Experiment No 10

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Aim:

To perform CRUD operations and aggregation using **MongoDB**, a NoSQL document-based database

Objective:

- Learn creation of databases and collections in MongoDB.
- Execute Insert, Read, Update, and Delete operations.

Tools / Software

- MongoDB
- Mongo Shell
- Sample Dataset

Code:

- **To Run the Mongo Shell :-** mongosh

```
PS C:\Users\ruchi> mongosh
Current Mongosh Log ID: 6901eb68e8ffe9c747cebea3
Connecting to:          mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+2
.5.8
Using MongoDB:          8.2.1
Using Mongosh:          2.5.8

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

------
   The server generated these startup warnings when booting
   2025-10-28T10:47:21.504+05:30: Access control is not enabled for the database. Read and write access to data and conf
iguration is unrestricted
------
```

- **To Show databases:-** show dbs

```
test> show dbs
admin          40.00 KiB
carDealership   8.00 KiB
config         96.00 KiB
local          40.00 KiB
```

- **To Create and use a database:-** use car_dealership

```
test> use car_dealership
switched to db car_dealership
car_dealership>
```

- **Insertion Operations:-**
  - **db.createCollection()**
  - **db.cars.insertMany()**

```
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('6901ec50e8ffe9c747cebea4'),
    '1': ObjectId('6901ec50e8ffe9c747cebea5'),
    '2': ObjectId('6901ec50e8ffe9c747cebea6'),
    '3': ObjectId('6901ec50e8ffe9c747cebea7')
  }
}
```

- **Read Operations:-**
  - **db.cars.find()**

```
[
  { model: 'i20' },
  { model: 'Nexon' },
  { model: 'Seltos' },
  { model: 'Swift' }
]
```

- **Update Operations:-**
  - db.cars.updateOne()
  - db.cars.updateMany()

```
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
```

- **Delete Operations:-**
  - **db.cars.deleteOne()**

```
car_dealership> db.cars.deleteOne({ model: "Swift" })
{ acknowledged: true, deletedCount: 1 }
```

5. Learning Outcomes:

- Understand the fundamental concepts of NoSQL databases and the document-based structure of MongoDB.
- Demonstrate proficiency in performing CRUD (Create, Read, Update, Delete) operations on MongoDB collections.
- Apply aggregation functions to analyze and summarize data effectively using MongoDB pipelines.
- Gain hands-on experience with Mongo Shell commands for database management and query execution.