

St. Francis Institute of Technology Borivli (West), Mumbai-400103

(Autonomous Institute)
Department of Information Technology

Academic Year: 2024-25

Class: TE-ITA/B

Semester: VI

Subject: Web Lab

Experiment – 6: Install MongoDB, perform CRUD operations using the Mongo shell, and utilize MongoDB Compass to query and analyze data effectively, Install and use MongoDB Compass to query and analyze MongoDB data

1. **Aim:** Installation of MongoDB and perform CRUD operations using Mongo shell, Install and use MongoDB Compass to query and analyze MongoDB data.
2. **Objectives:** Aim of this experiment is that, the students will be able
 - To install MongoDB and MongoDB compass
 - Read and understand commonly-used MongoDB syntax
 - Environment setup
 - To understand the use of tools available in compass to query MongoDB data.
3. **Outcomes:** After study of this experiment, the students will be able
 - To write and execute queries for performing CRUD operations in MongoDB
 - To create and manage databases using MongoDB Compass GUI.
 - To handle coding and syntax error
4. **Prerequisite:** Basic understanding of database, SQL and OOPs, text editor and execution of programs, Basic understanding of database, MongoDB commands, data types
5. **Requirements:** Personal Computer, Windows operating system, MongoDB, Mongo shell browser, Internet Connection, google doc.
6. **Pre-Experiment Exercise:**
Brief Theory: Refer shared material
7. **Laboratory Exercise**
 - A. **Procedure:**
 - a. **Answer the following:**
 - What are some of the advantages of MongoDB?
 - What is a Document in MongoDB?
 - Explain Sharding in MongoDB.
 - What is the MongoDB Compass?
 - How is the MongoDB compass different from MongoDB shell?
 - b. **Attach screenshots:**
 - MongoDB code and output with your own comments.
 - MongoDB Compass screenshots.

8. Post-Experiments Exercise

A. Extended Theory:

Nil

B. Questions:

- What are some features of MongoDB?
- How to perform queries in MongoDB?
- What are the data types in MongoDB?
- Explain the three ways to access documents in MongoDB Compass.
- Explain the use of schema and aggregations tab available in Compass GUI.

C. Conclusion:

- Write what was performed in the experiment.
- Write the significance of the topic studied in the experiment.

D. References:

1. MongoDB in Action, Second Edition, by Kyle Banker, Peter Bakkum
2. <https://docs.mongodb.com/manual/>
3. MongoDB in Action, Second Edition, by Kyle Banker, Peter Bakkum
4. <https://hevodata.com/learn/mongodb-compass/>
5. <https://www.digitalocean.com/community/tutorials/how-to-use-mongodb-compass>

Mongosh CLI: Connected to MongoDB Server

```
mongosh mongodb://127.0.0.1:27017/?directConnection=true&serverSelection...
(c) Microsoft Corporation. All rights reserved.

C:\Users\Student>mongosh
Current Mongosh Log ID: 67ebb55def59127d04b71235
Connecting to:      mongodb://127.0.0.1:27017/?directConnection=true
&serverSelectionTimeoutMS=2000&appName=mongosh+2.4.2
Using MongoDB:      8.0.5
Using Mongosh:       2.4.2

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

-----
  The server generated these startup warnings when booting
  2025-04-01T12:59:57.981+05:30: Access control is not enabled for the
  database. Read and write access to data and configuration is unrestricte
  d
  -----

test>
```

Mongosh CLI: Switched to 'hr' Database

```
Select mongosh mongodb://127.0.0.1:27017/?directConnection=true&serverSe...
test> use hr
switched to db hr
hr>
```

Inserting Data into 'hr' Database via Mongosh

```
mongosh mongodb://127.0.0.1:27017/?directConnection=true&serverSelection...
hr> db.employess.insertOne({"empid":56,"fname":"VishalRMahajan","company
":"unemployed","age":20})
{
  acknowledged: true,
  insertedId: ObjectId('67ebb634ef59127d04b71236')
}
hr>
```

Name: Vishal Rajesh Mahajan

Class: TE IT A

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Data Retrieved from 'hr' Database in Mongosh

```
>_MONGOSH
> use hr
< switched to db hr
> db["employess"].find({"empid":56})
< {
  _id: ObjectId('67ebb634ef59127d04b71236'),
  empid: 56,
  fname: 'VishalRMahajan',
  company: 'unemployed',
  age: 20
}
hr>|
```

updateOne Operation in 'hr' Database via Mongosh

```
> db.employess.updateOne({"empid": 56}, {$set: {"fname": "Vishal Mahajan"}})
< {
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
> db["employess"].find()
< {
  _id: ObjectId('67ebb634ef59127d04b71236'),
  empid: 56,
  fname: 'Vishal Mahajan',
  company: 'unemployed',
  age: 20
}
hr>|
```

deleteOne Operation in 'hr' Database via Mongosh

```
>_MONGOSH
> db["employess"].deleteOne({"empid":56})
< {
  acknowledged: true,
  deletedCount: 1
}
> db["employess"].find()
<
hr>|
```

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Viewing the 'employess' Collection in MongoDB Compass

