

# **MongoDB- Storing Reviews**

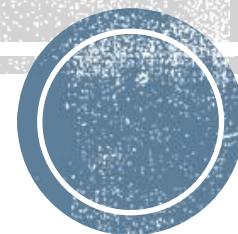
## **Tutorial – 3, Download, Set up and Implementation**

CSP 584 - Enterprise Web Applications

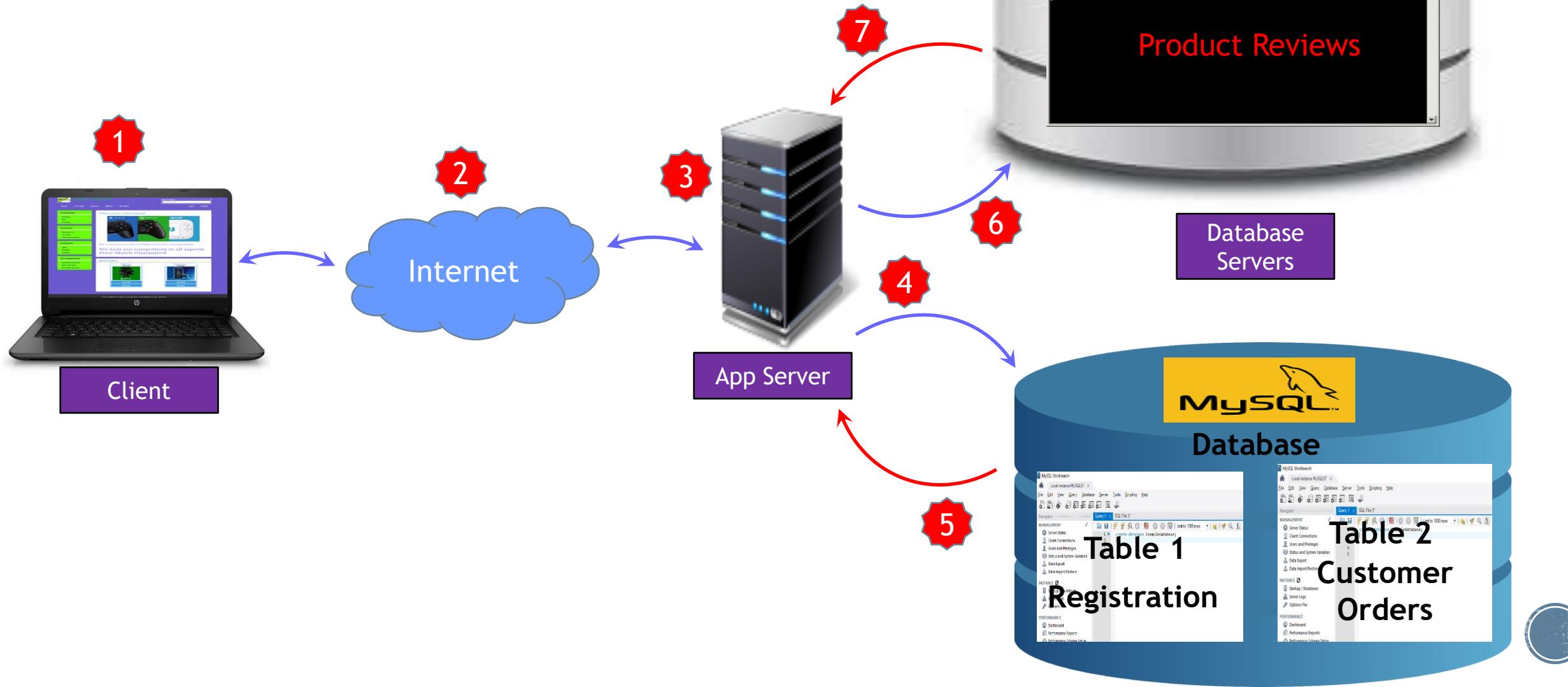
Dr. Atef Bader

Illinois Institute of Technology

TA - Prakhar Nag



# The Architecture - MVC



# **1. Mongo DB - Overview**

- Mongo DB is a cross platform, document-oriented database
- Mongo DB works on the concept of Collections and documents
  
- Terminologies:
  - Database: This is the physical container for the collections
  - Collection: Collection is a group of Mongo DB documents
  - Document: Document is a set of key - value pairs
  
- Advantages:
  - Schema-less: The number of fields, content and size of the document can vary from one another
  - Scalability: Mongo DB is easy to scale



## 2. Mongo DB - Download

- Go to <https://www.mongodb.com/>, hover on the ‘Products’ button and click on community edition.
- Select Mongo DB Community Server and click download
- (Direct Link : <https://www.mongodb.com/try/download/community>)

The screenshot shows the MongoDB website's products section. At the top, there's a navigation bar with links for Products, Solutions, Resources, Company, and Pricing. On the right side of the header are a search icon, a 'Sign In' button, and a green 'Try Free' button. Below the header, there are five main product categories: Atlas, Enterprise Advanced, Community Edition, Realm, and Tools. Each category has a sub-section with more details. A purple arrow points from a callout box containing the text 'Click on the Community Edition' to the 'Community Edition' button. The 'Community Edition' button is located in the bottom right corner of the products grid. At the bottom of the page, there's a summary of what the community version offers and a download section with dropdown menus for Platform (Windows) and Package (msi). A direct link to the download page is provided at the bottom left.

mongoDB

Products Solutions Resources Company Pricing

Community Edition

Tools

Atlas → Enterprise Advanced → Community Edition → Realm → Tools →

Multi-cloud database platform Enterprise software and support Free software used by millions Data services for mobile & web Build faster

Database Enterprise Server Community Server Edge-to-Cloud Sync Compass

Search Ops Manager Cloud Manager Functions, APIs, and more Database Shell

Data Lake Enterprise Kubernetes Community Kubernetes VS Code Plugin

Charts Operator Operator Atlas CLI

Database Connectors

The Community version of our distributed database offers a flexible document data model along with support for ad-hoc queries, secondary indexing, and real-time aggregations to provide powerful ways to access and analyze your data.

Platform → Windows

Package → msi

<https://www.mongodb.com/try/download/community>

Click on the Community Edition

The screenshot shows the MongoDB website's product selection interface. On the left, a sidebar lists various MongoDB products: MongoDB Atlas, MongoDB Enterprise Advanced, MongoDB Community Edition, MongoDB Community Server (which is highlighted with a blue border), MongoDB Community Kubernetes Operator, Tools, and Atlas SQL Interface. The main content area displays a terminal window with the command '\$ brew install mongodb-atlas' followed by '\$ atlas setup'. Below this, there are dropdown menus for 'Version' (set to '7.0.1 (current)'), 'Platform' (set to 'Windows x64'), and 'Package' (set to 'msi'). At the bottom, there are three buttons: 'Download' with a download icon, 'Copy link' with a copy icon, and 'More Options' with a three-dot icon.

Click on the Community Server and select version, platform and click download

Products Solutions Resources Company Pricing Sign In Try Free

MongoDB Atlas

MongoDB Enterprise Advanced

MongoDB Community Edition

MongoDB Community Server

MongoDB Community Kubernetes Operator

Tools

Atlas SQL Interface

```
$ brew install mongodb-atlas
$ atlas setup
```

Version  
7.0.1 (current)

Platform  
Windows x64

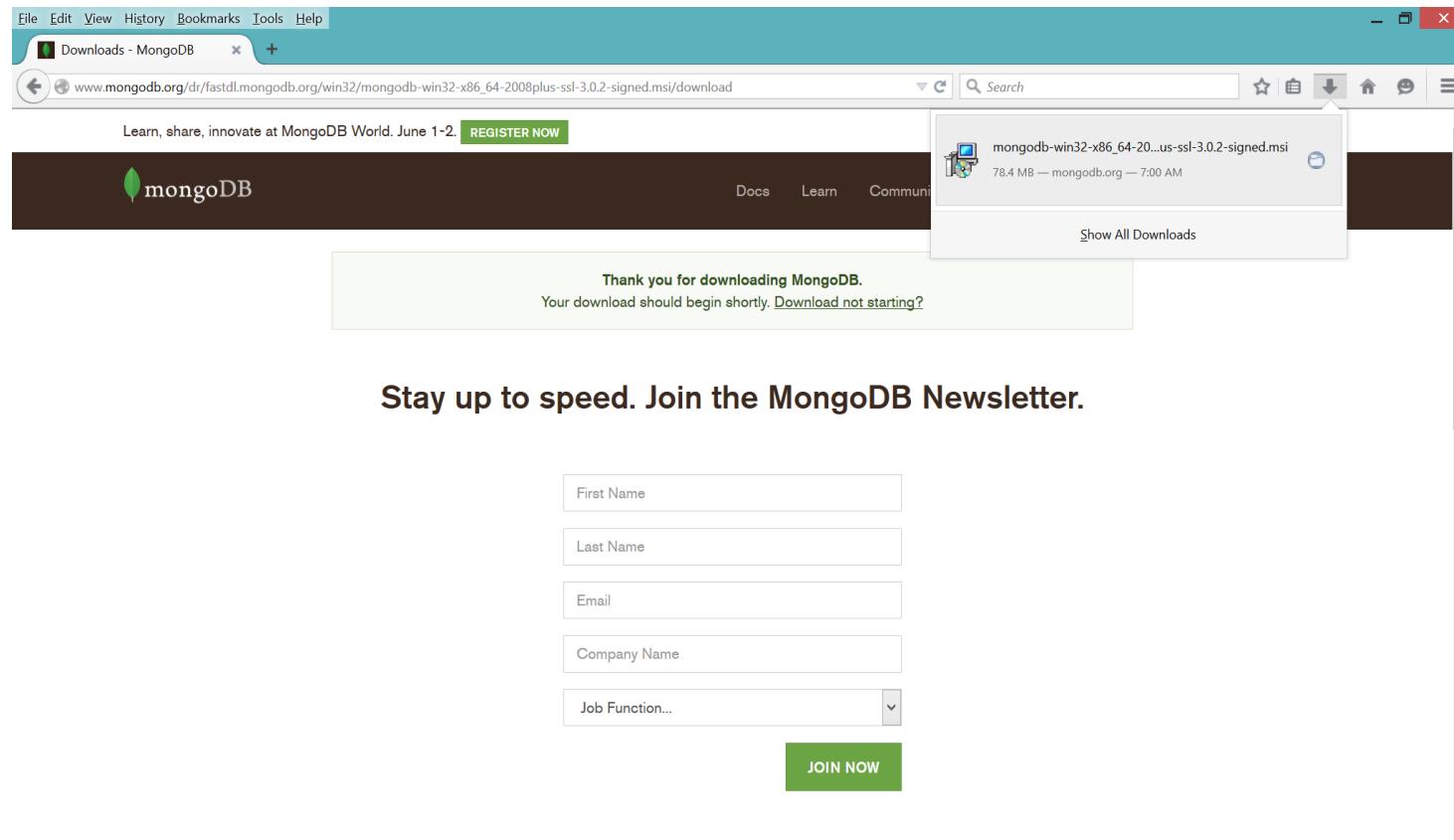
Package  
msi

Download ↴ Copy link More Options ⋮

<https://www.mongodb.com/try/download/community>

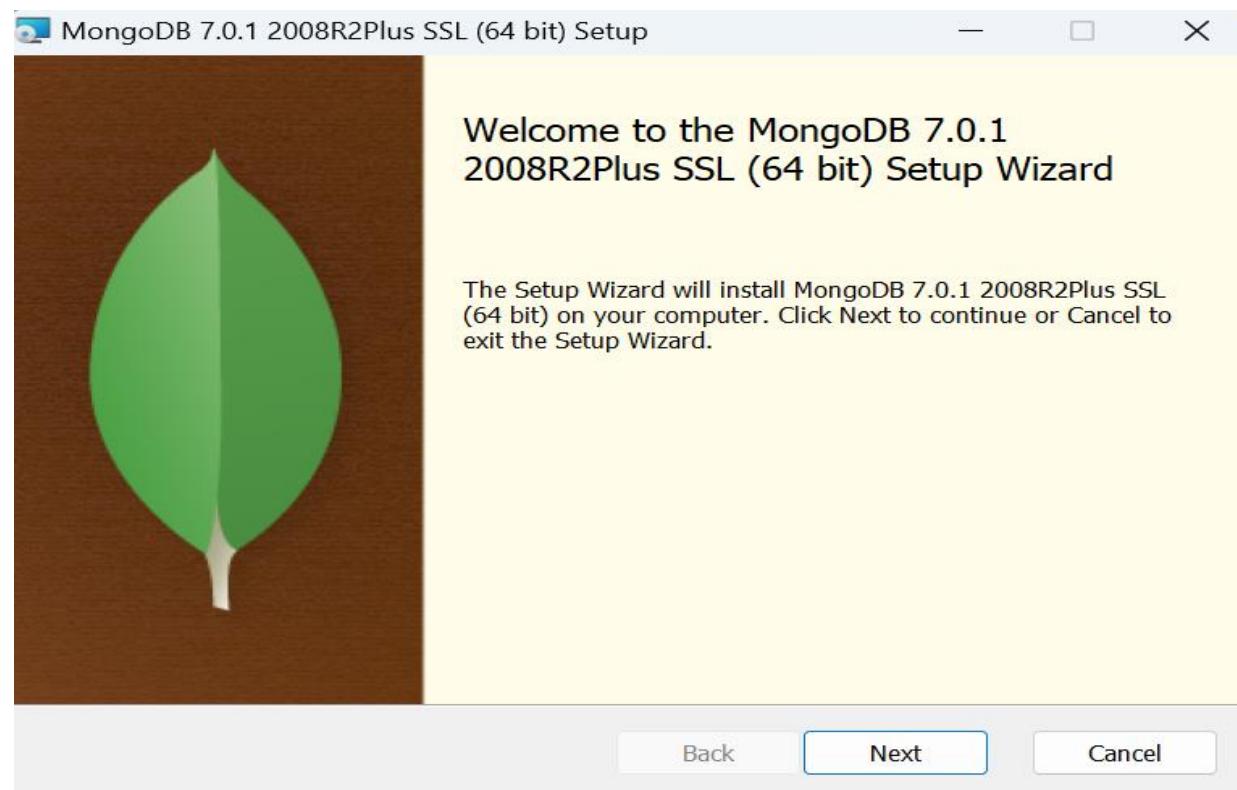
## 2. Mongo DB - Download

- Please note the location of the folder where MongoDB is being downloaded



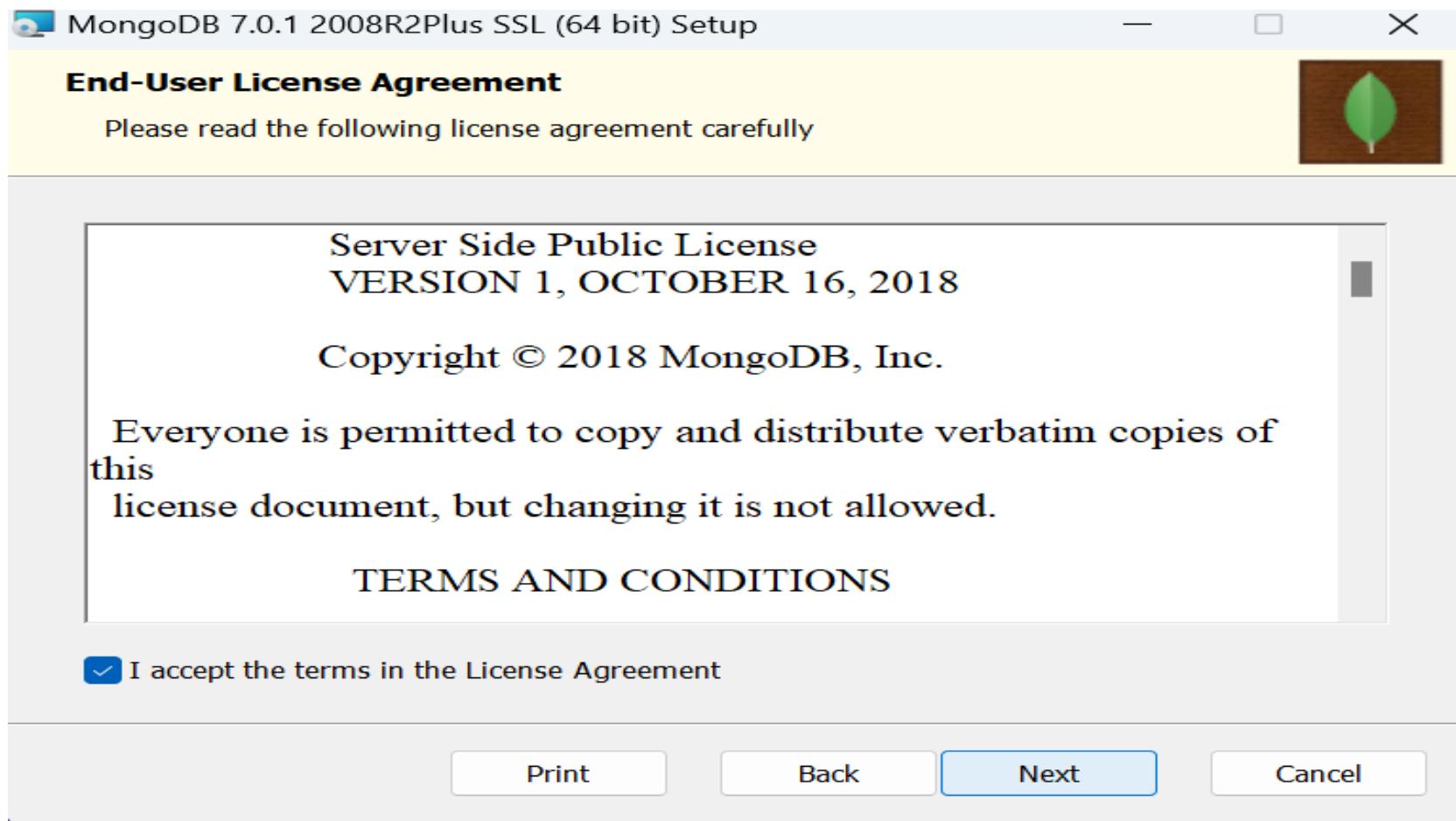
### 3. Mongo DB - Setup

- To start the installation, go to the folder where MongoDB has been downloaded and double click on the installation file
- This should open the MongoDB setup wizard as shown below
- Click on ‘Next’ to proceed with the installation



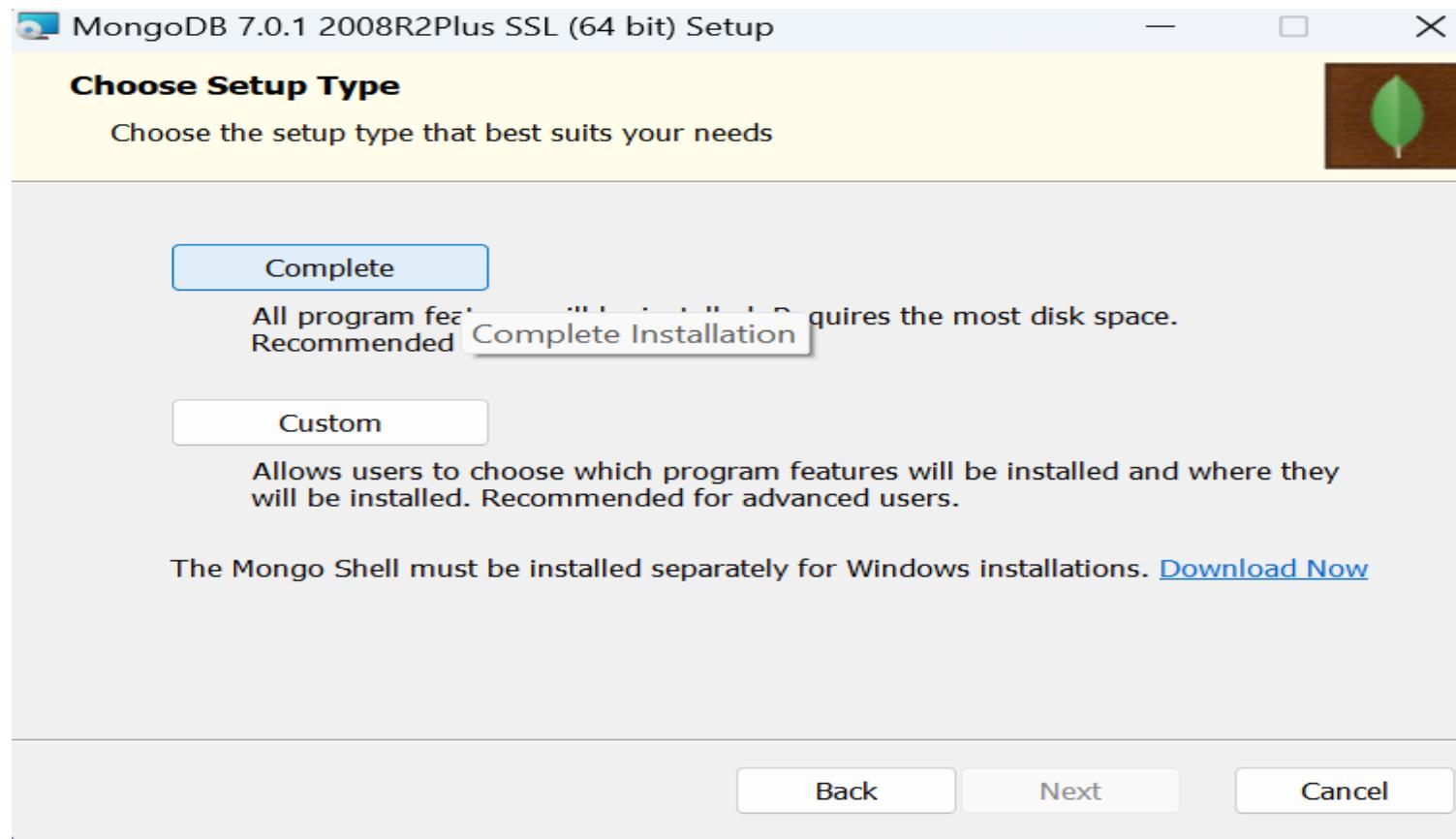
### 3. Mongo DB - Setup

- Accept the license agreement and proceed by clicking on ‘Next’



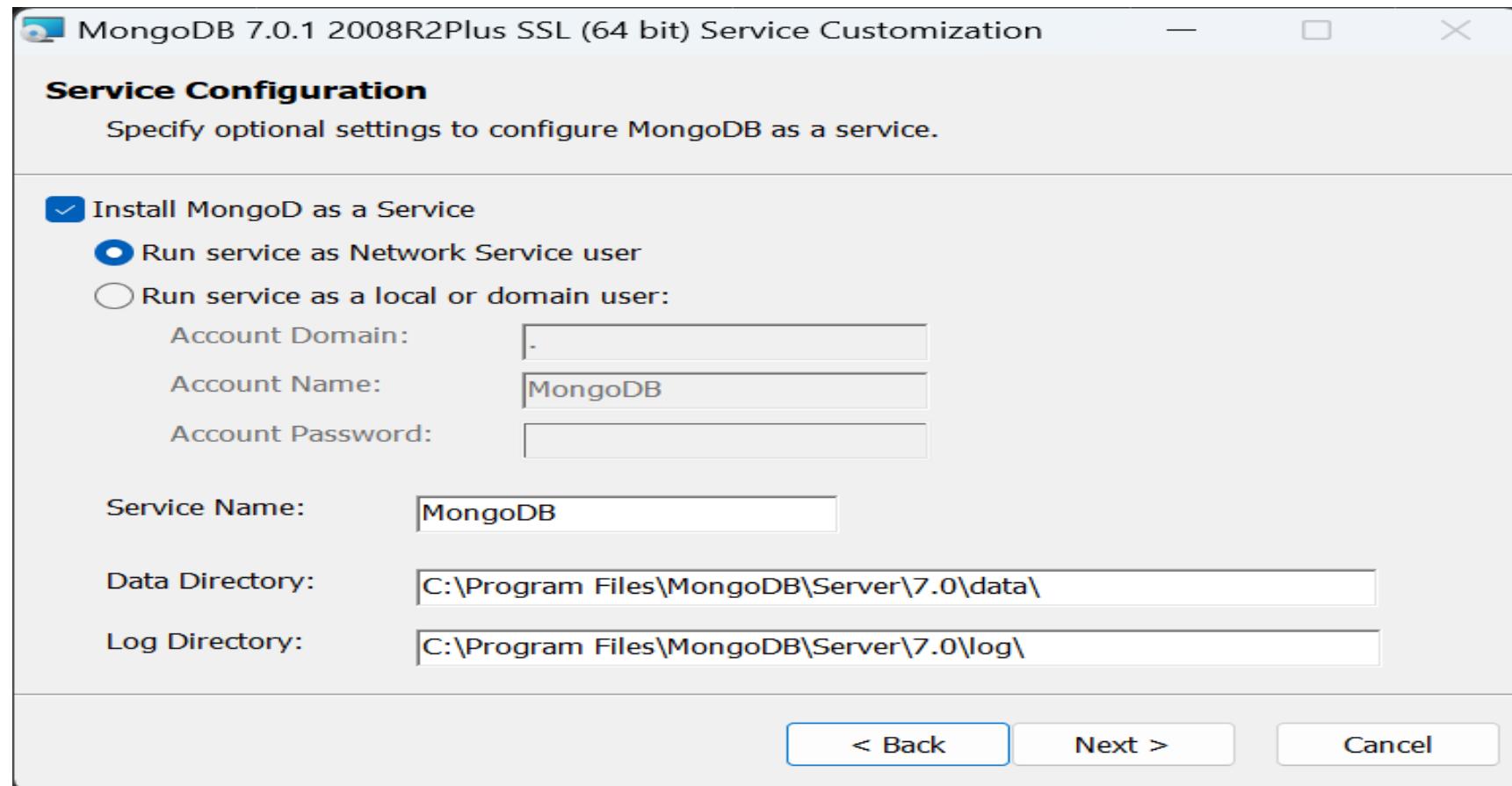
### 3. Mongo DB - Setup

- Select the setup type as ‘Complete’ and then click on ‘Next’.



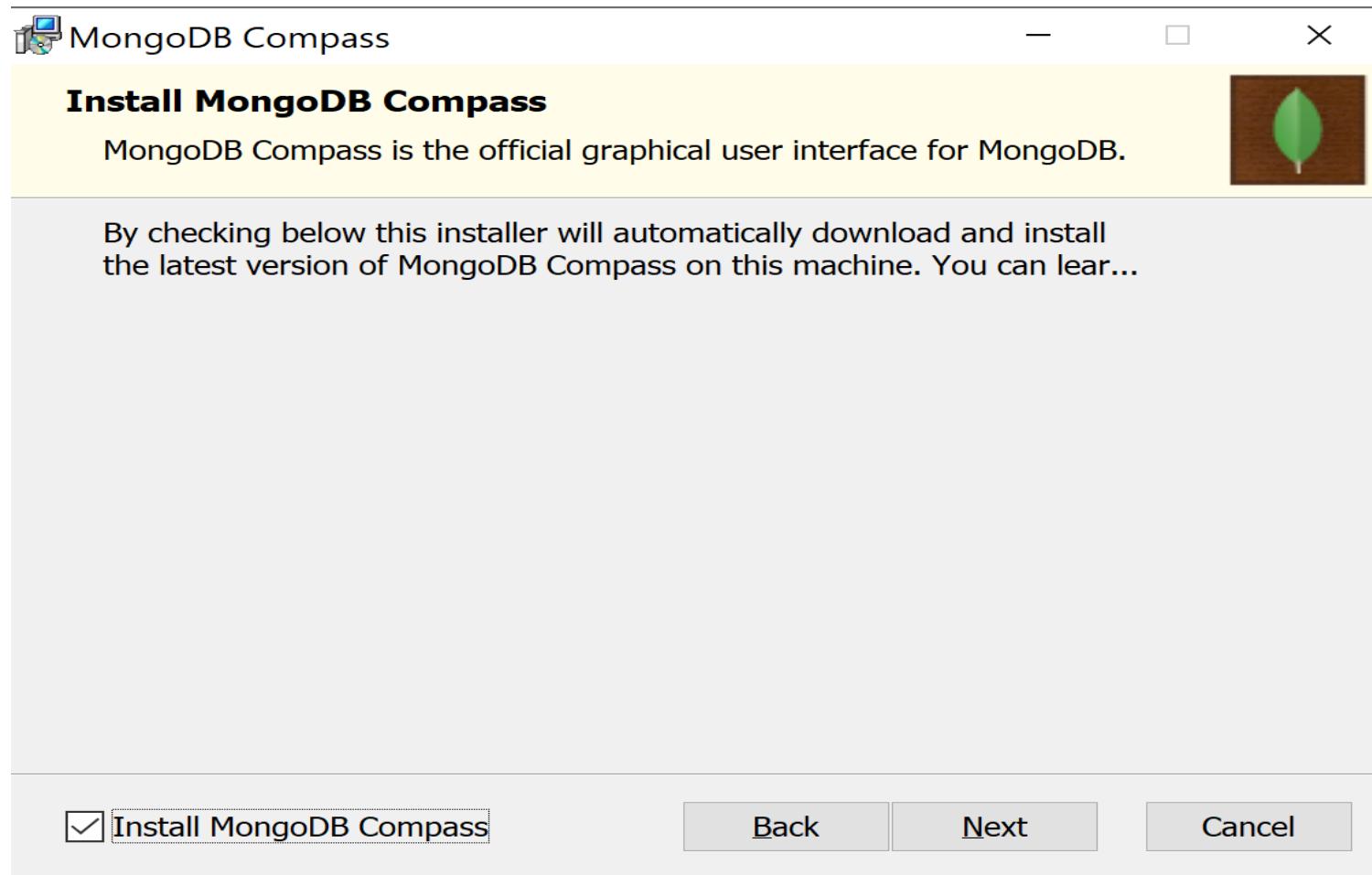
### 3. Mongo DB - Setup

- Click on the checkbox Install MongoDB as a Service and click next.



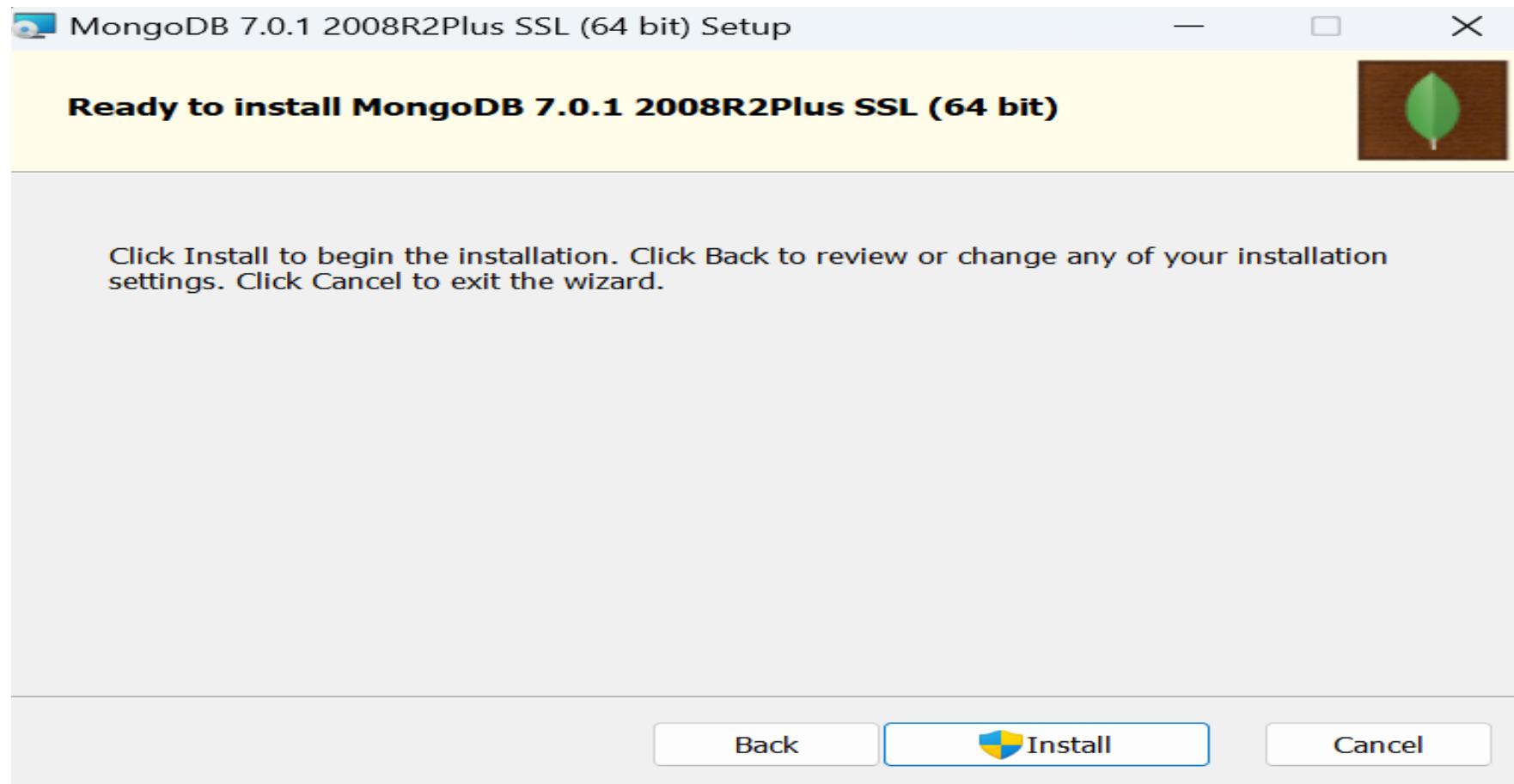
### 3. Mongo DB - Setup

- You can choose to Install MongoDB compass which is a GUI for MongoDB like MYSQL Workbench.



### 3. Mongo DB - Setup

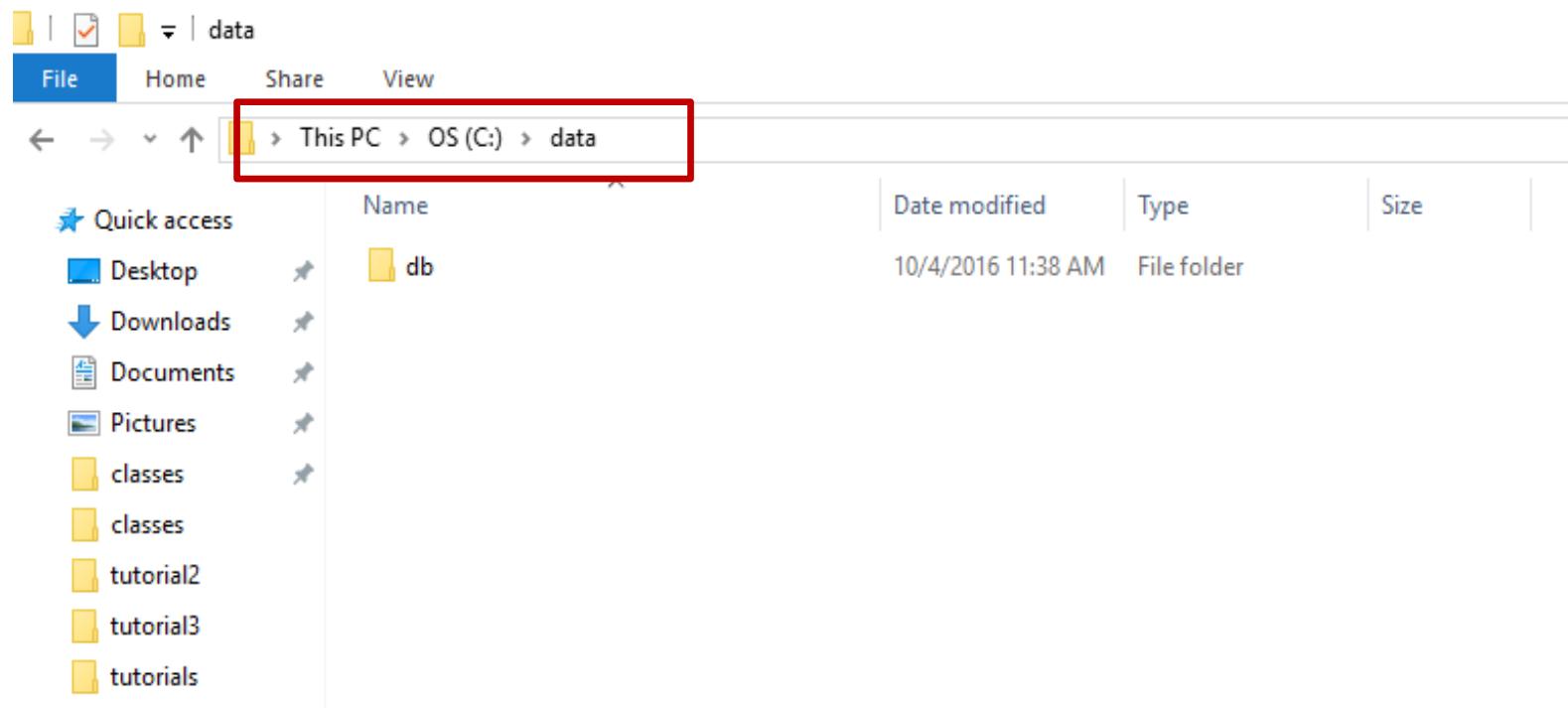
- Finally, Click Install.



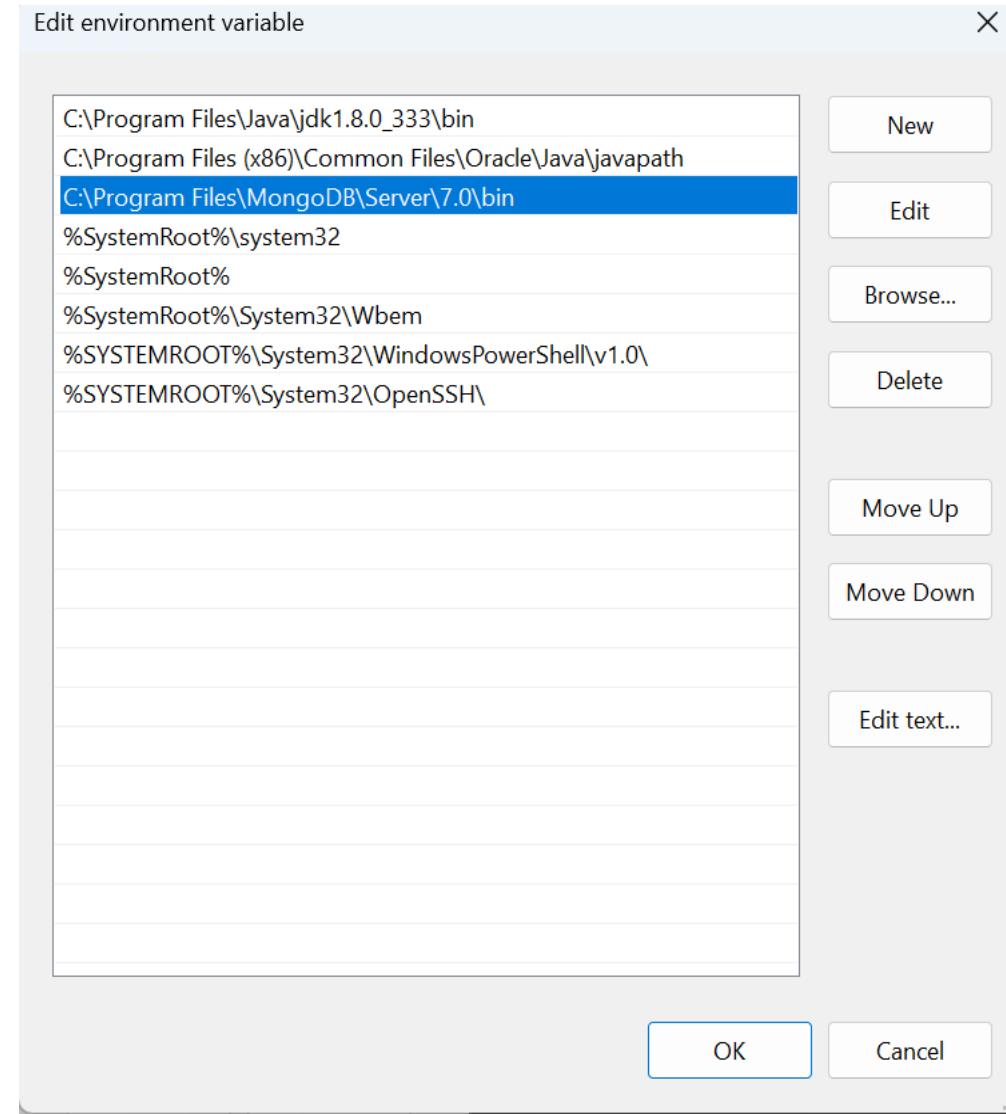
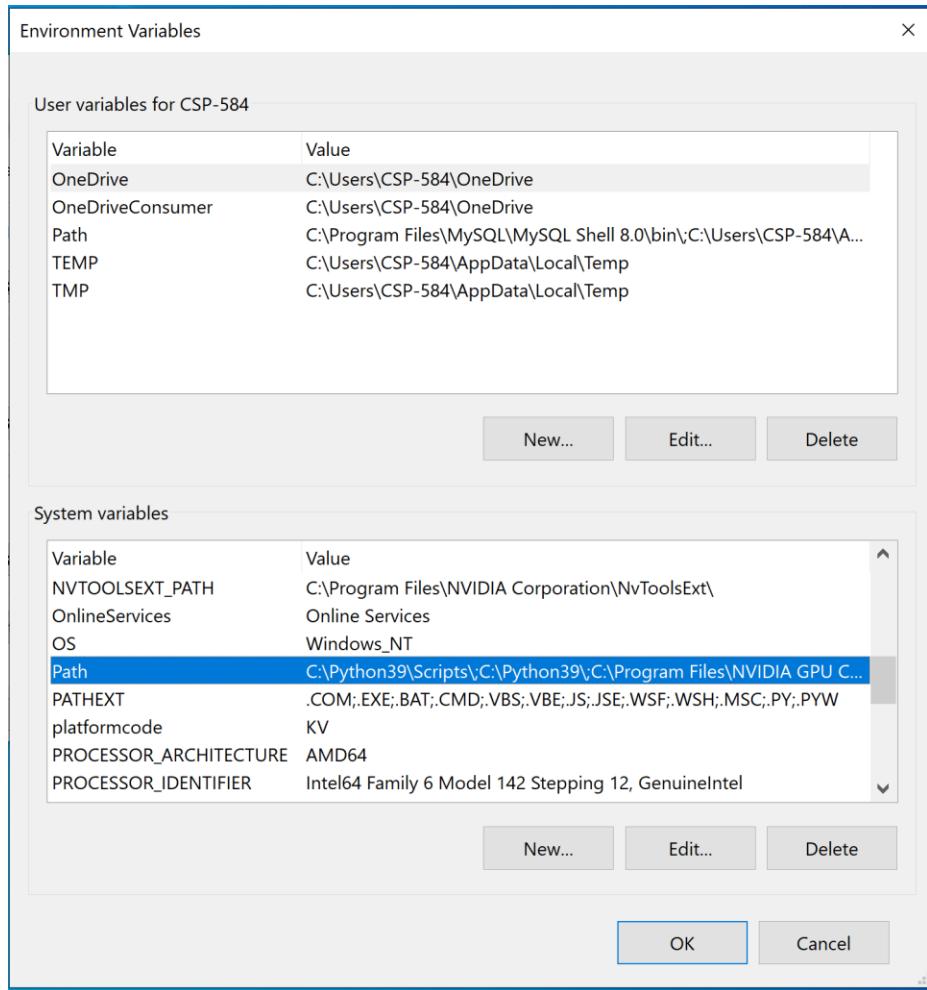
## 4. Mongo DB – Startup Instructions

Create a data and db folder inside C drive as c:\data\db

Make sure that you directly create data\db folder inside c drive only

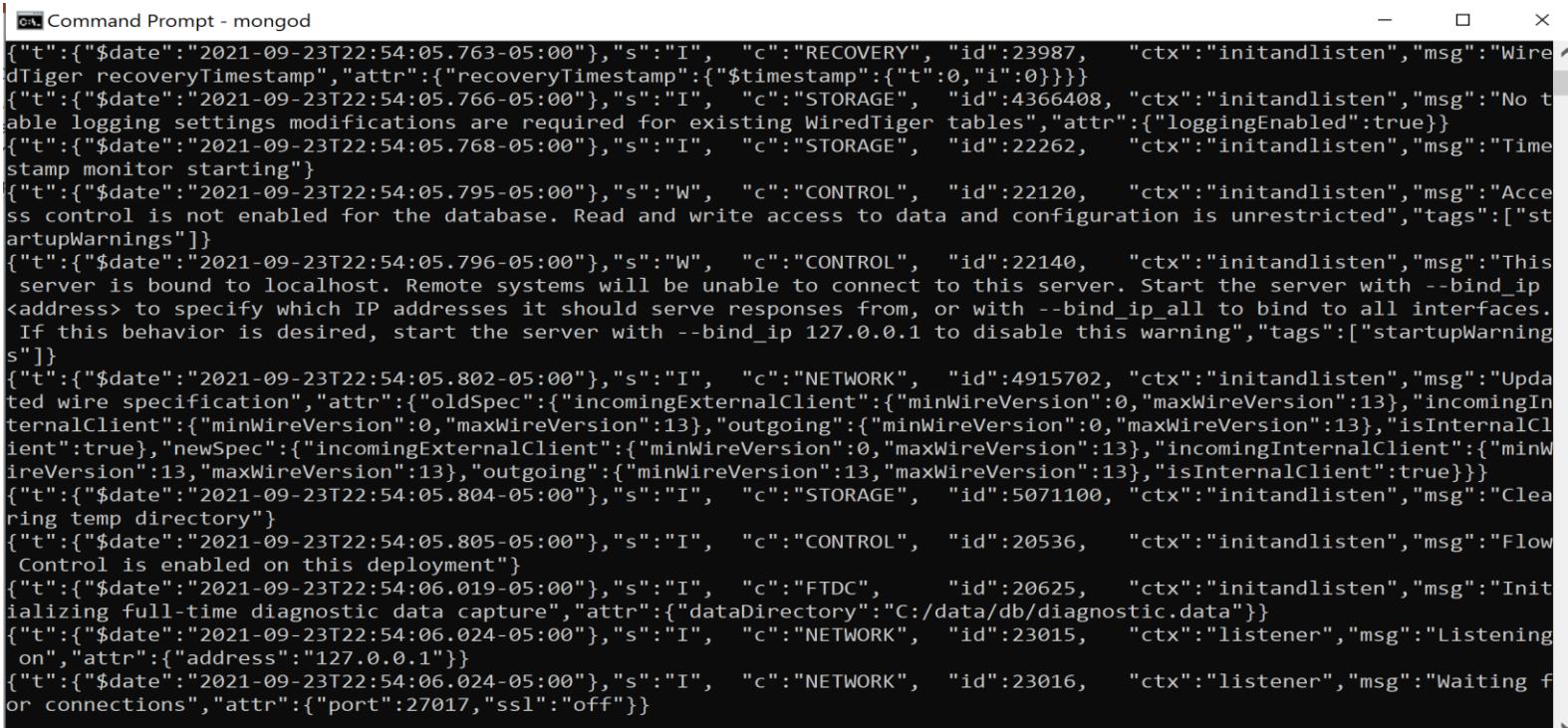


Make sure to add the following path to the Environment PATH variable  
C:\Program Files\MongoDB\Server\7.0\bin



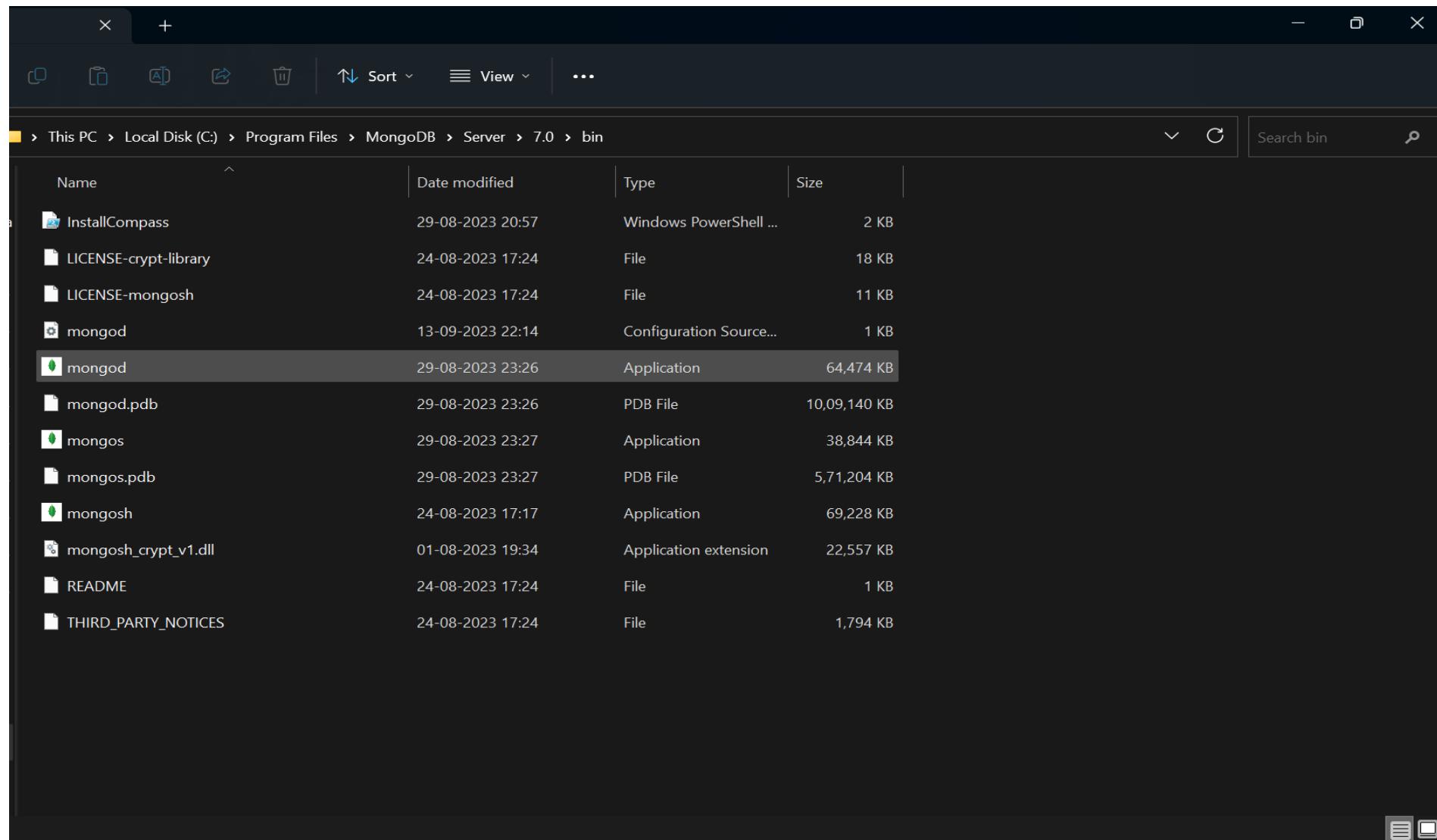
## 4. Mongo DB – Startup Instructions

- After adding the path variable, to start Mongo DB, open command prompt and enter the command ‘mongod’ .
- Mongo DB is usually installed under C:\Program Files\MongoDB
- You can also start the Mongo DB server by locating the “mongod.exe” file stored in C:\Program Files\MongoDB\Server\7.0\bin



The screenshot shows a Windows Command Prompt window titled "Command Prompt - mongod". The window displays the startup logs for the MongoDB server. The logs include various messages such as recovery, storage configuration, and network settings. Key messages include:

- "No table logging settings modifications are required for existing WiredTiger tables"
- "Access control is not enabled for the database. Read and write access to data and configuration is unrestricted"
- "This server is bound to localhost. Remote systems will be unable to connect to this server. Start the server 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 this warning"
- "Upgraded wire specification"
- "Control is enabled on this deployment"
- "Initializing full-time diagnostic data capture"
- "Listening on address 127.0.0.1"
- "Waiting for connections"



## 4. Mongo DB – Startup Instructions

- If you are using new version of MongoDB then you need to install mongo shell manually. Download it from the link -> [MongoDB Shell Download | MongoDB](#)
- To start Mongo shell, open command prompt and enter the command ‘mongosh’
- You can also start the Mongo shell by locating the “mongosh.exe” stored in:
- C:\Program Files\MongoDB\Server\7.0\bin .

The screenshot shows the MongoDB website's product selection interface. On the left, a sidebar lists products: MongoDB Atlas, MongoDB Enterprise Advanced, MongoDB Community Edition, Tools (MongoDB Shell, MongoDB Compass (GUI), and Atlas CLI). The main area is titled 'Learn more' and displays configuration options for the MongoDB Shell: Version 1.10.6, Platform Windows 64-bit (8.1+) (MSI), and Package msi. At the bottom, there are 'Download' and 'More Options' buttons.

MongoDB

Products Solutions Resources Company Pricing

Try Free

MongoDB Atlas

MongoDB Enterprise Advanced

MongoDB Community Edition

Tools

MongoDB Shell

MongoDB Compass (GUI)

Atlas CLI

Learn more

Version 1.10.6

Platform Windows 64-bit (8.1+) (MSI)

Package msi

Download

Copy link More Options

## ▪ Mongo Shell

```
mongosh mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000
Microsoft Windows [Version 10.0.22621.2134]
(c) Microsoft Corporation. All rights reserved.

C:\Program Files\MongoDB\Server\7.0\bin>mongosh
Current Mongosh Log ID: 6502895c6aba96fc16a99655
Connecting to:      mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+1
.10.6
Using MongoDB:      7.0.1
Using Mongosh:       1.10.6
mongosh 2.0.0 is available for download: https://www.mongodb.com/try/download/shell

For mongosh info see: https://docs.mongodb.com/mongodb-shell/

-----
The server generated these startup warnings when booting
2023-09-13T22:14:19.190-05:00: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
-----
Warning: Found ~/.mongorc.js, but not ~/.mongoshrc.js. ~/.mongorc.js will not be loaded.
You may want to copy or rename ~/.mongorc.js to ~/.mongoshrc.js.
test>
```

## 4. Mongo DB – Help command & Documentation

- The ‘Help’ command is a very handy command and can be used to check various commands available with Mongo DB
- To learn more on MongoDB Commands , visit: <https://docs.mongodb.com/manual/reference/mongo-shell/>

```
mongosh mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000
CustomerReviews> help

Shell Help:

use                                         Set current database
show                                         'show databases'/'show dbs': Print a list of all available databases.
                                                'show collections'/'show tables': Print a list of all collections for cur-
rent database.

                                                'show profile': Prints system.profile information.
                                                'show users': Print a list of all users for current database.
                                                'show roles': Print a list of all roles for current database.
                                                'show log <type>': log for current connection, if type is not set uses 'g-
lobal'

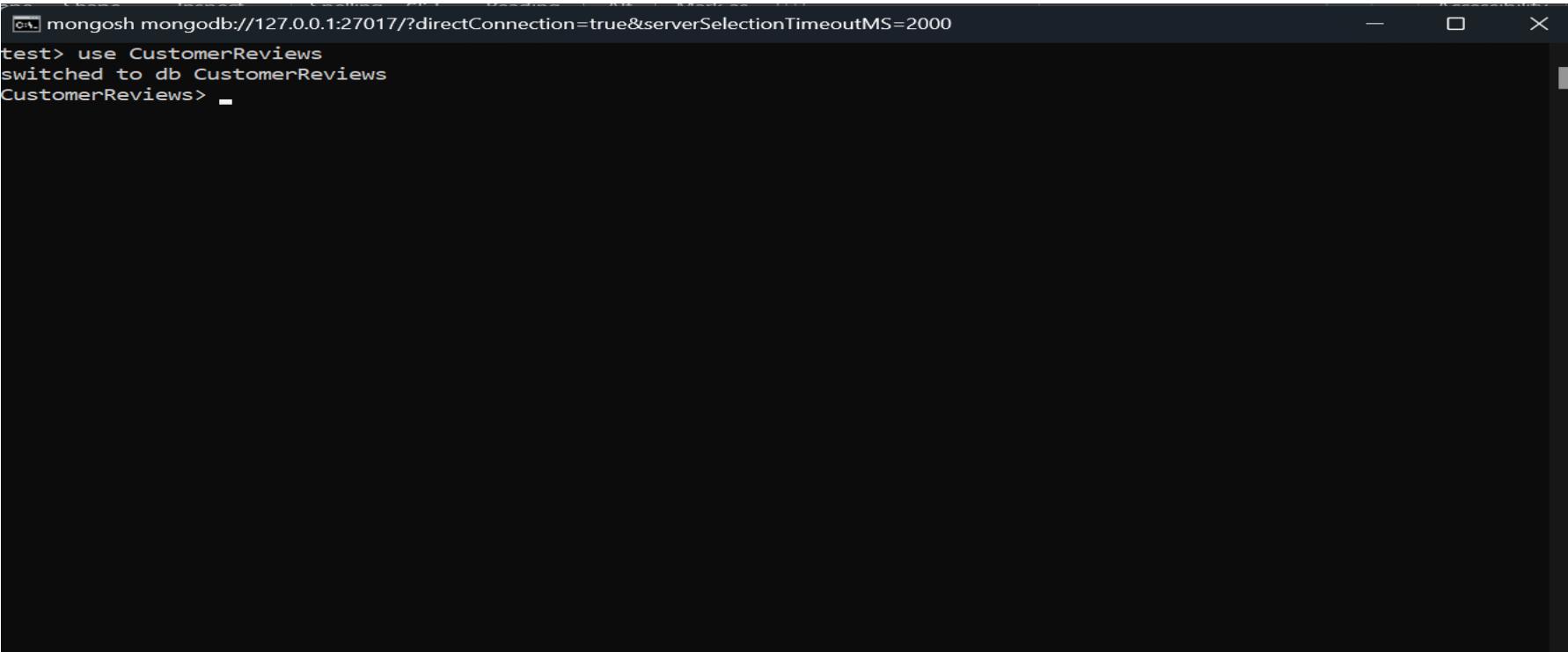
                                                'show logs': Print all logs.

exit                                         Quit the MongoDB shell with exit/exit().exit
quit                                         Quit the MongoDB shell with quit/quit()
Mongo                                         Create a new connection and return the Mongo object. Usage: new Mongo(URI
, options [optional])                         Create a new connection and return the Database object. Usage: connect(UR
connect                                         I, username [optional], password [optional])
                                                result of the last line evaluated; use to further iterate
                                                Shell version
I, username [optional], password [optional]
it
version
load
enableTelemetry
disableTelemetry
passwordPrompt
sleep
print
printjson
                                                Loads and runs a JavaScript file into the current shell environment
                                                Enables collection of anonymous usage data to improve the mongosh CLI
                                                Disables collection of anonymous usage data to improve the mongosh CLI
                                                Prompts the user for a password
                                                Sleep for the specified number of milliseconds
                                                Prints the contents of an object to the output
                                                Alias for print()
```



## 4. Mongo DB – Use a database

- In order to use a database, you must select it first
- To select a database along with the startup, use the command ‘use databasename’
- Example, to select the ‘CustomerReviews’ database, the command is ‘use CustomerReviews’
- You can then check the db you are in by typing db command



```
mongosh mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000
test> use CustomerReviews
switched to db CustomerReviews
CustomerReviews> -
```

## 4. Mongo DB – Create Collections

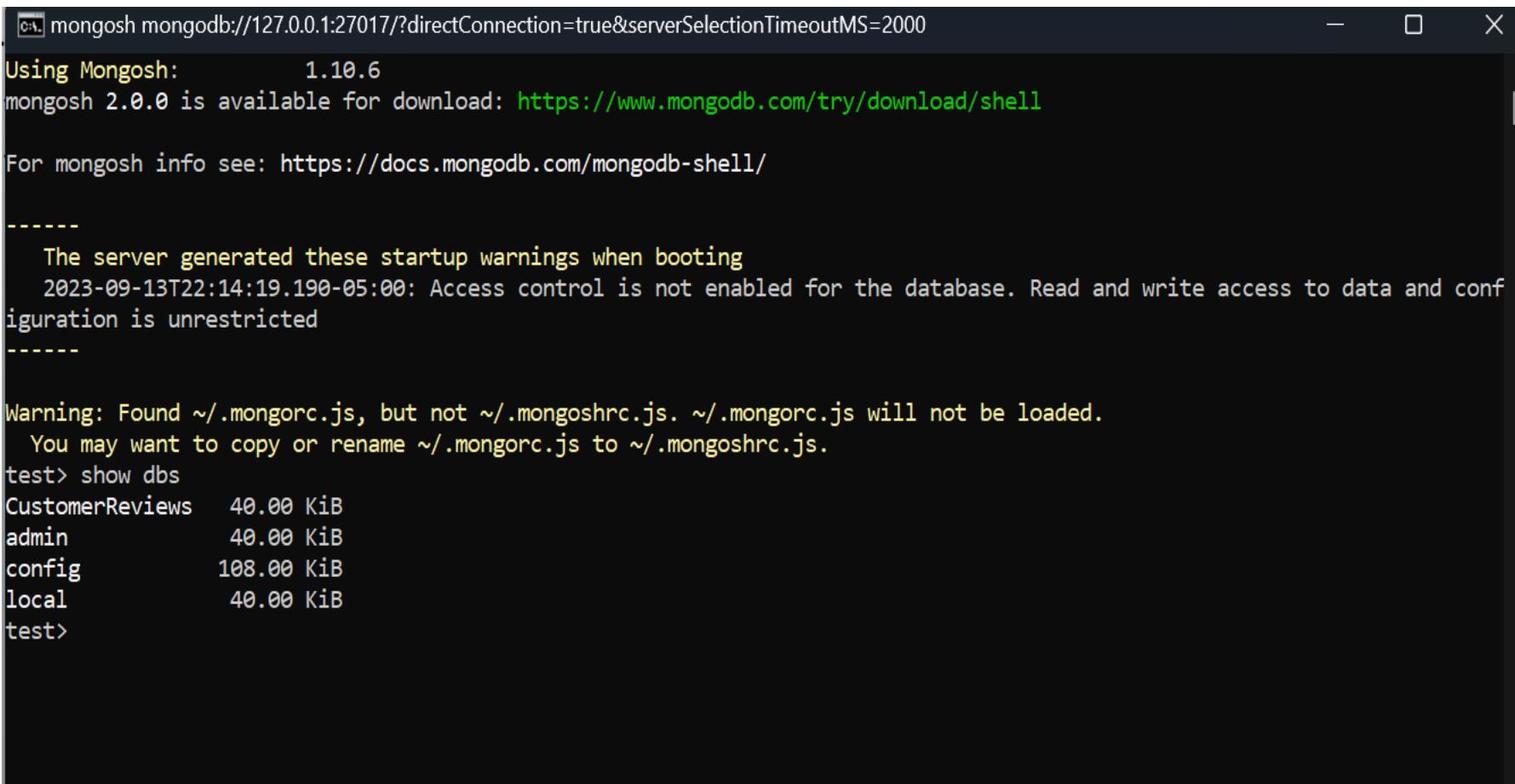
- You can manually create collection or automatically by running your java program
- To create a collection manually type db.createCollection(collectionname)

```
>  
> db.createCollection("myReviews")  
{ "ok" : 1 }  
>
```



## 4. Mongo DB – Display list of available databases

- To check the databases that exist, use the command ‘show dbs’
- This will show the list of available databases



The screenshot shows a terminal window titled "mongosh mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000". The window contains the following text:

```
Using Mongosh: 1.10.6
mongosh 2.0.0 is available for download: https://www.mongodb.com/try/download/shell

For mongosh info see: https://docs.mongodb.com/mongodb-shell/

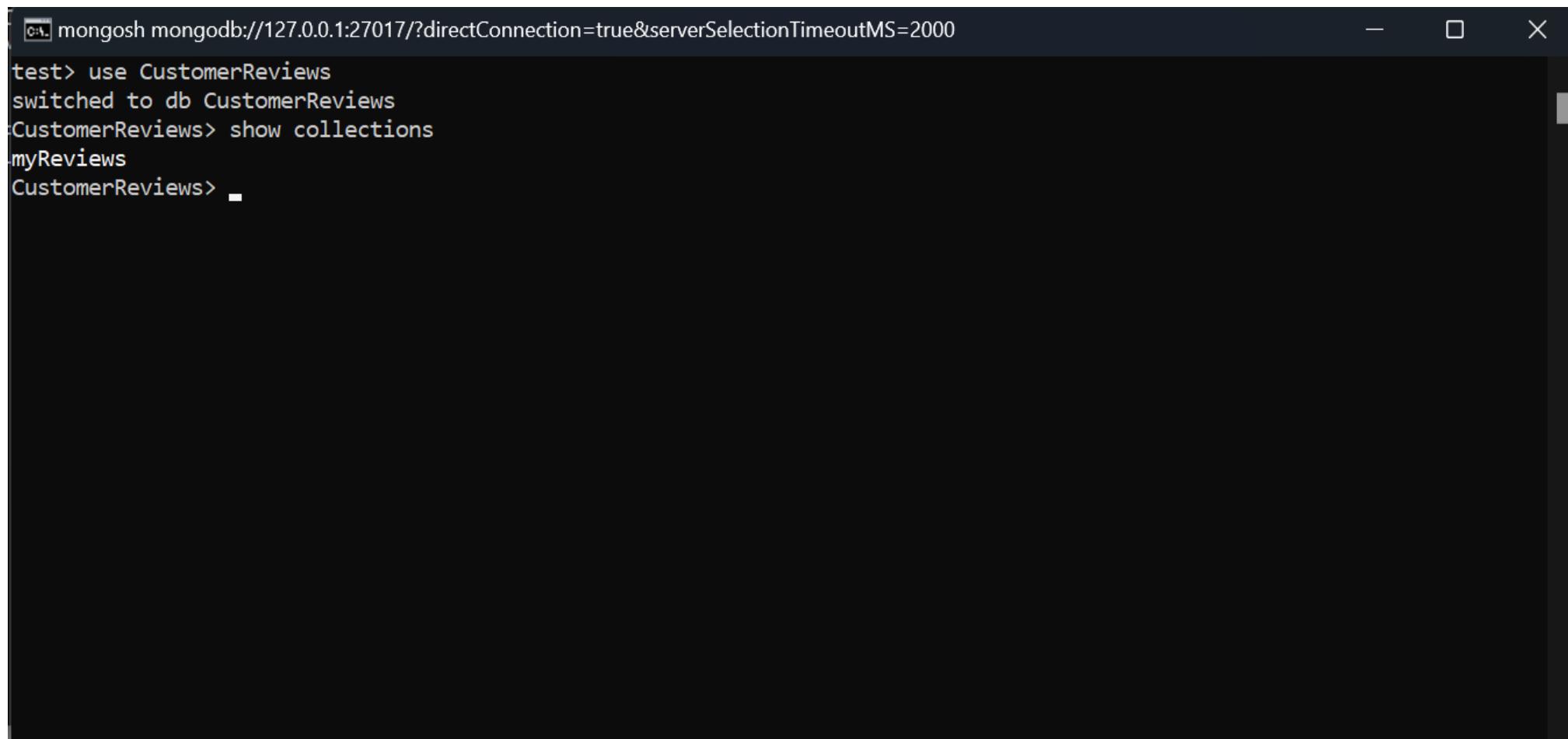
-----
The server generated these startup warnings when booting
2023-09-13T22:14:19.190-05:00: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
-----

Warning: Found ~/.mongorc.js, but not ~/.mongoshrc.js. ~/.mongorc.js will not be loaded.
You may want to copy or rename ~/.mongorc.js to ~/.mongoshrc.js.

test> show dbs
CustomerReviews 40.00 KiB
admin           40.00 KiB
config          108.00 KiB
local            40.00 KiB
test>
```

## 4. Mongo DB – Show collections

- Use the command ‘ show collections’ to view the list of available collections in the selected database

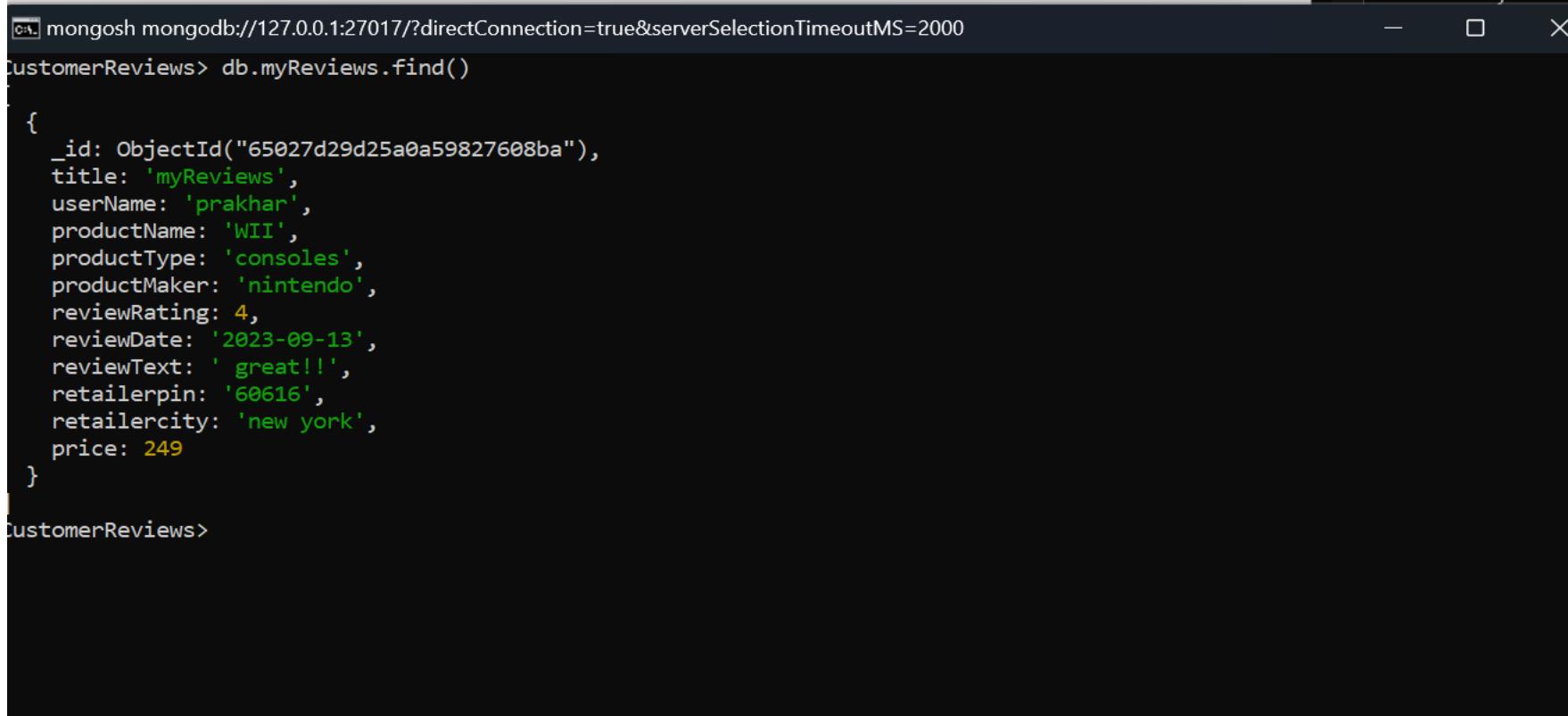


A screenshot of a terminal window titled "mongosh mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000". The window shows the following MongoDB shell session:

```
mongosh mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000
test> use CustomerReviews
switched to db CustomerReviews
CustomerReviews> show collections
myReviews
CustomerReviews> _
```

## 4. Mongo DB – Query data

- In order to query data, use the command ‘db.COLLECTION\_NAME.find()’
- The find() queries the data available in the selected collection.
- Example, to query the ‘myReviews’ collection we use the command ‘db.myReviews.find()’



```
mongosh mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000
CustomerReviews> db.myReviews.find()

{
  _id: ObjectId("65027d29d25a0a59827608ba"),
  title: 'myReviews',
  userName: 'prakhar',
  productName: 'WII',
  productType: 'consoles',
  productMaker: 'nintendo',
  reviewRating: 4,
  reviewDate: '2023-09-13',
  reviewText: ' great!!',
  retailerpin: '60616',
  retailercity: 'new york',
  price: 249
}
CustomerReviews>
```

## 5. Compile and run

- Go to <https://docs.mongodb.com/drivers/java> to see documentation for Java MongoDB Driver .

The screenshot shows the MongoDB Documentation website. The navigation bar includes links for Products, Solutions, Resources (which is underlined in green), Company, and Pricing. A search icon, Sign In, and Try Free button are also present. The left sidebar lists various MongoDB drivers: C Driver, C++ Driver, C# and .NET Driver, Go Driver, Java Drivers (which is highlighted with a green background), Node.js Driver, PHP Driver, Python Drivers, and Ruby Driver. The main content area is titled "Java MongoDB Drivers". It features an "Introduction" section stating that the "Java Driver" is the recommended MongoDB Java Driver. Below this, it mentions the "Reactive Streams Driver" for asynchronous stream processing. A call-to-action box encourages users to "Take the free online course taught by MongoDB" for "M220J: MongoDB for Java Developers". A purple arrow points from the "Java Drivers" link in the sidebar to this call-to-action box. Another purple arrow points from the "Java Drivers" link in the sidebar to a purple box on the right containing the text "Click on the download button for downloading Mongo java Driver". The URL in the browser's address bar is https://docs.mongodb.com/drivers/java.

mongoDB. Products Solutions Resources Company Pricing

Docs Home → Develop Applications → MongoDB Drivers

## Java MongoDB Drivers

### Introduction

Java Driver is the recommended MongoDB Java Driver.

For asynchronous stream processing and reactive streams interoperability, the Reactive Streams Driver is the recommended MongoDB Java Driver.

Take the free online course taught by MongoDB

M220J: MongoDB for Java Developers

Learn the essentials of Java application development with MongoDB.

← MongoDB C#/.NET Driver      MongoDB Java Reactive Streams →

Give Feedback

## 5. Compile and run

- You need to include all the some driver JAR files before you compile your Java program which imports external libraries.
- To include the downloaded external JAR files, make changes to the ‘CLASSPATH’ variable in your ‘env-setup-for-tomcat\_backup.bat’ file
- Locate and copy the location of the JAR files on your computer and edit the ‘CLASSPATH’ variable accordingly
- **NOTE:** Make sure you have the necessary JAR files on your computer
- Now let us see what drivers are required for running MongoDB



## 5. Compile and run

- Go to <https://mongodb.github.io/mongo-java-driver/3.12/driver/getting-started/installation/>, and click on the link directly under MongoDB Driver to Download jar File.
- Select mongo-java-driver and version 3.12.10 and click Download Button.
- (Direct link: <https://repo1.maven.org/maven2/org/mongodb/mongodb-driver/3.12.10/>)

The screenshot shows the MongoDB Java Driver documentation page for version 3.12. The left sidebar contains navigation links for various driver components like MongoDB Driver, Tutorials, and Reference. The main content area discusses the updated synchronous Java driver, mentioning its compatibility with the legacy API and a new generic `MongoCollection` interface. It also includes a note about legacy support and a warning for OSGi-based applications. A yellow box highlights the 'IMPORTANT:' section. Below this, there is a code snippet for Maven dependencies:

```
<dependencies>
    <dependency>
        <groupId>org.mongodb</groupId>
        <artifactId>mongodb-driver</artifactId>
        <version>3.12.10</version>
    </dependency>
</dependencies>
```

At the bottom of the page, there is a note about legacy support and a warning for OSGi-based applications. A callout box highlights the 'MongoDB Driver Sync' link in the 'ON THIS PAGE' sidebar.

## 5. Compile and run

- To download click on mongo-java-driver-3.12.10jar
  - <https://repo1.maven.org/maven2/org/mongodb/mongodb-driver/3.12.10/>
- org/mongodb/mongodb-driver/3.12.10

.. /			
<a href="#">mongodb-driver-3.12.10-javadoc.jar</a>	2021-08-03 13:41	1042051	
<a href="#">mongodb-driver-3.12.10-javadoc.jar.asc</a>	2021-08-03 13:41	475	
<a href="#">mongodb-driver-3.12.10-javadoc.jar.asc.md5</a>	2021-08-03 13:41	32	
<a href="#">mongodb-driver-3.12.10-javadoc.jar.asc.sha1</a>	2021-08-03 13:41	40	
<a href="#">mongodb-driver-3.12.10-javadoc.jar.md5</a>	2021-08-03 13:41	32	
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<a href="#">mongodb-driver-3.12.10.pom.md5</a>	2021-08-03 13:41	32	
<a href="#">mongodb-driver-3.12.10.pom.sha1</a>	2021-08-03 13:41	40	

Click on the link  
mongodb-driver-3.12.10 jar to  
download the jar file



<https://repo1.maven.org/maven2/org/mongodb/mongodb-driver-core/3.12.10/>

---

## org/mongodb/mongodb-driver-core/3.12.10

---

.. /

<a href="#">mongodb-driver-core-3.12.10-javadoc.jar</a>	2021-08-03	13:40	2300097
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<a href="#">mongodb-driver-core-3.12.10-sources.jar.md5</a>	2021-08-03	13:40	32
<a href="#">mongodb-driver-core-3.12.10-sources.jar.sha1</a>	2021-08-03	13:40	40
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<a href="#">mongodb-driver-core-3.12.10.jar.asc.md5</a>	2021-08-03	13:40	32
<a href="#">mongodb-driver-core-3.12.10.jar.asc.sha1</a>	2021-08-03	13:40	40
<a href="#">mongodb-driver-core-3.12.10.jar.md5</a>	2021-08-03	13:40	32
<a href="#">mongodb-driver-core-3.12.10.jar.sha1</a>	2021-08-03	13:40	40
<a href="#">mongodb-driver-core-3.12.10.pom</a>	2021-08-03	13:40	3085
<a href="#">mongodb-driver-core-3.12.10.pom.asc</a>	2021-08-03	13:40	475
<a href="#">mongodb-driver-core-3.12.10.pom.asc.md5</a>	2021-08-03	13:40	32
<a href="#">mongodb-driver-core-3.12.10.pom.asc.sha1</a>	2021-08-03	13:40	40
<a href="#">mongodb-driver-core-3.12.10.pom.md5</a>	2021-08-03	13:40	32
<a href="#">mongodb-driver-core-3.12.10.pom.sha1</a>	2021-08-03	13:40	40



<https://repo1.maven.org/maven2/org/mongodb/bson/3.12.10/>

---

## org/mongodb/bson/3.12.10

---

<a href="#">..</a>		
<a href="#">bson-3.12.10-javadoc.jar</a>	2021-08-03 13:40	1554964
<a href="#">bson-3.12.10-javadoc.jar.asc</a>	2021-08-03 13:40	475
<a href="#">bson-3.12.10-javadoc.jar.asc.md5</a>	2021-08-03 13:40	32
<a href="#">bson-3.12.10-javadoc.jar.asc.sha1</a>	2021-08-03 13:40	40
<a href="#">bson-3.12.10-javadoc.jar.md5</a>	2021-08-03 13:40	32
<a href="#">bson-3.12.10-javadoc.jar.sha1</a>	2021-08-03 13:40	40
<a href="#">bson-3.12.10-sources.jar</a>	2021-08-03 13:40	392072
<a href="#">bson-3.12.10-sources.jar.asc</a>	2021-08-03 13:40	475
<a href="#">bson-3.12.10-sources.jar.asc.md5</a>	2021-08-03 13:40	32
<a href="#">bson-3.12.10-sources.jar.asc.sha1</a>	2021-08-03 13:40	40
<a href="#">bson-3.12.10-sources.jar.md5</a>	2021-08-03 13:40	32
<a href="#">bson-3.12.10-sources.jar.sha1</a>	2021-08-03 13:40	40
<a href="#">bson-3.12.10.jar</a>	2021-08-03 13:40	499687
<a href="#">bson-3.12.10.jar.asc</a>	2021-08-03 13:40	475
<a href="#">bson-3.12.10.jar.asc.md5</a>	2021-08-03 13:40	32
<a href="#">bson-3.12.10.jar.asc.sha1</a>	2021-08-03 13:40	40
<a href="#">bson-3.12.10.jar.md5</a>	2021-08-03 13:40	32
<a href="#">bson-3.12.10.jar.sha1</a>	2021-08-03 13:40	40
<a href="#">bson-3.12.10.pom</a>	2021-08-03 13:40	1284
<a href="#">bson-3.12.10.pom.asc</a>	2021-08-03 13:40	475
<a href="#">bson-3.12.10.pom.asc.md5</a>	2021-08-03 13:40	32
<a href="#">bson-3.12.10.pom.asc.sha1</a>	2021-08-03 13:40	40
<a href="#">bson-3.12.10.pom.md5</a>	2021-08-03 13:40	32
<a href="#">bson-3.12.10.pom.sha1</a>	2021-08-03 13:40	40



Download Link for gson jar file:

(<https://repo1.maven.org/maven2/com/google/code/gson/gson/2.8.8/>)

## com/google/code/gson/gson/2.8.8

---

<a href="#">.. /</a>			
<a href="#">gson-2.8.8-javadoc.jar</a>	2021-08-20 16:08	664477	
<a href="#">gson-2.8.8-javadoc.jar.asc</a>	2021-08-20 16:08	496	
<a href="#">gson-2.8.8-javadoc.jar.md5</a>	2021-08-20 16:08	32	
<a href="#">gson-2.8.8-javadoc.jar.sha1</a>	2021-08-20 16:08	40	
<a href="#">gson-2.8.8-sources.jar</a>	2021-08-20 16:08	155946	
<a href="#">gson-2.8.8-sources.jar.asc</a>	2021-08-20 16:08	496	
<a href="#">gson-2.8.8-sources.jar.md5</a>	2021-08-20 16:08	32	
<a href="#">gson-2.8.8-sources.jar.sha1</a>	2021-08-20 16:08	40	
<a href="#">gson-2.8.8.jar</a>	2021-08-20 16:08	242047	
<a href="#">gson-2.8.8.jar.asc</a>	2021-08-20 16:08	496	
<a href="#">gson-2.8.8.jar.md5</a>	2021-08-20 16:08	32	
<a href="#">gson-2.8.8.jar.sha1</a>	2021-08-20 16:08	40	
<a href="#">gson-2.8.8.pom</a>	2021-08-20 16:08	5969	
<a href="#">gson-2.8.8.pom.asc</a>	2021-08-20 16:08	496	
<a href="#">gson-2.8.8.pom.md5</a>	2021-08-20 16:08	32	
<a href="#">gson-2.8.8.pom.sha1</a>	2021-08-20 16:08	40	



## 5. Compile and run

- Here is the snapshot of ‘env-setup-for-tomcat\_backup.bat’
- The location of the JAR files highlighted will differ based on where they are present on your computer. Please make sure you do the changes accordingly
- For Tutorial\_3 to work, you also need to copy and paste **all the downloaded jar files** in this directory - C:\apache-tomcat-9.0.52\lib (this location may differ if you have saved tomcat at some other location)



```
env-setup-for-tomcat.bat - Notepad
File Edit Format View Help
set JAVA_HOME=C:\Program Files\Java\jdk-14.0.2

set PATH="C:\Program Files\Java\jdk-14.0.2\bin";C:\Program Files\MongoDB\Server\5.0\bin;%PATH%

set CLASSPATH=.;C:\apache-tomcat-9.0.52\lib\servlet-api.jar;
               C:\apache-tomcat-9.0.52\lib\jsp-api.jar;
               C:\apache-tomcat-9.0.52\lib\el-api.jar;
               C:\apache-tomcat-9.0.52\lib\mysql-connector-java-8.0.26.jar;
               C:\apache-tomcat-9.0.52\lib\mongodb-driver-3.12.10.jar;
               C:\apache-tomcat-9.0.52\lib\mongodb-driver-core-3.12.10.jar;
               C:\apache-tomcat-9.0.52\lib\bson-3.12.10.jar;
               C:\apache-tomcat-9.0.52\lib\gson-2.8.8.jar

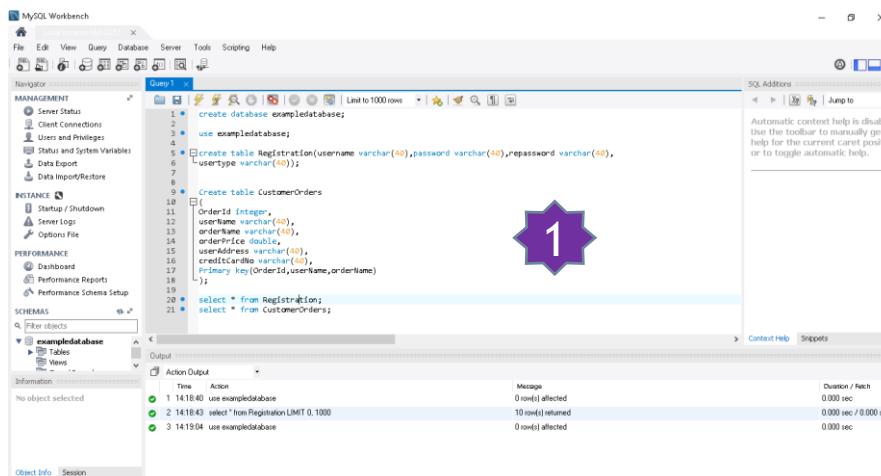
set ANT_HOME=C:\apache-tomcat-9.0.52

set TOMCAT_HOME=C:\apache-tomcat-9.0.52

set CATALINA_HOME=C:\apache-tomcat-9.0.52
```

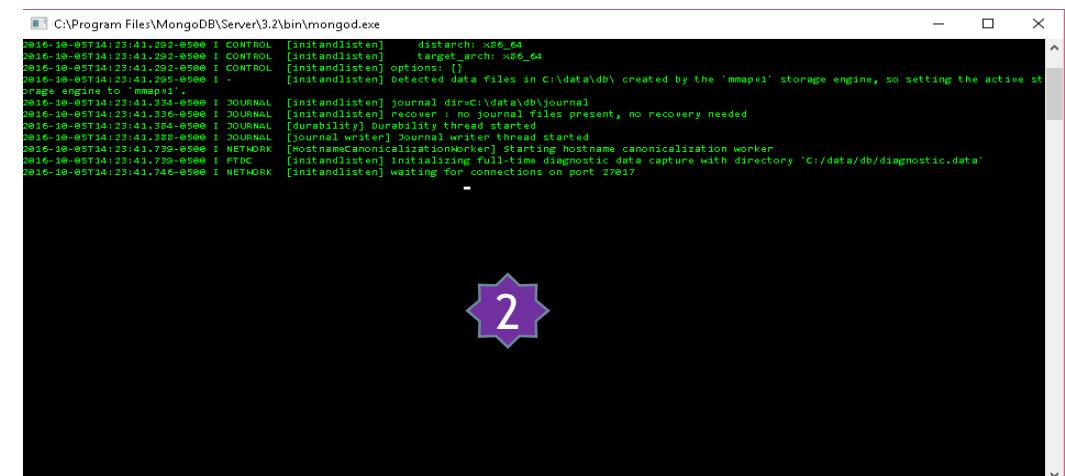
# Things to Remember Before Running your Application in localhost:

- Check MySQL Server is up and Running or else start the MySQL Server .
- Check MongoDB Server is up and Running or else start the MongoDB Server .
- Check Apache Tomcat is up and Running or else start the Apache Tomcat .



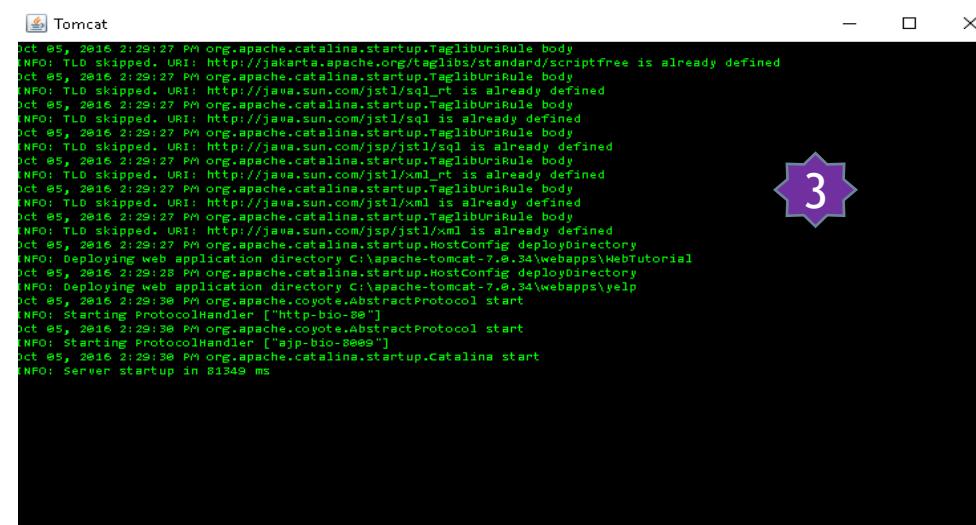
MySQL Workbench interface showing the creation of a database and tables. A purple starburst labeled '1' highlights the SQL query window.

```
1 create database exampledatabase;
2 use exampledatabase;
3 create table Registration(username varchar(40),password varchar(40),repassword varchar(40),
4 userutype varchar(20));
5
6
7
8
9 create table CustomerOrders
10
11 OrderId integer,
12 username varchar(40),
13 orderName varchar(40),
14 orderDate date,
15 userAddress varchar(40),
16 creditCardNo varchar(40),
17 Primary key(OrderId,username,orderName)
18
19
20 select * from Registration;
21 select * from CustomerOrders;
```



MongoDB command line interface showing the startup logs. A purple starburst labeled '2' highlights the log output window.

```
2016-10-05T14:23:41.202+0500 I CONTROL [initandlisten] distarch: x86_64
2016-10-05T14:23:41.202+0500 I CONTROL [initandlisten] targetArch: x86_64
2016-10-05T14:23:41.202+0500 I CONTROL [initandlisten] options: {}
2016-10-05T14:23:41.205+0500 I [initandlisten] Detected data files in C:\data\db\ created by the 'mmapv1' storage engine, so setting the active st
orage engine to 'mmapv1'.
2016-10-05T14:23:41.334+0500 I JOURNAL [initandlisten] Journal didn't have any journal files present, no recovery needed
2016-10-05T14:23:41.334+0500 I JOURNAL [durability] Durability thread started
2016-10-05T14:23:41.334+0500 I JOURNAL [journal writer] Journal writer thread started
[hostnameCanonicalizationWorker] Starting hostname canonicalization worker
2016-10-05T14:23:41.739+0500 I NETWORK [HostnameCanonicalizationWorker] Starting hostname canonicalization worker
2016-10-05T14:23:41.739+0500 I FTDC [initandlisten] Initializing full-time diagnostic data capture with directory 'C:/data/db/diagnostic.data'
2016-10-05T14:23:41.746+0500 I NETWORK [initandlisten] waiting for connections on port 27017
```

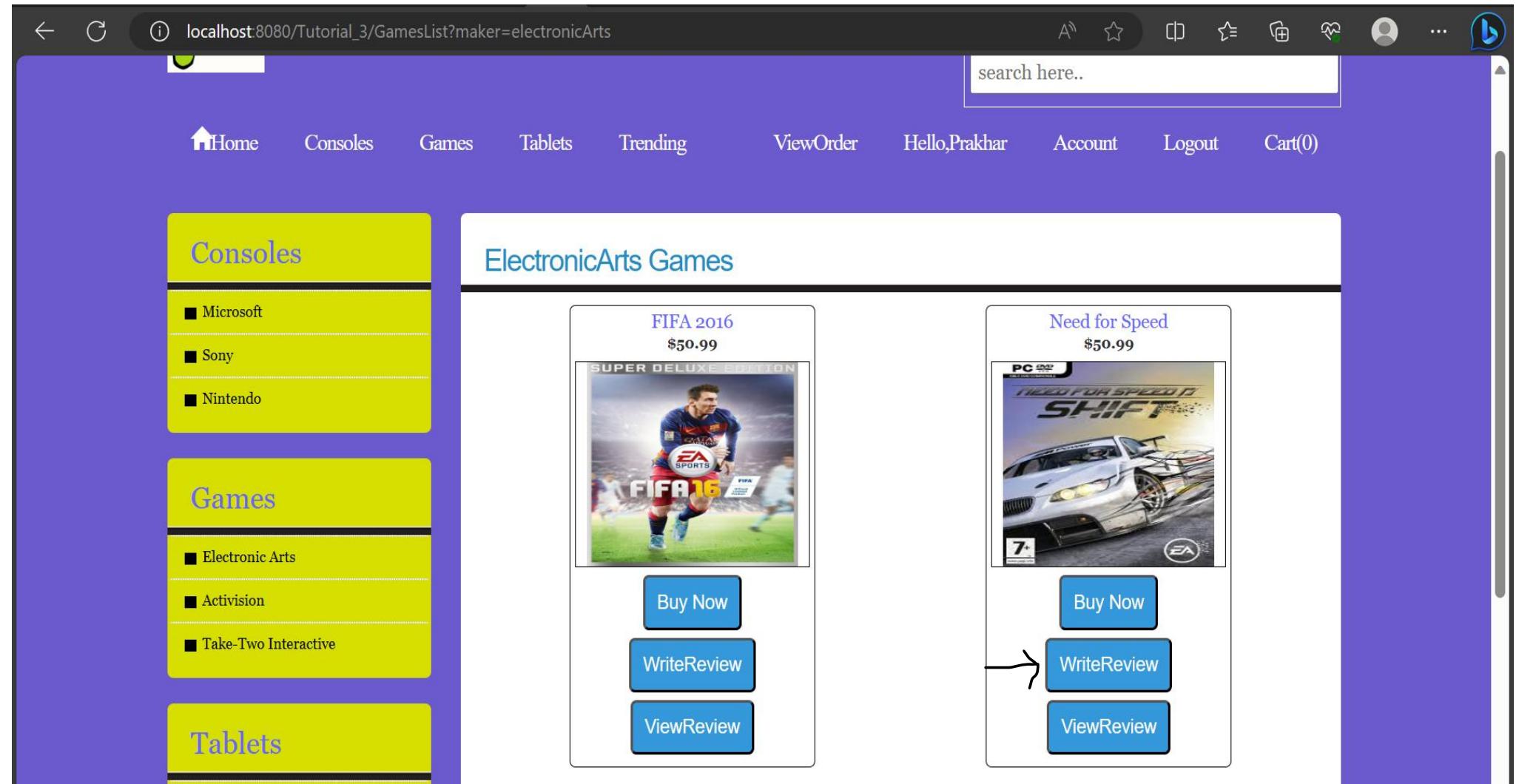


Apache Tomcat command line interface showing the startup logs. A purple starburst labeled '3' highlights the log output window.

```
Oct 05, 2016 2:29:27 PM org.apache.catalina.startup.TaglibUriRule body
INFO: TLD skipped. URI: http://jakarta.apache.org/taglibs/standard/scriptfree is already defined
Oct 05, 2016 2:29:27 PM org.apache.catalina.startup.TaglibUriRule body
INFO: TLD skipped. URI: http://java.sun.com/jstl/sql_rt is already defined
Oct 05, 2016 2:29:27 PM org.apache.catalina.startup.TaglibUriRule body
INFO: TLD skipped. URI: http://java.sun.com/jstl/sql is already defined
Oct 05, 2016 2:29:27 PM org.apache.catalina.startup.TaglibUriRule body
INFO: TLD skipped. URI: http://java.sun.com/jsp/jstl/sql is already defined
Oct 05, 2016 2:29:27 PM org.apache.catalina.startup.TaglibUriRule body
INFO: TLD skipped. URI: http://java.sun.com/jstl/xml_rt is already defined
Oct 05, 2016 2:29:27 PM org.apache.catalina.startup.TaglibUriRule body
INFO: TLD skipped. URI: http://java.sun.com/jstl/xml is already defined
Oct 05, 2016 2:29:27 PM org.apache.catalina.startup.HostConfig deployDirectory
INFO: Deploying web application directory C:\Apache-Tomcat-7.0.34\webapps\HelloTutorial
Oct 05, 2016 2:29:28 PM org.apache.catalina.startup.HostConfig deployDirectory
INFO: Deploying web application directory C:\Apache-Tomcat-7.0.34\webapps\HelloTutorial
Oct 05, 2016 2:29:30 PM org.apache.coyote.AbstractProtocol start
INFO: Starting ProtocolHandler ["http-bio-80"]
Oct 05, 2016 2:29:30 PM org.apache.coyote.AbstractProtocol start
INFO: Starting ProtocolHandler ["ajp-bio-8009"]
Oct 05, 2016 2:29:30 PM org.apache.catalina.startup.Catalina start
INFO: Server startup in 81349 ms
```

## 6. Example – Write Review:

To write a review for the product, click on ‘Write Review’ button on the products page



## 6. Example – Write Review:

On clicking the WriteReview Button from products page user will be directed to WriteReview webpage where user can give review for product.

Click the SubmitReview button to store the review in MongoDB.

The screenshot shows a web browser window with the URL `localhost:8080/Tutorial_3/WriteReview` in the address bar. The page has a purple header and a white content area. On the left, there are three yellow sidebar boxes: 'Consoles' (Microsoft, Sony, Nintendo), 'Games' (Electronic Arts, Activision, Take-Two Interactive), and 'Tablets' (Apple, Microsoft). The main content area is titled 'Review' and contains the following form fields:

Product Name:	g2
Product Type:	games
Product Price:	50.99
Product Maker:	electronicArts
Review Rating:	3
Retailer Zip Code:	666666
Retailer City:	chicago
Review Date:	16-09-2023
Review Text:	superb!!

At the bottom center is a blue 'SubmitReview' button.

## 6. Example – Write Review:

On clicking the SubmitReview button user will get response that reviews for product is stored in database. You can also provide multiple review to products.

The screenshot shows a web application interface for "Game Speed".

**Header:** The top navigation bar includes a logo of a green game controller, the title "Game Speed", and a search bar labeled "Search Product: search here..".

**User Navigation:** The top menu bar features links for Home, Consoles, Games, Tablets, Trending, ViewOrder, Hello,Prakhar, Account, Logout, and Cart(0).

**Sidebar:** On the left, there are two yellow sidebar boxes. The top one is titled "Consoles" and lists Microsoft, Sony, and Nintendo. The bottom one is titled "Games" and lists Electronic Arts and Activision.

**Main Content:** The central area contains a white box with a black header bar. The header bar has the word "Review" in blue. Below it, the text "Review for g2 Stored" is displayed in blue.

**Footer:** A small circular icon is visible in the bottom right corner.

## 6. Example – View Review:

You can view the review submitted by clicking on ViewReview button on products page

The screenshot shows a web browser window with the URL `localhost:8080/Tutorial_3/GamesList?maker=electronicArts`. The page has a purple header bar with navigation links: Home, Consoles, Games, Tablets, Trending, ViewOrder, Hello,Prakhar, Account, Logout, and Cart(0). On the left, there's a sidebar with three yellow buttons: Consoles, Games, and Tablets. The Consoles button is active, showing a list of manufacturers: Microsoft, Sony, and Nintendo. The Games button shows a list of game publishers: Electronic Arts, Activision, and Take-Two Interactive. The Tablets button is also present. The main content area is titled "ElectronicArts Games" and displays two product cards: "FIFA 2016 SUPER DELUXE EDITION" and "Need for Speed SHIFT". Each card includes a "Buy Now" button and a "ViewReview" button. A blue arrow points from the "ViewReview" button of the "Need for Speed" card towards the bottom right corner of the slide.

## 6. Example – View Review:

All the reviews for the product will be retrieved from mongo db and displayed in web page

The screenshot shows a web browser window with the URL `localhost:8080/Tutorial_3/ViewReview`. The page title is "Game Speed". On the left, there's a sidebar with categories: "Consoles" (Microsoft, Sony, Nintendo) and "Games" (Electronic Arts, Activision). The main content area has a heading "Review" and displays the following data in a table:

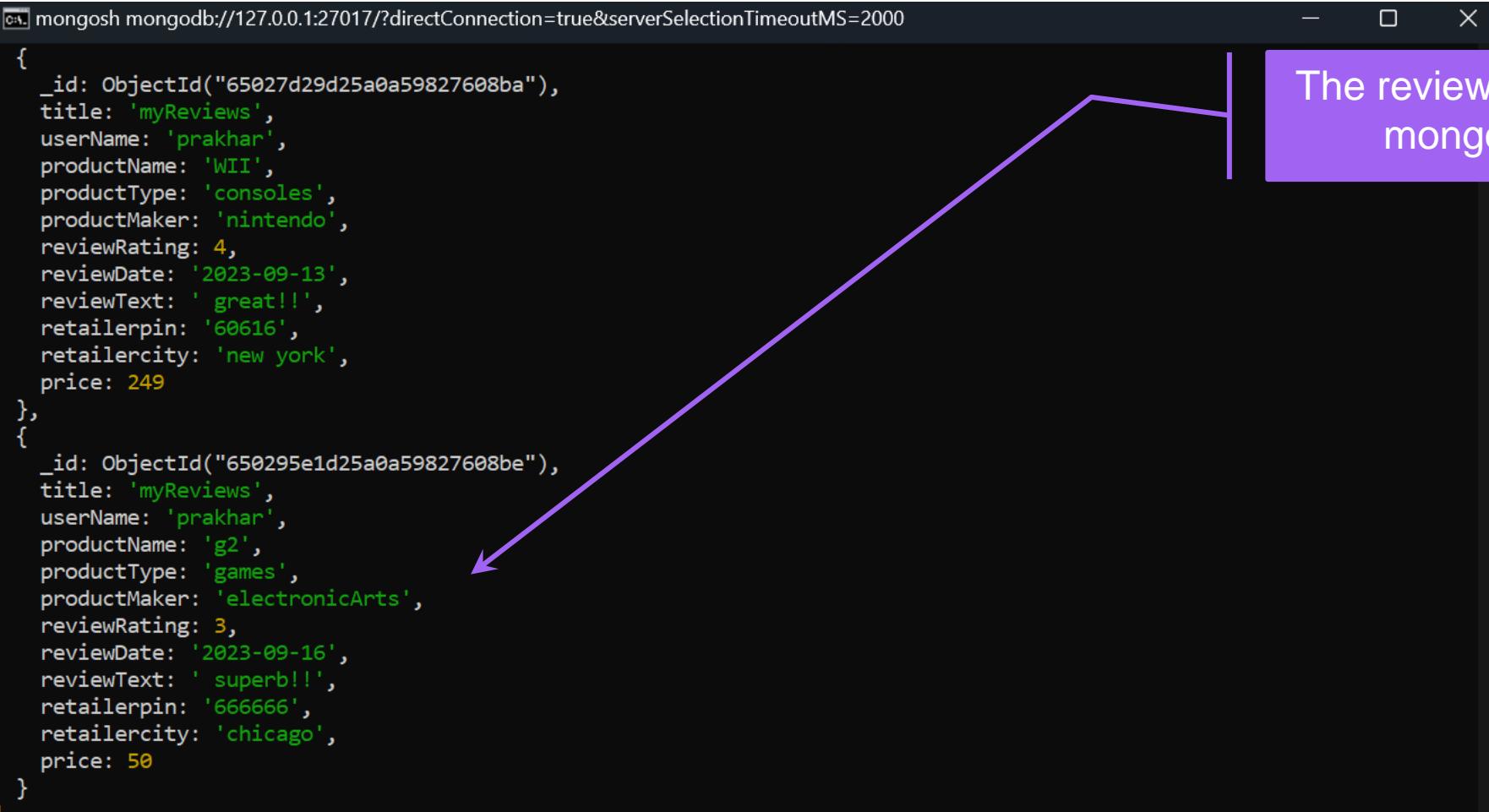
Product Name:	g2
userName:	prakhar
price:	50
Retailer City:	chicago
Review Rating:	3
Review Date:	2023-09-16
Review Text:	superb!!

A purple arrow points from the text "the review is displayed in web page" to the "Review Rating" cell in the table.

Other visible elements include a search bar ("Search Product: search here.."), user information ("Hello,Prakhar"), account links ("Account", "Logout"), and a cart icon ("Cart(0)").

## 6. Example – View Review:

Check in the mongo shell if the myReviews collection inside example database contains the data for reviews.



The screenshot shows the mongo shell interface with the command `mongosh mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000`. The shell displays two documents from the `myReviews` collection. A purple arrow points from the text "The review is visible in mongo shell." to the second document. A purple callout box is positioned to the right of the arrow, containing the text "The review is visible in mongo shell.".

```
{  
  _id: ObjectId("65027d29d25a0a59827608ba"),  
  title: 'myReviews',  
  userName: 'prakhar',  
  productName: 'WII',  
  productType: 'consoles',  
  productMaker: 'nintendo',  
  reviewRating: 4,  
  reviewDate: '2023-09-13',  
  reviewText: ' great!! ',  
  retailerpin: '60616',  
  retailercity: 'new york',  
  price: 249  
},  
{  
  _id: ObjectId("650295e1d25a0a59827608be"),  
  title: 'myReviews',  
  userName: 'prakhar',  
  productName: 'g2',  
  productType: 'games',  
  productMaker: 'electronicArts',  
  reviewRating: 3,  
  reviewDate: '2023-09-16',  
  reviewText: ' superb!!! ',  
  retailerpin: '666666',  
  retailercity: 'chicago',  
  price: 50  
}
```

The review is visible in mongo shell.

## 6. Example - Server Not Running For Registration:

Trying to Register when server is not up and running

The screenshot shows the Game Speed website's registration page. At the top, there is a navigation bar with links for Home, Consoles, Games, Tablets, Trending, View Order, Login, and Cart(0). Below the navigation bar is a search bar labeled "Search Product: search here...". The main content area is titled "Login" and contains fields for Username (with "qwerty" entered), Password (redacted), and User Type (set to "Customer"). A red arrow points from the text "MySQL Server is not up and Running!" to the password field. Below the login form is a link "New User? Register here!". At the bottom of the page, a footer note states "Prices and offers are subject to change. © 2016 GameSpeed. All rights reserved."

If mySQL server not running gives an error message

## 6. Example - Server Not Running For Orders:

Trying to Place order when server is not up and running

The screenshot shows a web application for "Game Speed" with a dark blue header and a white content area.

**Header:**

- Logo: A green video game controller icon.
- Page Title: **Game Speed**
- Slogan: *World's Largest Online Games Center*
- User Authentication: Hello, Qwerty (dropdown menu)
- Search Bar: Search Product: search here..
- Navigation Links: Home, Consoles, Games, Tablets, Trending, ViewOrder, Account, Logout, Cart(1)

**Left Sidebar (Consoles):**

- Section: Consoles
- Items: Microsoft, Sony, Nintendo

**Left Sidebar (Games):**

- Section: Games
- Items: Electronic Arts, Activision, Take-Two Interactive

**Left Sidebar (Tablets):**

- Section: Tablets

**Center Content Area:**

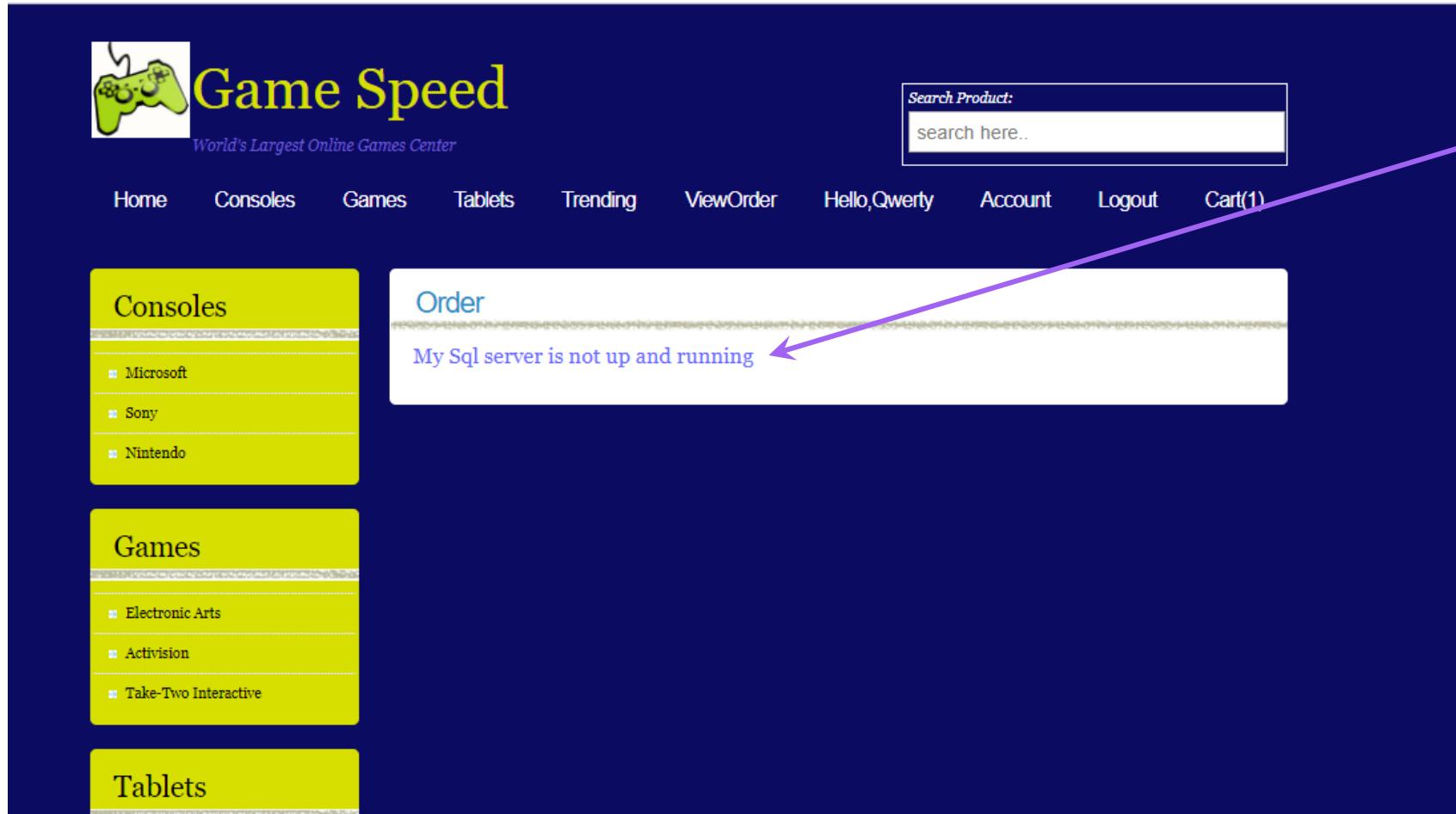
**Order Form:**

Customer Name:	qwerty
Product Purchased:	Xbox One
Product Price:	399.99
Total Order Cost	399.99

Credit/accountNo:  Customer Address:

## 6. Example - Server Not Running For Orders:

Trying to Place order when server is not up and running



If MySQL server not running gives an error message

## 6. Example – Write Review when MongoDB Server not running:

Trying to submit review for Product

The screenshot shows a web application interface for writing a review. On the left, there are three sidebar sections: 'Consoles' (Microsoft, Sony, Nintendo), 'Games' (Electronic Arts, Activision, Take-Two Interactive), and 'Tablets' (Apple, Microsoft). The main right section is titled 'Review' and contains the following form fields:

Product Name:	g2
Product Type:	games
Product Price:	50.99
Product Maker:	electronicArts
Review Rating:	3
Retailer Zip Code:	666666
Retailer City:	chicago
Review Date:	16-09-2023
Review Text:	superb!!

**SubmitReview**

## 6. Example – Write Review when MongoDB Server not running:

Trying to submit review for Product

The screenshot shows a dark blue-themed website for "Game Speed". At the top left is a green video game controller icon and the text "Game Speed" in yellow, with "World's Largest Online Games Center" below it. The top navigation bar includes links for Home, Consoles, Games, Tablets, Trending, ViewOrder, Hello,Qwerty, Account, Logout, and Cart(1). A search bar with placeholder text "Search Product: search here.." is also at the top. On the left, there are three yellow sidebar boxes: "Consoles" listing Microsoft, Sony, and Nintendo; "Games" listing Electronic Arts, Activision, and Take-Two Interactive; and "Tablets". The main content area has a white box titled "Review" containing the message "Mongo Db is not up and running". A purple arrow points from a callout box on the right to this error message.

If MongoDB server  
not running gives an  
error message



## 6. Example – View Review when MongoDB Server not running:

Trying to view review for Product

The screenshot shows the Game Speed website interface. The header features a green game controller icon, the text "Game Speed", and the subtitle "World's Largest Online Games Center". It includes a search bar labeled "Search Product: search here..", and navigation links for Home, Consoles, Games, Tablets, Trending, View Order, Login, and Cart(0).

The main content area displays a sidebar with categories: Consoles (Microsoft, Sony, Nintendo), Games (Electronic Arts, Activision, Take-Two Interactive), and Tablets. The main content area is titled "Microsoft Consoles" and shows two products: "Xbox One" (\$399.99) and "xbox360" (\$399.99). Each product card includes "Buy Now", "WriteReview", and "ViewReview" buttons. The "ViewReview" button for the Xbox 360 product is highlighted with a red rectangle.



## 6. Example – View Review when MongoDB Server not running:

Trying to view review for Product

The screenshot shows a web application interface for 'Game Speed'. At the top, there's a header with a game controller icon, the title 'Game Speed', and a search bar labeled 'Search Product: search here..'. Below the header is a navigation bar with links: Home, Consoles, Games, Tablets, Trending, ViewOrder, Hello,Tester8, Account, Logout, and Cart(0). On the left side, there's a sidebar with three sections: 'Consoles' (listing Microsoft, Sony, Nintendo), 'Games' (listing Electronic Arts, Activision, Take-Two Interactive), and 'Tablets'. The main content area is titled 'Review' and contains the text 'Mongo Db server is not up and running'. A purple arrow points from a callout box on the right towards this error message.

localhost:8080/Tutorial\_3/ViewReview

Game Speed

Search Product:  
search here..

Home Consoles Games Tablets Trending ViewOrder Hello,Tester8 Account Logout Cart(0)

Consoles

- Microsoft
- Sony
- Nintendo

Games

- Electronic Arts
- Activision
- Take-Two Interactive

Tablets

Review

Mongo Db server is not up and running

If MongoDB server  
not running gives an  
error message

## 7. Code Snippet

Walkthrough to get connect to  
Database from Servlet



## MongoDBDataStoreUtilities class to connect Database from Servlet

```
public class MongoDBDataStoreUtilities
{
    static DBCollection myReviews;
    public static void getConnection()
    {
        MongoClient mongo;
        mongo = new MongoClient("localhost", 27017);

        DB db = mongo.getDB("CustomerReviews");
        myReviews= db.getCollection("myReviews");
    }
}
```

Connecting to  
CustomerReviews  
database

Getting Reviews data  
to DbCollection object



# Walkthrough for Inserting Reviews Code Snippet



```
public static String insertReview(String productname, String username, String producttype, String productmaker, String reviewrating, String reviewdate, String reviewtext, String retailerpin, String price, String retailercity)
{
    try
    {
        getConnection();
        BasicDBObject doc = new BasicDBObject("title", "myReviews").
            append("userName", username).
            append("productName", productname).
            append("productType", producttype).
            append("productMaker", productmaker).
            append("reviewRating", Integer.parseInt(reviewrating)).
            append("reviewDate", reviewdate).
            append("reviewText", reviewtext).
            append("retailerpin", retailerpin).
            append("retailercity", retailercity).
            append("price", (int) Double.parseDouble(price));
        myReviews.insert(doc);
        return "Successfull";
    }
    catch(Exception e)
    {
        return "UnSuccessfull";
    }
}
```

Creating a  
BasicObject to insert  
data into database

Specifying each  
column to insert  
value

DbCollection.insert()  
Will insert data into  
database

# Walkthrough for Selecting Reviews Code Snippet



# Utility Function for Selecting Review Data into Hashmap

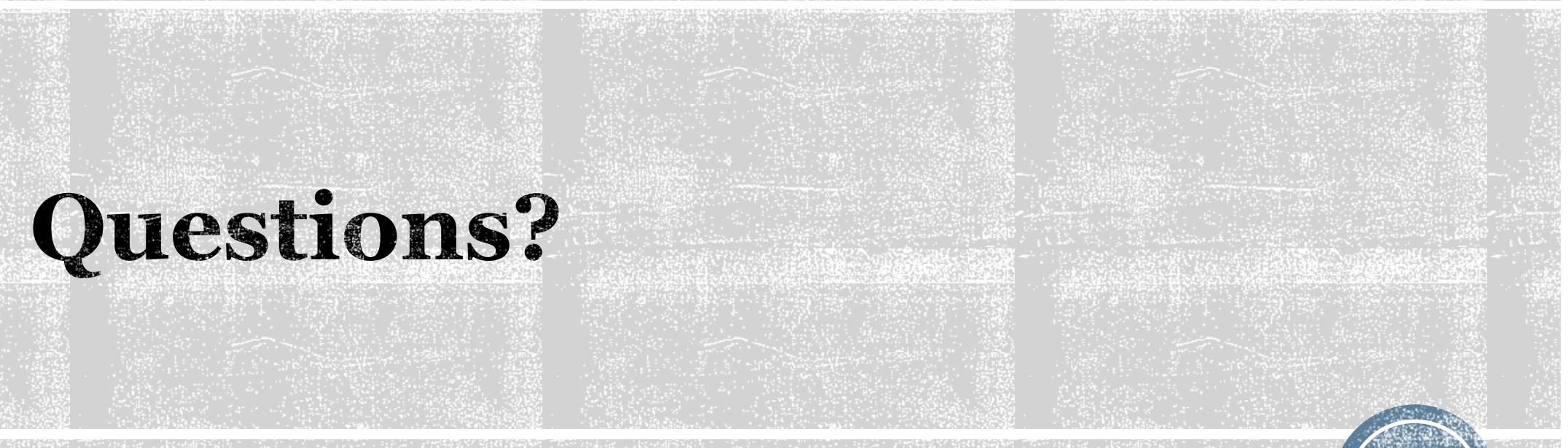
```
public static HashMap<String, ArrayList<Review>> selectReview()
{
    HashMap<String, ArrayList<Review>> reviews=null;
    try{
        getConnection();
        DBCursor cursor = myReviews.find(); ←
        reviews=new HashMap<String, ArrayList<Review>>();
        while (cursor.hasNext())
        {BasicDBObject obj = (BasicDBObject) cursor.next();

            if(!reviews.containsKey(obj.getString("productName")))
            {
                ArrayList<Review> arr = new ArrayList<Review>();
                reviews.put(obj.getString("productName"), arr);
            }
            ArrayList<Review> listReview = reviews.get(obj.getString("productName"));
            Review review =new
Review(obj.getString("productName"),obj.getString("userNamer"),obj.getString("productType"),obj.getString("productMaker"),
obj.getString("reviewRating"),obj.getString("reviewDate"),obj.getString("reviewText"),obj.getString("retailerpin"),obj.getString("price"),
obj.getString("retailercity"));
            //add to review hashmap
            listReview.add(review);
        }
    return reviews;
}
```

DBCursor used to store table data obtained from database in servlet

Iterate through Cursor and Store each review into class object





# Questions?

