



DEPARTMENT OF

COMPUTER SCIENCE & ENGINEERING

EXPERIMENT- 10

Student Name: Gaurav Singh

UID: 23BCS12992

Branch: BE-CSE

Section/Group: KRG 1(A)

Semester: 05

Date of Performance: 30/10/25

Subject Name: ADBMS

Subject Code: 23CSP-333

1. Aim: To perform CRUD operations and aggregation using **MongoDB**, a NoSQL documentbased database.

2. Objective:

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

3. Tools / Software

- MongoDB
- Mongo Shell
- Sample Dataset: Car Dealership Data

4. Program:

```
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
figuration is unrestricted
-----
```

-- show dbs


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

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

INSERTION OPERATION:

```
db.createCollection("cars")
db.cars.insertMany([
  { maker: "Hyundai", model: "i20", fuel_type: "Petrol" },
  { maker: "Tata", model: "Nexon", fuel_type: "Diesel" },
  { maker: "Kia", model: "Seltos", fuel_type: "Petrol" },
  { maker: "Maruti", model: "Swift", fuel_type: "CNG" }
])
```

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

READ OPERATION:

```
db.cars.find()      db.cars.find({ fuel_type:
"Petrol" })
db.cars.find({}, { model: 1, _id: 0 })
```

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


UPDATE OPERATION:

```
db.cars.updateOne({ model: "i20" }, { $set: { fuel_type: "Hybrid" } })  
db.cars.updateMany({}, { $set: { color: "White" } }) db.cars.updateOne({  
model: "Nexon" }, { $push: { features: "Sunroof" } })
```

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

DELETE OPERATION:

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

AGGREGATION:

```
db.cars.aggregate([ { $group: { _id: "$maker", totalCars: { $sum: 1 } } } ])  
[  
  { _id: 'Kia', totalCars: 1 },  
  { _id: 'Hyundai', totalCars: 1 },  
  { _id: 'Tata', totalCars: 1 }  
]
```

5. Learning Outcomes:

1. Understand the fundamental concepts of NoSQL databases and the document-based structure of MongoDB.
2. Demonstrate proficiency in performing CRUD (Create, Read, Update, Delete) operations on MongoDB collections.



DEPARTMENT OF

COMPUTER SCIENCE & ENGINEERING

3. Apply aggregation functions to analyze and summarize data effectively using MongoDB pipelines.

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

4. Gain hands-on experience with Mongo Shell commands for database management and query execution.