure.
- You can imagine that RDBMS structure (tabular data) component would be similar with some component in mongoDB

Example Document



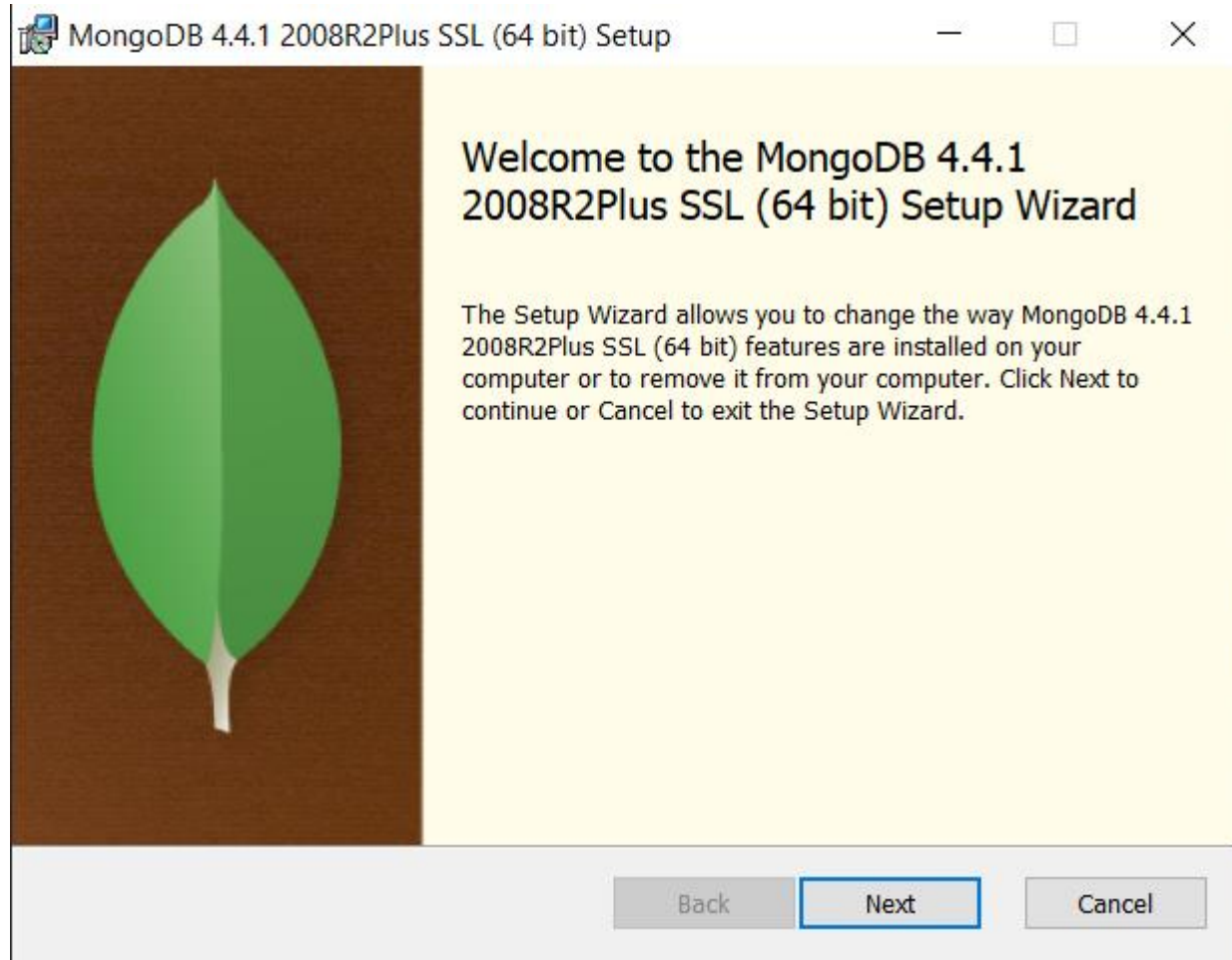
- It Called Bson (Binary Json)
- Look like Json but its binary encoded
- The purpose of this format is make server efficient to work with all programming language.
- BSON just uses in MongoDB.

Download



- Create *data* & *db* folder at *C:/data/db*
- Make sure your Operating System is compatible (adjust the file with your OS)
- Download and Install MongoDB
<https://docs.mongodb.com/manual/administration/install-community/>

Installation

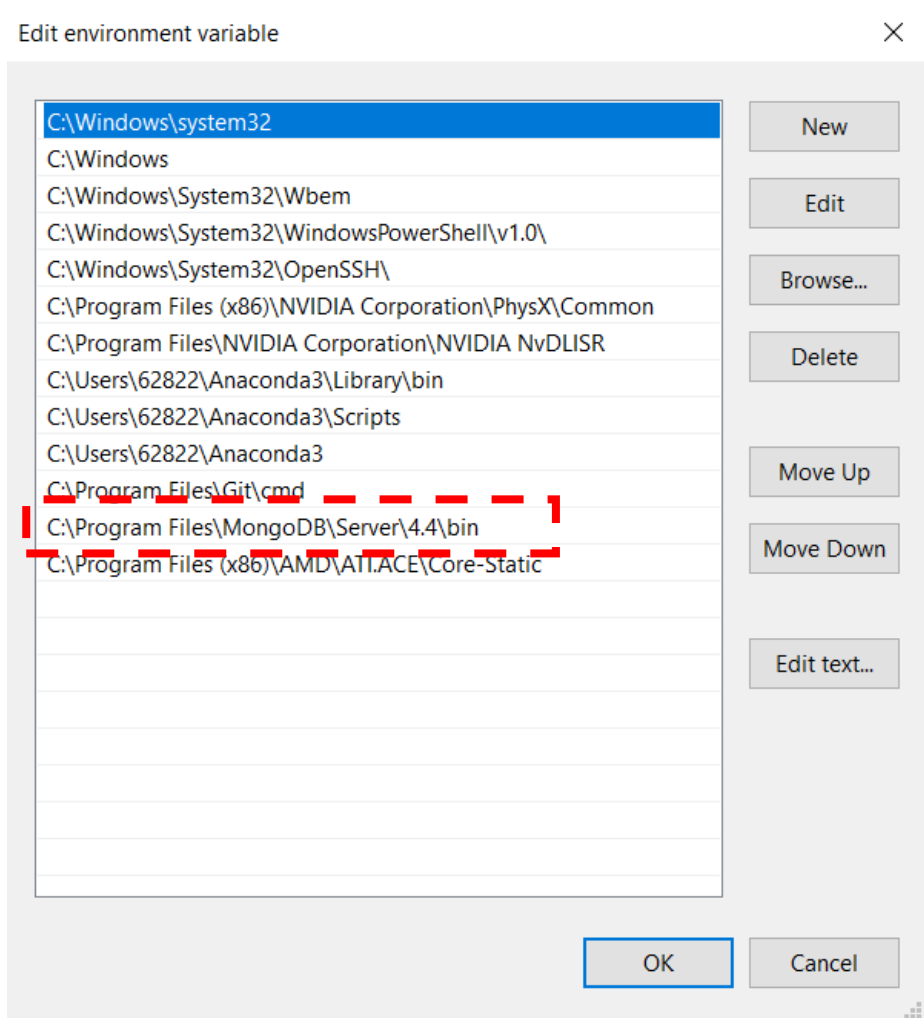


- Install mongo DB after downloading
- Set as default

Getting Started with MongoDB

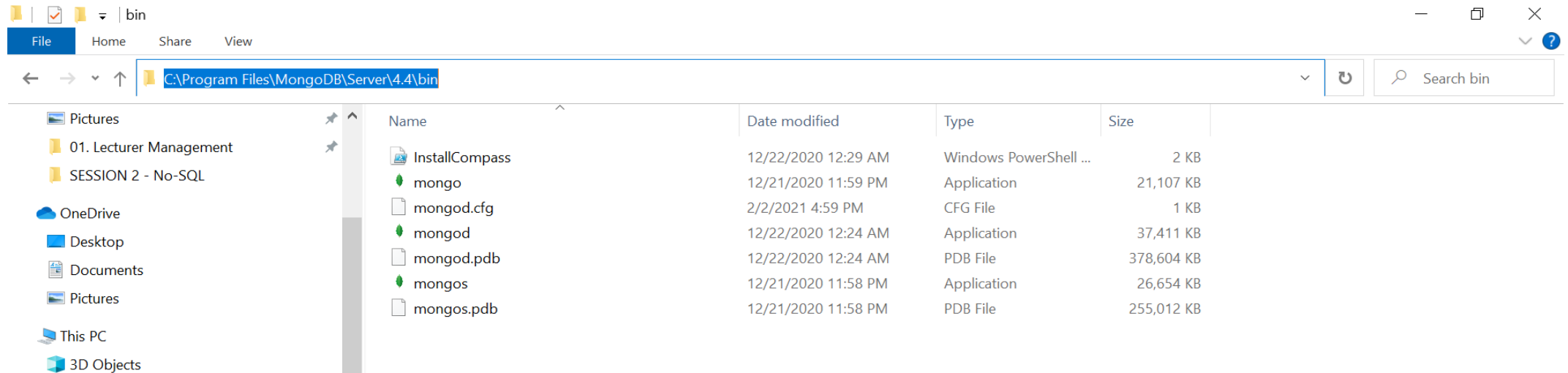
NoSQL Databases

Additional for Windows



- Open windows, edit the system environment variables
- Click environment variables
- Edit path in 'system variables'
- Add new path like the image on the left.

Activate Server



- Search MongoDB Directory on Windows Explorer
- Copy path: `C:\Program Files\MongoDB\Server\4.4\bin`

Activate Server

```
C:\Windows\system32\cmd.exe - mongod --dbpath C:\data\db

C:\Users\moham>cd C:\Program Files\MongoDB\Server\4.4\bin

C:\Program Files\MongoDB\Server\4.4\bin>mongod --dbpath C:\data\db
{"t":{"$date":"2021-02-02T17:02:51.497+07:00"},"s":"I", "c":"CONTROL", "id":23285, "ctx":"main","msg":"Auto
matically disabling TLS 1.0, to force-enable TLS 1.0 specify --sslDisabledProtocols 'none'"}
{"t":{"$date":"2021-02-02T17:02:51.499+07:00"},"s":"W", "c":"ASIO", "id":22601, "ctx":"main","msg":"No T
ransportLayer configured during NetworkInterface startup"}
```

- Open terminal or Command Prompt
- Type CD C:\Program Files\MongoDB\Server\4.4\bin
- Type mongod --dbpath C:\data\db

Activate Server

```
C:\Windows\system32\cmd.exe - mongod --dbpath C:\data\db
{"t":{"$date":"2021-02-02T17:02:52.133+07:00"},"s":"W", "c":"CONTROL", "id":22120, "ctx":"initandlisten","m
sg":"Access control is not enabled for the database. Read and write access to data and configuration is unrestr
icted","tags":["startupWarnings"]}
{"t":{"$date":"2021-02-02T17:02:52.134+07:00"},"s":"W", "c":"CONTROL", "id":22140, "ctx":"initandlisten","m
sg":"This server is bound to localhost. Remote systems will be unable to connect to this server. Start the serv
er with --bind_ip <address> to specify which IP addresses it should serve responses from, or with --bind_ip_all
to bind to all interfaces. If this behavior is desired, start the server with --bind_ip 127.0.0.1 to disable t
his warning","tags":["startupWarnings"]}
{"t":{"$date":"2021-02-02T17:02:52.136+07:00"},"s":"I", "c":"STORAGE", "id":20536, "ctx":"initandlisten","m
sg":"Flow Control is enabled on this deployment"}
{"t":{"$date":"2021-02-02T17:02:52.311+07:00"},"s":"I", "c":"FTDC", "id":20625, "ctx":"initandlisten","m
sg":"Initializing full-time diagnostic data capture","attr":{"dataDirectory":"C:/data/db/diagnostic.data"}}
{"t":{"$date":"2021-02-02T17:02:52.315+07:00"},"s":"I", "c":"NETWORK", "id":23015, "ctx":"listener","msg":"
Listening on","attr":{"address":"127.0.0.1"}}
{"t":{"$date":"2021-02-02T17:02:52.315+07:00"},"s":"I", "c":"NETWORK", "id":23016, "ctx":"listener","msg":"
Waiting for connections","attr":{"port":27017,"ssl":"off"}}
```

- If OK, it will show “Waiting for connections on port 27017”

Activate Server

```
C:\Windows\system32\cmd.exe - mongo

C:\Users\moam>cd C:\Program Files\MongoDB\Server\4.4\bin

C:\Program Files\MongoDB\Server\4.4\bin>mongo
MongoDB shell version v4.4.3
connecting to: mongodb://127.0.0.1:27017/?compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("a065f2b9-c0e5-44ed-ba7b-30425b1be9a5") }
MongoDB server version: 4.4.3
Welcome to the MongoDB shell.
For interactive help, type "help".
For more comprehensive documentation, see
  https://docs.mongodb.com/
Questions? Try the MongoDB Developer Community Forums
  https://community.mongodb.com
---
The server generated these startup warnings when booting:
  2021-02-02T16:59:05.835+07:00: Access control is not enabled for the database. Read and write access to data and
  configuration is unrestricted
---
---
  Enable MongoDB's free cloud-based monitoring service, which will then receive and display
  metrics about your deployment (disk utilization, CPU, operation statistics, etc).

  The monitoring data will be available on a MongoDB website with a unique URL accessible to you
  and anyone you share the URL with. MongoDB may use this information to make product
  improvements and to suggest MongoDB products and deployment options to you.

  To enable free monitoring, run the following command: db.enableFreeMonitoring()
  To permanently disable this reminder, run the following command: db.disableFreeMonitoring()
---
>
```

- Type `CD C:\Program Files\MongoDB\Server\4.4\bin`
- Type `mongo`
- You're done with "getting started" with MongoDB
- Make sure your terminal not close with your path
- Let's started