Intro to MongoDb

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Today's Agenda

Agenda

- Who am I?
- What is MongoDB?
- MongoDB vs SQL
- How to install MongoDB?
- How to interact with MongoDB?
- Resources
- Q & A

Who am I

Varma Bhupatiraju

- 15+ years of experience in software development in Los Angeles, CA
- Sr Software Programmer at Vimware Consulting
- Manage team at Stellent Soft Pvt Ltd
- Founder & Lead Instructor at Coding Sastra

What is MongoDb?

MongoDB (from “hu**mongo**us”) is a

- Scalable
- High performance
- Open source
- Schema-free
- Document-oriented
- NoSQL database

MongoDb vs SQL

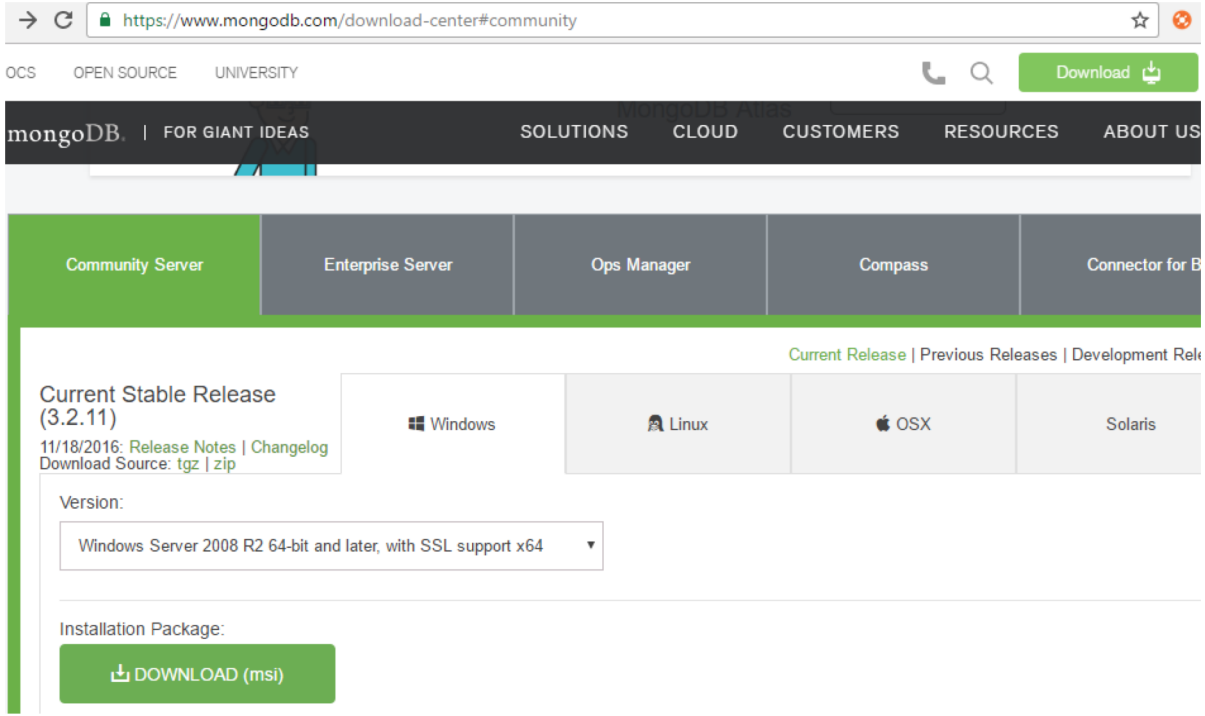
SQL (Relational)	MongoDB
database	database
table	collection
row	document

The main difference? SQL is relational while MongoDb is document-oriented

How to install MongoDB?

https://www.mongodb.com/download-center#community

How to install MongoDB?



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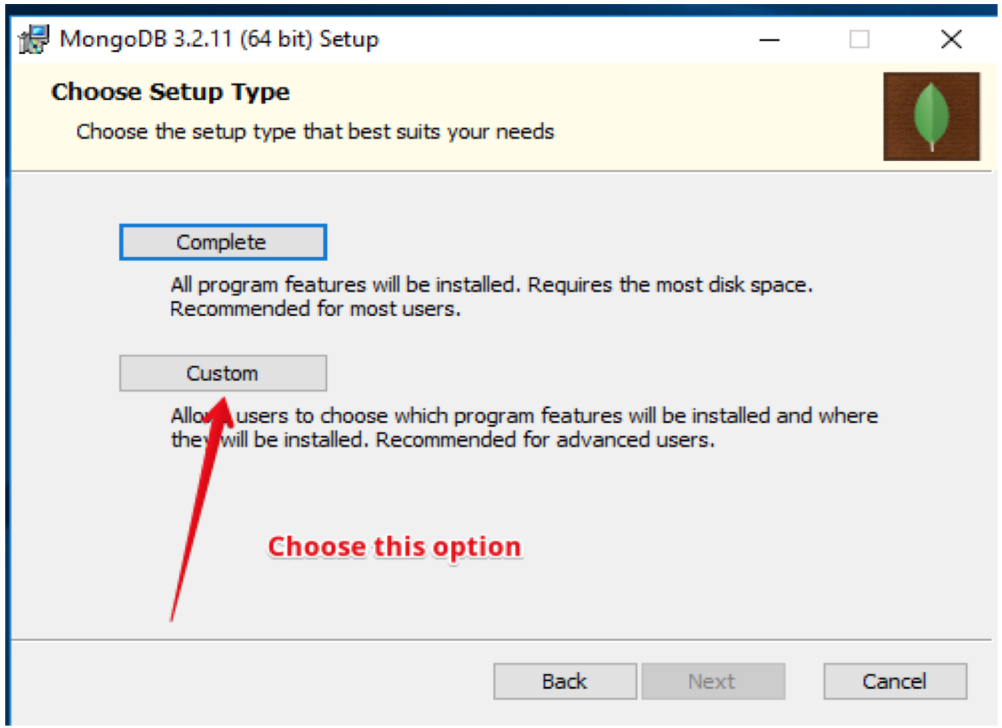

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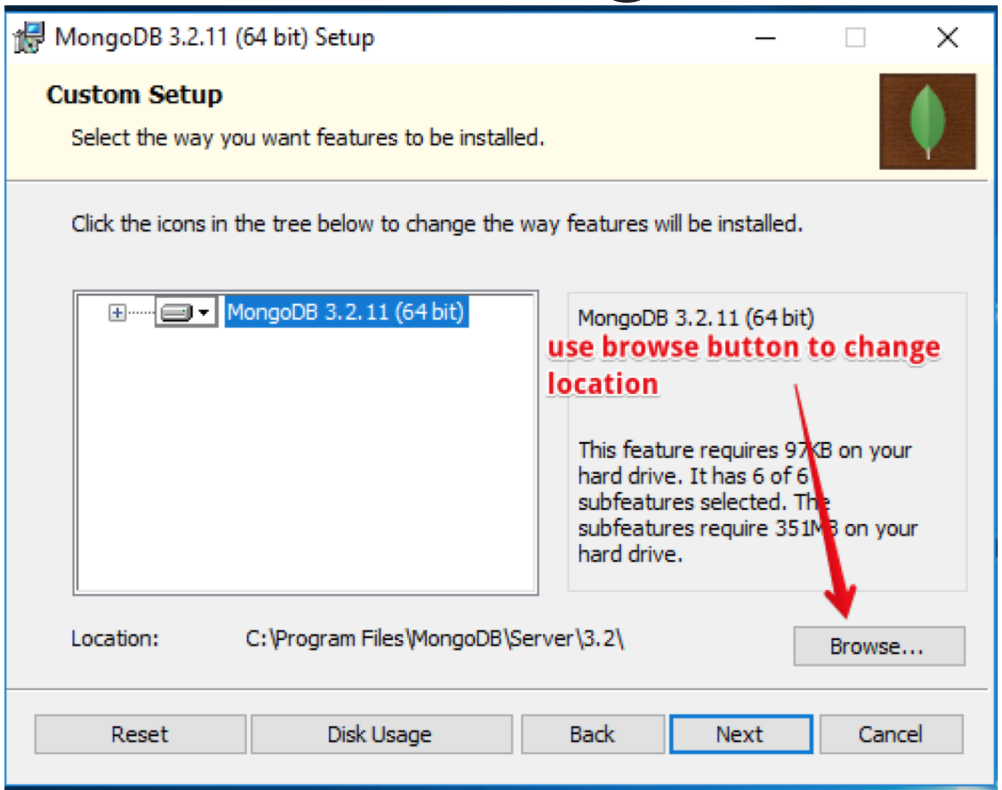

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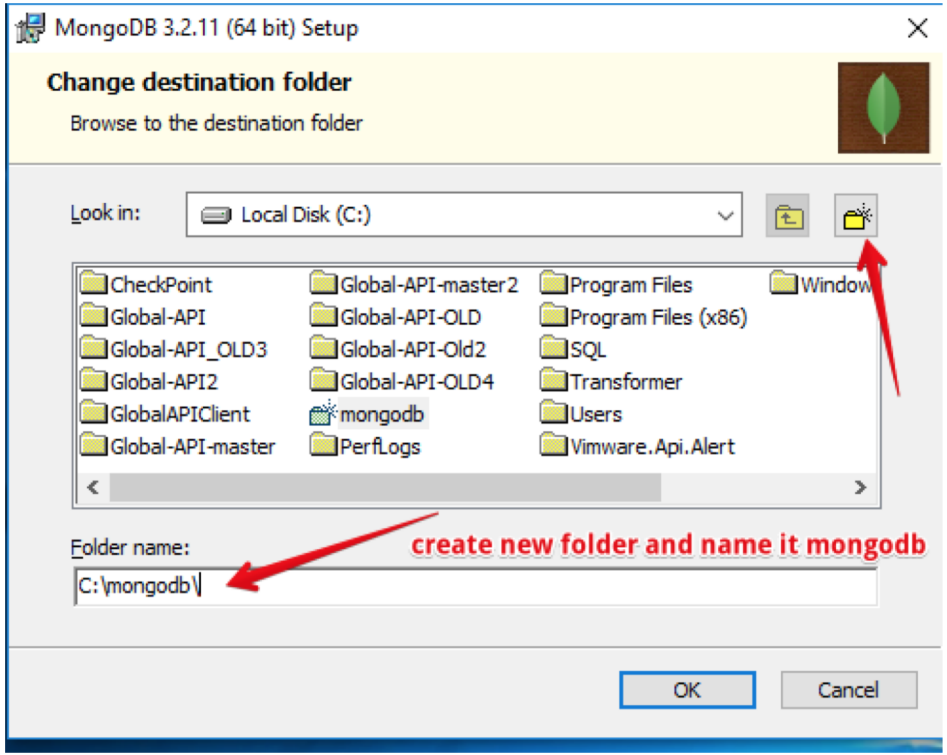

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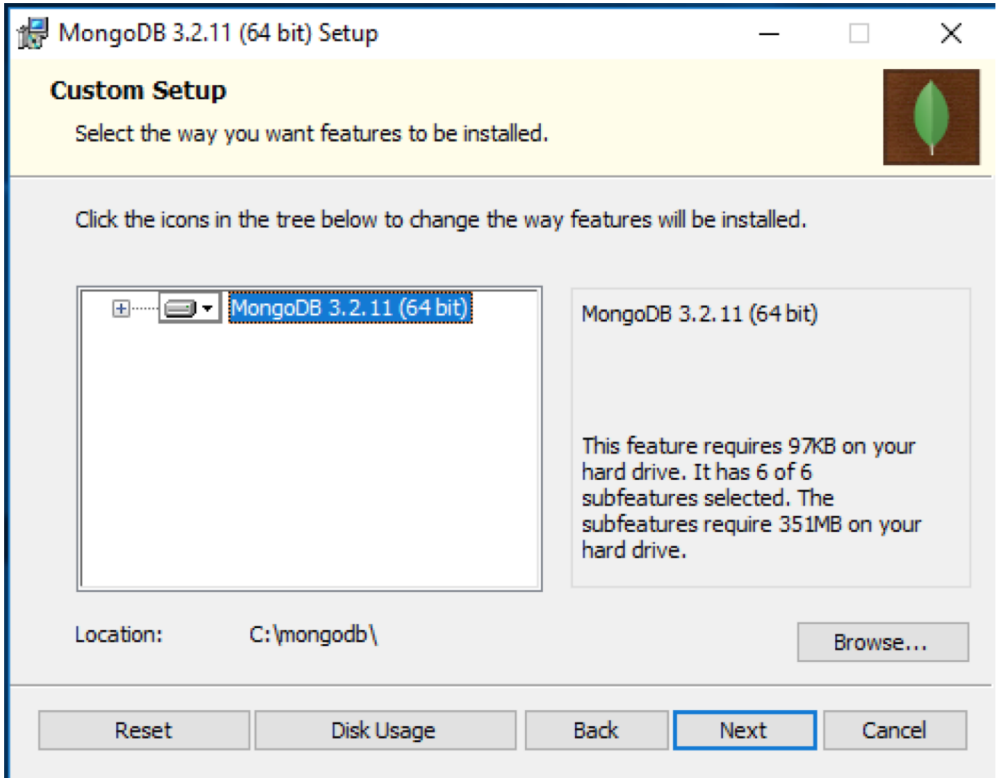

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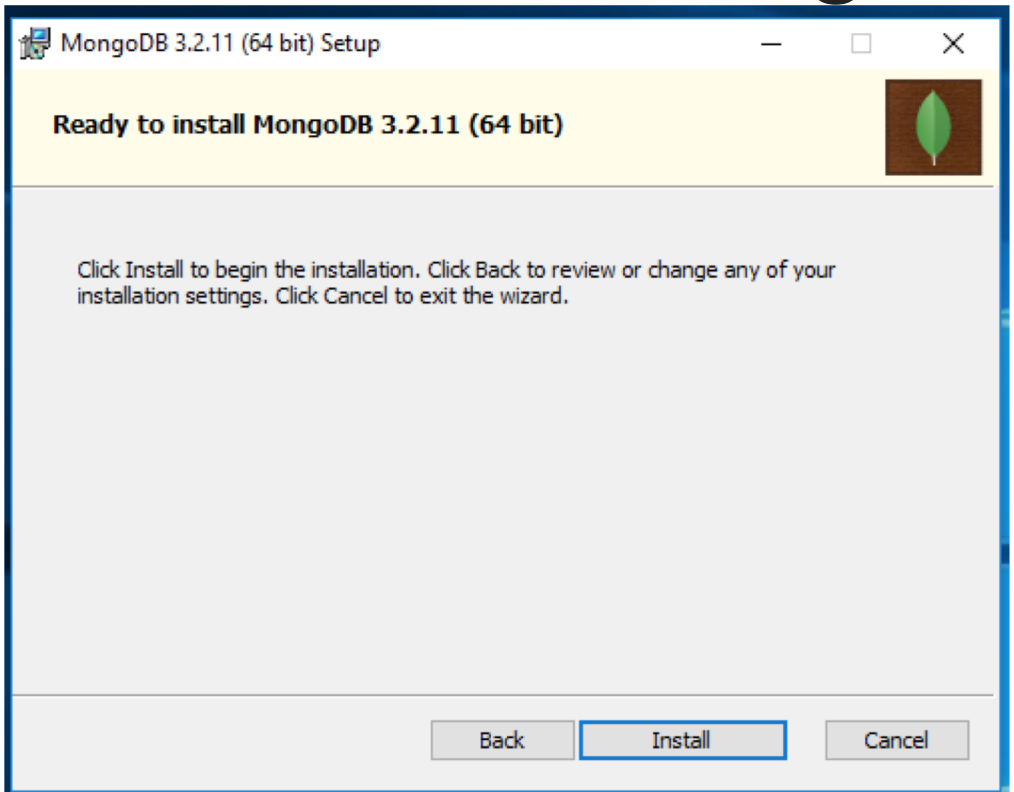

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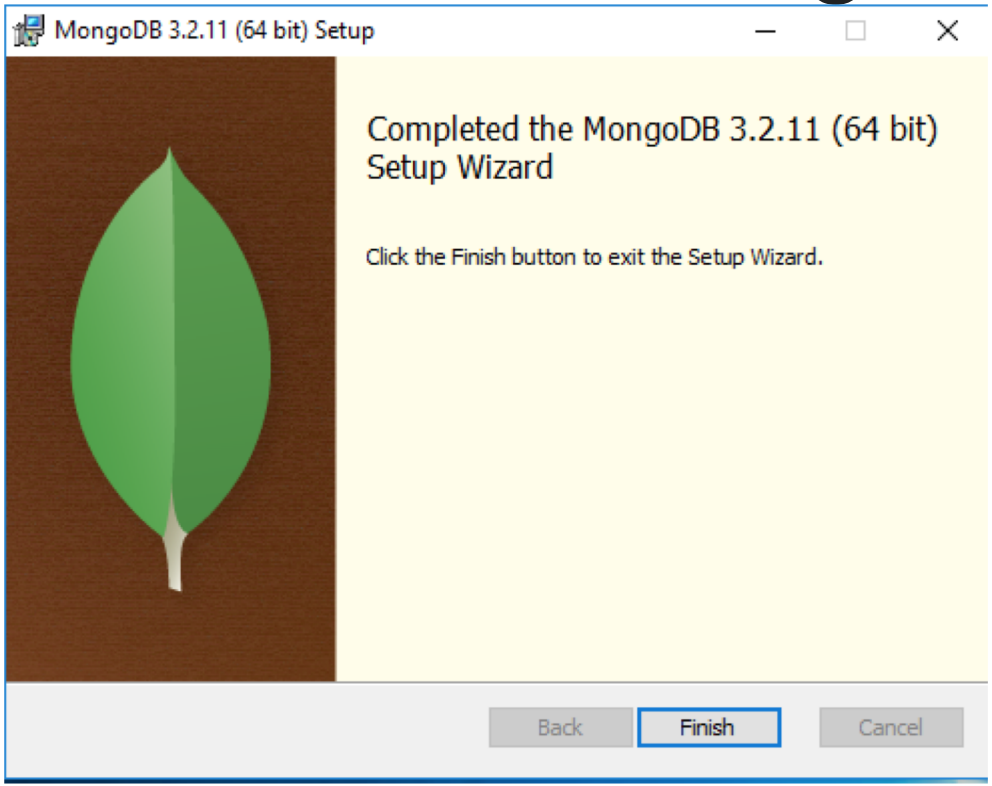

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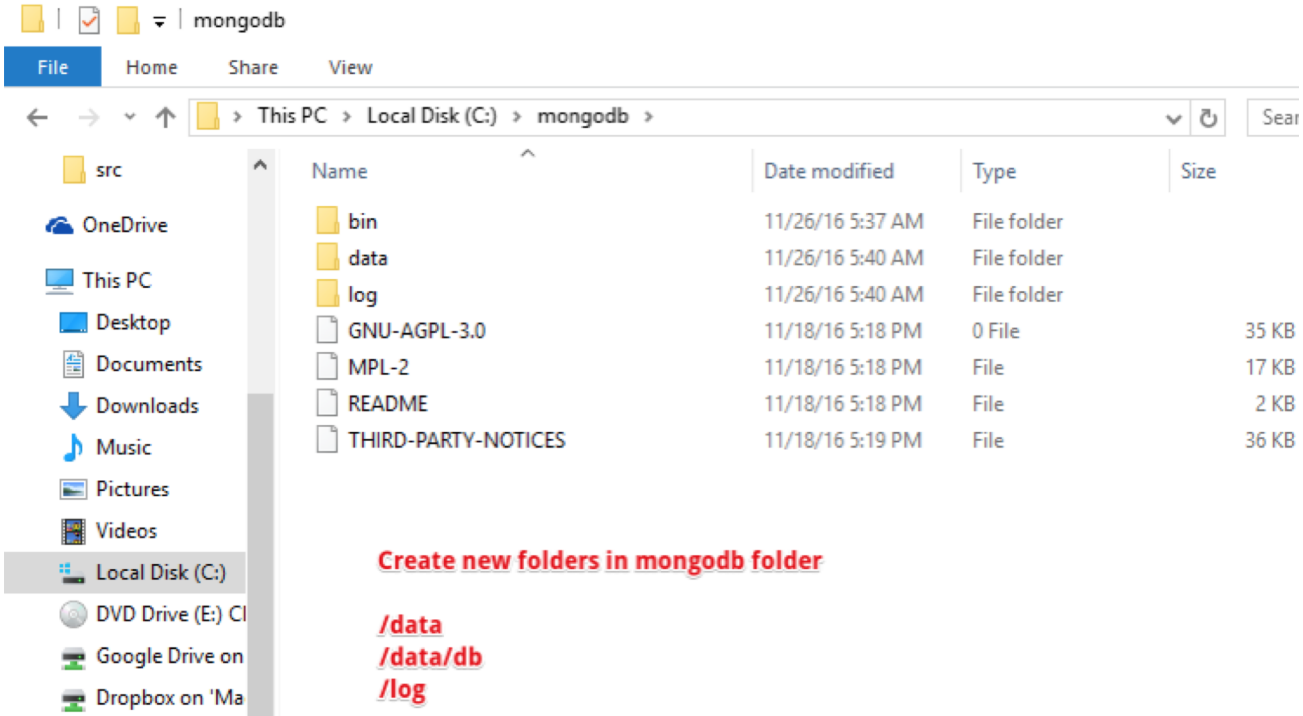

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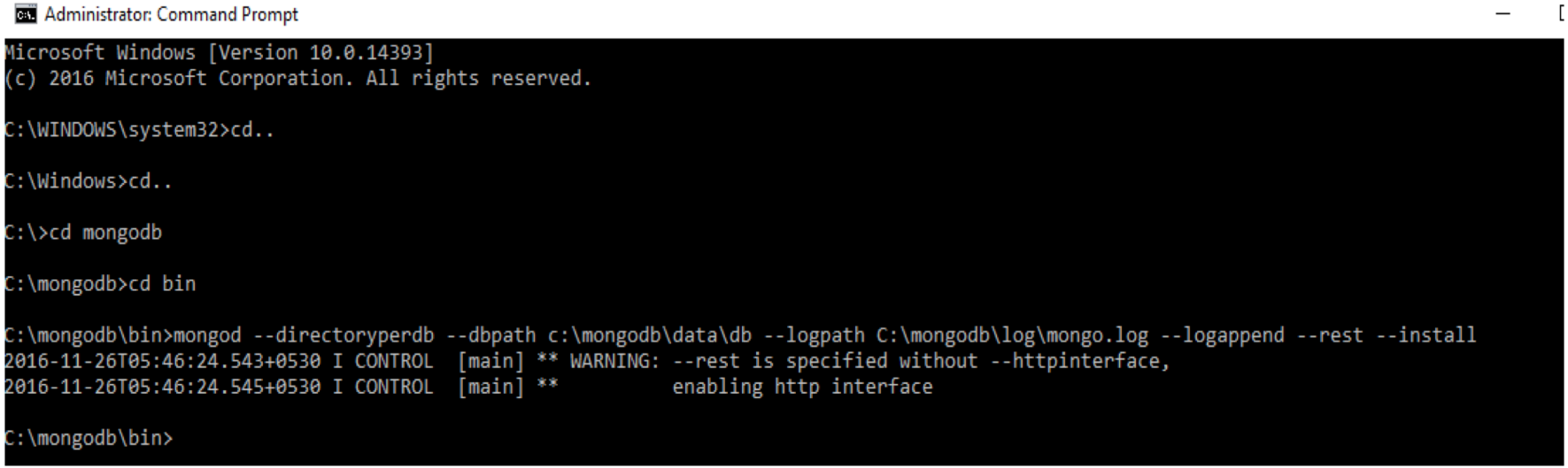

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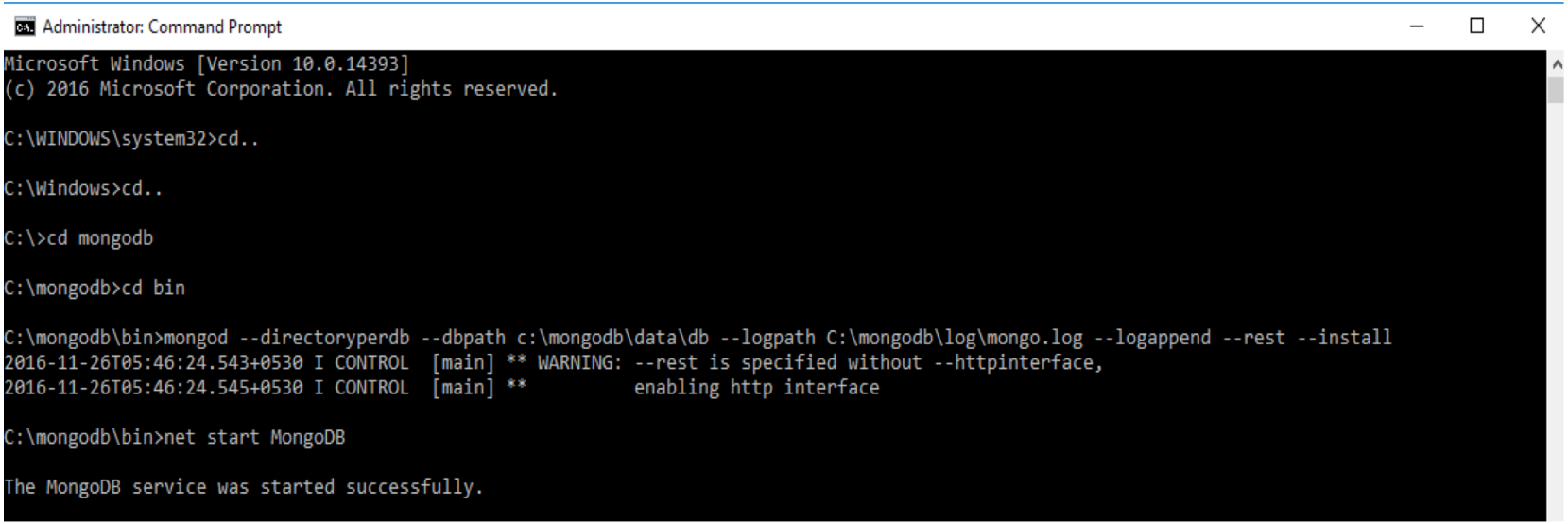

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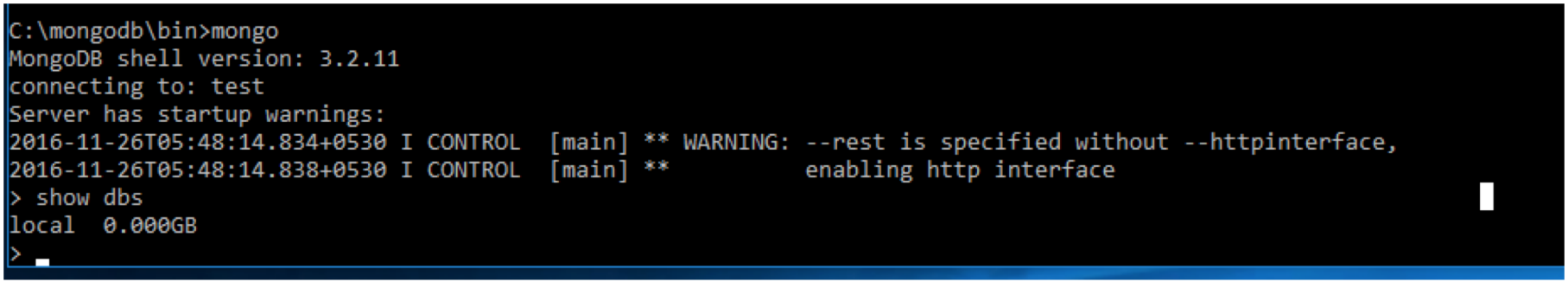


How to interact with MongoDb?

1. Mongo Shell
2. RoboMongo Third Party GUI tool

Using Mongo Shell

$ mongo

```
Varmas-MBP:~ varmabhupatiraju$ mongo
MongoDB shell version: 3.2.1
connecting to: test
>
```

Using Mongo Shell

- Runs javascript
  - Run Administrative tasks
  - Run single adhoc command
- Useful for
  - Administrative tasks
  - Batch Processing

Using MongoShell

You can run command to rotate log files every day new log file

```
Varmas-MacBook-Pro:~ varmabhupatiraju$ mongo localhost/admin --eval "db.runCommand({logRotate:1})"
MongoDB shell version: 3.2.1
connecting to: localhost/admin
{ "ok" : 1 }
```

Using Mongo Shell

Switch to another database or create new database

> **use** codingsastra

```
Last login: Tue Nov 22 21:04:56 on console
Varmas-MBP:~ varmabhupatiraju$ mongo
MongoDB shell version: 3.2.1
connecting to: test
> use codingsastra
switched to db codingsastra
>
```

Using Mongo Shell

Create collection by creating new document in the collection

>db.students.**insert**({fname:"Varma",lname:"Bhupatiraju",degree:"MTech"});

```
> db.students.insert({fname:"Varma",lname:"Bhupatiraju",degree:"MTech"})
WriteResult({ "nInserted" : 1 })
>
```

Using Mongo Shell

Create collection by creating new document in the collection

>db.students.**insert**({fname:"Basanth",lname:"Alluri",degree:"MTech ",gender:”Male”,age:22});

```
> db.students.insert({fname:"Basanth",lname:"Alluri",degree:"MSc",gender:"Male",age:32});
WriteResult({ "nInserted" : 1 })
>
```

What did you observe from previous insert?

Using Mongo Shell

Find records in collection using find function

>db.students.find({});

```
> db.students.find();
{ "_id" : ObjectId("583833dee6964b1e7addfd0a"), "fname" : "Varma", "lname" : "Bhupatiraju", "degree" : "MTech" }
{ "_id" : ObjectId("58383569e6964b1e7addfd0b"), "fname" : "Basanth", "lname" : "Alluri", "degree" : "MSc", "gender" : "Male",
 "age" : 32 }
>
```

Using Mongo Shell

You can insert more than one record at a time by using db.students.**insertMany**({...},{..})

Using Mongo Shell

Find specific records in collection using find function with arguments

>db.students.find({fname:”Varma”});

```
> db.students.find({fname:"Varma"});
{ "_id" : ObjectId("583833dee6964b1e7addfd0a"), "fname" : "Varma", "lname" : "Bhupatiraju", "degree" : "MTech" }
>
```

Using Mongo Shell

Return the Specified Fields and the _id Field Only

>db.students.find({},{fname:1,lname:1});

```
> db.students.find({},{fname:1,lname:1});
{ "_id" : ObjectId("583833dee6964b1e7addfd0a"), "fname" : "Varma", "lname" : "Bhupatiraju" }
{ "_id" : ObjectId("58383569e6964b1e7addfd0b"), "fname" : "Basanth", "lname" : "Alluri" }
>
```

Using Mongo Shell

Return the Specified Fields without the _id Field

>db.students.find({},{fname:1,lname:1,_id:0});

```
> db.students.find({},{fname:1,lname:1,_id:0});
{ "fname" : "Varma", "lname" : "Bhupatiraju" }
{ "fname" : "Basanth", "lname" : "Alluri" }
>
```

Using Mongo Shell

Update specific document to update fields

>db.students.**updateOne**({fname:"Varma"},{ $set: {"degree":"BTech"}});

```
> db.students.updateOne({fname:"Varma"},{ $set: {"degree":"BTech"}});
{ "acknowledged" : true, "matchedCount" : 1, "modifiedCount" : 1 }
>
```

```
> db.students.find({fname:"Varma"});
{ "_id" : ObjectId("583833dee6964b1e7addfd0a"), "fname" : "Varma", "lname" : "Bhupatiraju", "degree" : "BTech" }
>
```

Using Mongo Shell

delete specific document

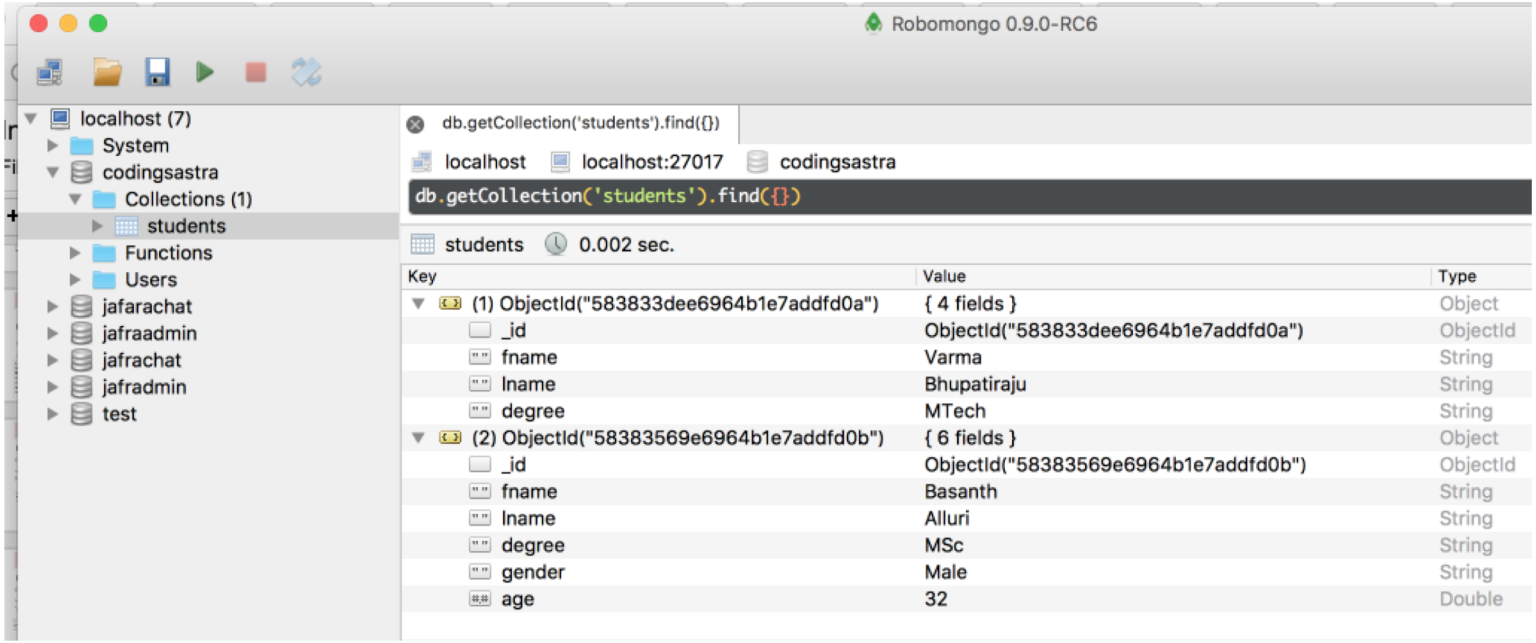
>db.students.**remove**({fname:"Varma"});

>db.students.**deleteOne**({fname:"Varma"}); //added in 3.2

Other delete methods available

>db.students.**deleteMany**({gender:"Male"}); //added in 3.2

Using RoboMongo



How to write application to get data from MongoDB?

MongoDb provided Client Drivers for several programming languages to connect to MongoDB.

1. Node.js
2. C#
3. Java
4. Many more..

More Features

Indexing

Indexes support the efficient execution of queries in MongoDB

```
db.students.createIndex( { lname: 1}, {background: true} )
```

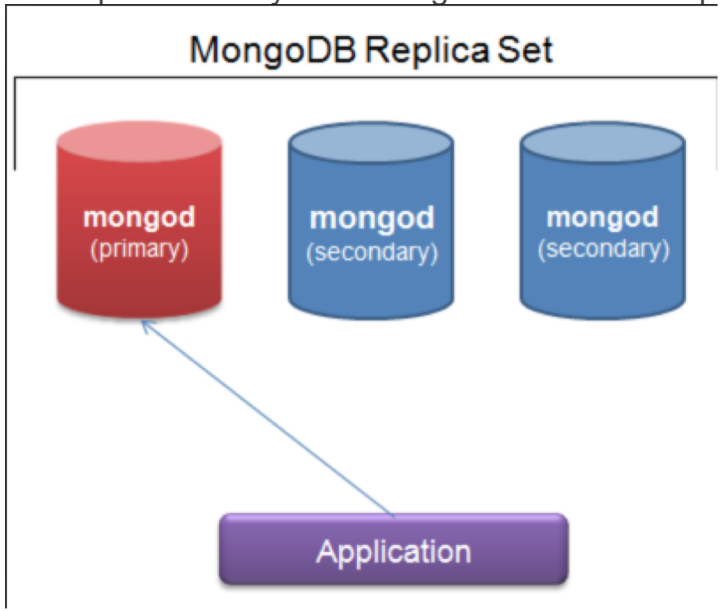
background operation so that the MongoDB database remains available during the index building operation

More Features

Indexing

Replication

Replication is the process of synchronizing data across multiple servers.



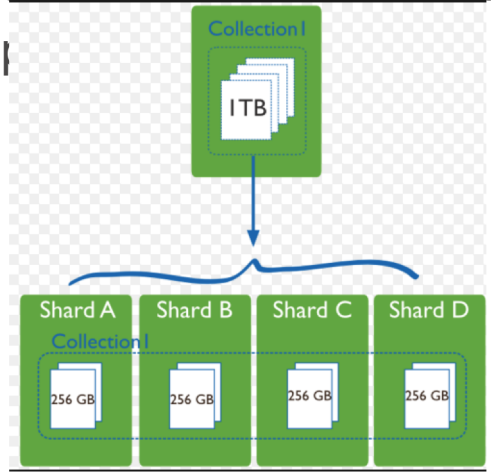
More Features

Indexing

Replication

Sharding

Sharding is a method for storing data across multiple machines. MongoDB uses sharding to support deployments with very large data sets and high throughp



Resources

MongoDB documentation

https://docs.mongodb.com/manual/

MongoDB GUI Tool - Robomongo

https://robomongo.org/

Thank YOU

Questions?

Suggestions?

Feel free to reach me for any questions

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Twitter: varmab