



# MongoDB Basics

## 1. Database Creation

In MongoDB, databases are created automatically when you first store data.

```
use myDatabase
```

- Switches to `myDatabase` (creates it if not already existing).
- 

## 2. Collection Creation

Collections (like tables in SQL) are also created automatically when you insert data. But you can create them explicitly:

```
db.createCollection("students")
```

Check all collections:

```
show collections
```

---

## 3. Insert Documents (CREATE)

```
// Insert one document
```

```
db.students.insertOne({ name: "Ankit", age: 20, marks: 85 })
```

```
// Insert multiple documents
```

```
db.students.insertMany([  
  { name: "Riya", age: 22, marks: 90 },  
  { name: "Arun", age: 19, marks: 78 }  
])
```



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## 4. Find Documents (READ)

```
// Fetch all documents
db.students.find()

// Fetch with a condition
db.students.find({ age: 20 })

//Fetch all students with age>20 and age<40
db.students.find({age:{$gt:20,$lt:40}})

// Fetch specific fields only
db.students.find({}, { name: 1, marks: 1, _id: 0 })

// Sort results (marks descending) and display only marks
db.students.find({}, {marks:1,_id:0}).sort({ marks: -1 })

// Limit results (top 2 students)
db.students.find().limit(2)
```

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## 5. Update Documents (UPDATE)

```
// Update one document
db.students.updateOne(
  { name: "Ankit" },
  { $set: { marks: 95 } }
)

// Update multiple documents
db.students.updateMany(
  { marks: { $lt: 50 } },
  { $set: { status: "Fail" } }
)
```



```
// Increment marks by 5
db.students.updateOne(
  { name: "Riya" },
  { $inc: { marks: 5 } }
)
```

---

## 6. Delete Documents (DELETE)

```
// Delete one
db.students.deleteOne({ name: "Ankit" })

// Delete multiple
db.students.deleteMany({ marks: { $lt: 40 } })
```

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## 7. Extra Useful Commands

- Show all databases:  
`show dbs`
  - Count documents in collection:  
`db.students.countDocuments()`
  - Find one document:  
`db.students.findOne({ name: "Riya" })`
  - Drop a collection:  
`db.students.drop()`
  - Drop a database:  
`db.dropDatabase()`
-



## Practice Questions

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**Q1. Switch to a DB named `myPractice` and create a `students` collection.**

**Answer:**

```
use myPractice
db.createCollection("students")
```

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**Q2. Insert three students (fields: `name`, `age`, `marks`).**

**Answer:**

```
db.students.insertMany([
  { name: "Ankit", age: 20, marks: 85 },
  { name: "Riya", age: 22, marks: 91 },
  { name: "Arun", age: 19, marks: 72 }
])
```

---

**Q3. Fetch all students.**

**Answer:**

```
db.students.find()
```

---

**Q4. Fetch only `name` and `marks` (hide `_id`).**

**Answer:**

```
db.students.find({}, { name: 1, marks: 1, _id: 0 })
```

---

**Q5. Get students with `age > 20`, sorted by `marks` (high → low).**

**Answer:**

```
db.students.find({ age: { $gt: 20 } }).sort({ marks: -1 })
```



---

**Q6. Increase **marks** by 5 for the student named “Riya”.**

**Answer:**

```
db.students.updateOne(  
  { name: "Riya" },  
  { $inc: { marks: 5 } }  
)
```

---

**Q7. Set **status**: “Fail” for all students with **marks** < 40.**

**Answer:**

```
db.students.updateMany(  
  { marks: { $lt: 40 } },  
  { $set: { status: "Fail" } }  
)
```

---

**Q8. Delete one student whose name is “Arun”.**

**Answer:**

```
db.students.deleteOne({ name: "Arun" })
```

---

**Q9. Count how many students are in the collection.**

**Answer:**

```
db.students.countDocuments()
```

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**Q10.** Drop the **students** collection and then drop the whole database.

**Answer:**

```
db.students.drop()
```

```
db.dropDatabase()
```

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