

### **LAB ASSIGNMENT – 3**

**DATE: 02/02/2026**

**Name:- Chayan Das**

**RollNo: UG/02/BTCSECSF/2023/020**

**RegNO: AU/2023/0009869**

**Section :'E'**

## **Schema**

{ roll\_no, name, age, department, city, marks }

Roll No	Name	Age	Department	City	Marks
1	Amit	20	CSE	Kolkata	78
2	Neha	19	IT	Delhi	65
3	Ravi	21	CSE	Mumbai	82
4	Pooja	22	ECE	Chennai	70
5	Karan	20	IT	Kolkata	55

## **Initial Data**

**Database Name:** collegeDB\_`YourRollNo`

**Collection Name:** students\_`YourRollNo`

```
[test> use collegeDB_020
|
| switched to db collegeDB_020
[collegeDB_020> db.createCollection("students_020")
|
| collegeDB_020> db.students_020.insertMany([
|   { roll_no: 1, name: "Amit", age: 20, department: "CSE", city: "Kolkata", marks: 78 },
|   { roll_no: 2, name: "Neha", age: 19, department: "IT", city: "Delhi", marks: 65 },
|   { roll_no: 3, name: "Ravi", age: 21, department: "CSE", city: "Mumbai", marks: 82 },
|   { roll_no: 4, name: "Pooja", age: 22, department: "ECE", city: "Chennai", marks: 70 },
|   { roll_no: 5, name: "Karan", age: 20, department: "IT", city: "Kolkata", marks: 55 }
| ])
|
| {
|   acknowledged: true,
|   insertedIds: {
|     '0': ObjectId('698044c63f62d03d50c92e3d'),
|     '1': ObjectId('698044c63f62d03d50c92e3e'),
|     '2': ObjectId('698044c63f62d03d50c92e3f'),
|     '3': ObjectId('698044c63f62d03d50c92e40'),
|     '4': ObjectId('698044c63f62d03d50c92e41')
|   }
| }
```

## Lab Questions

Q1. Display all student records from the collection.

```
[collegeDB_020> db.students_020.find()
| [
| {
|   _id: ObjectId('698044c63f62d03d50c92e3d'),
|   roll_no: 1,
|   name: 'Amit',
|   age: 20,
|   department: 'CSE',
|   city: 'Kolkata',
|   marks: 78
| },
| {
|   _id: ObjectId('698044c63f62d03d50c92e3e'),
|   roll_no: 2,
|   name: 'Neha',
|   age: 19,
|   department: 'IT',
|   city: 'Delhi',
|   marks: 65
| },
| {
|   _id: ObjectId('698044c63f62d03d50c92e3f'),
|   roll_no: 3,
|   name: 'Ravi',
|   age: 21,
|   department: 'CSE',
|   city: 'Mumbai',
|   marks: 82
| },
| {
|   _id: ObjectId('698044c63f62d03d50c92e40'),
|   roll_no: 4,
|   name: 'Pooja',
|   age: 22,
|   department: 'ECE',
|   city: 'Chennai',
|   marks: 70
| },
| {
|   _id: ObjectId('698044c63f62d03d50c92e41'),
|   roll_no: 5,
|   name: 'Karan',
|   age: 20,
|   department: 'IT',
|   city: 'Kolkata',
|   marks: 55
| }
]
```

Q2. Display only the name and department of all students.

```
[collegeDB_020> db.students_020.find(
|   {},
|   { _id: 0, name: 1, department: 1 }
| )
|
[ {
  name: 'Amit', department: 'CSE' },
  { name: 'Neha', department: 'IT' },
  { name: 'Ravi', department: 'CSE' },
  { name: 'Pooja', department: 'ECE' },
  { name: 'Karan', department: 'IT' }
]
```

Q3. Find students belonging to the CSE department.

```
[collegeDB_020> db.students_020.find({ department: "CSE" })
|
[
  {
    _id: ObjectId('698044c63f62d03d50c92e3d'),
    roll_no: 1,
    name: 'Amit',
    age: 20,
    department: 'CSE',
    city: 'Kolkata',
    marks: 78
  },
  {
    _id: ObjectId('698044c63f62d03d50c92e3f'),
    roll_no: 3,
    name: 'Ravi',
    age: 21,
    department: 'CSE',
    city: 'Mumbai',
    marks: 82
  }
]
```

Q4. Find students whose age is greater than 20.

```
[collegeDB_020> db.students_020.find({ age: { $gt: 20 } })
|
[
  {
    _id: ObjectId('698044c63f62d03d50c92e3f'),
    roll_no: 3,
    name: 'Ravi',
    age: 21,
    department: 'CSE',
    city: 'Mumbai',
    marks: 82
  },
  {
    _id: ObjectId('698044c63f62d03d50c92e40'),
    roll_no: 4,
    name: 'Pooja',
    age: 22,
    department: 'ECE',
    city: 'Chennai',
    marks: 70
  }
]
```

Q5. Find students who scored less than 70 marks.

```
[collegeDB_020> db.students_020.find({ marks: { $lt: 70 } })
[
  {
    _id: ObjectId('698044c63f62d03d50c92e3e'),
    roll_no: 2,
    name: 'Neha',
    age: 19,
    department: 'IT',
    city: 'Delhi',
    marks: 65
  },
  {
    _id: ObjectId('698044c63f62d03d50c92e41'),
    roll_no: 5,
    name: 'Karan',
    age: 20,
    department: 'IT',
    city: 'Kolkata',
    marks: 55
  }
]
```

Q6. Display students belonging to Kolkata city.

```
[collegeDB_020> db.students_020.find({ city: "Kolkata" })
|
[
  {
    _id: ObjectId('698044c63f62d03d50c92e3d'),
    roll_no: 1,
    name: 'Amit',
    age: 20,
    department: 'CSE',
    city: 'Kolkata',
    marks: 78
  },
  {
    _id: ObjectId('698044c63f62d03d50c92e41'),
    roll_no: 5,
    name: 'Karan',
    age: 20,
    department: 'IT',
    city: 'Kolkata',
    marks: 55
  }
]
```

Q7. Sort students by age in ascending order.

```
[collegeDB_020> db.students_020.find().sort({ age: 1 })
|
[
  {
    _id: ObjectId('698044c63f62d03d50c92e3e'),
    roll_no: 2,
    name: 'Neha',
    age: 19,
    department: 'IT',
    city: 'Delhi',
    marks: 65
  },
  {
    _id: ObjectId('698044c63f62d03d50c92e3d'),
    roll_no: 1,
    name: 'Amit',
    age: 20,
    department: 'CSE',
    city: 'Kolkata',
    marks: 78
  },
  {
    _id: ObjectId('698044c63f62d03d50c92e41'),
    roll_no: 5,
    name: 'Karan',
    age: 20,
    department: 'IT',
    city: 'Kolkata',
    marks: 55
  },
  {
    _id: ObjectId('698044c63f62d03d50c92e3f'),
    roll_no: 3,
    name: 'Ravi',
    age: 21,
    department: 'CSE',
    city: 'Mumbai',
    marks: 82
  },
  {
    _id: ObjectId('698044c63f62d03d50c92e40'),
    roll_no: 4,
    name: 'Pooja',
    age: 22,
    department: 'ECE',
    city: 'Chennai',
    marks: 70
  }
]
```

Q8. Sort students by marks in descending order.

```
[collegeDB_020> db.students_020.find().sort({ marks: -1 })
|
[
  {
    _id: ObjectId('698044c63f62d03d50c92e3f'),
    roll_no: 3,
    name: 'Ravi',
    age: 21,
    department: 'CSE',
    city: 'Mumbai',
    marks: 82
  },
  {
    _id: ObjectId('698044c63f62d03d50c92e3d'),
    roll_no: 1,
    name: 'Amit',
    age: 20,
    department: 'CSE',
    city: 'Kolkata',
    marks: 78
  },
  {
    _id: ObjectId('698044c63f62d03d50c92e40'),
    roll_no: 4,
    name: 'Pooja',
    age: 22,
    department: 'ECE',
    city: 'Chennai',
    marks: 70
  },
  {
    _id: ObjectId('698044c63f62d03d50c92e3e'),
    roll_no: 2,
    name: 'Neha',
    age: 19,
    department: 'IT',
    city: 'Delhi',
    marks: 65
  },
  {
    _id: ObjectId('698044c63f62d03d50c92e41'),
    roll_no: 5,
    name: 'Karan',
    age: 20,
    department: 'IT',
    city: 'Kolkata',
    marks: 55
  }
]
```

Q9. Display only the first three student records.

```
[collegeDB_020> db.students_020.find().limit(3)
|
[
  {
    _id: ObjectId('698044c63f62d03d50c92e3d'),
    roll_no: 1,
    name: 'Amit',
    age: 20,
    department: 'CSE',
    city: 'Kolkata',
    marks: 78
  },
  {
    _id: ObjectId('698044c63f62d03d50c92e3e'),
    roll_no: 2,
    name: 'Neha',
    age: 19,
    department: 'IT',
    city: 'Delhi',
    marks: 65
  },
  {
    _id: ObjectId('698044c63f62d03d50c92e3f'),
    roll_no: 3,
    name: 'Ravi',
    age: 21,
    department: 'CSE',
    city: 'Mumbai',
    marks: 82
  }
]
```

Q10. Update the marks of student Neha to 72.

```
[collegeDB_020> db.students_020.updateOne(  
|   { name: "Neha" },  
|   { $set: { marks: 72 } }  
| )  
|  
{  
  acknowledged: true,  
  insertedId: null,  
  matchedCount: 1,  
  modifiedCount: 1,  
  upsertedCount: 0  
}
```

Q11. Increase the marks of all students by 5.

```
[collegeDB_020> db.students_020.updateMany(  
|   {},  
|   { $inc: { marks: 5 } }  
| )  
|  
{  
  acknowledged: true,  
  insertedId: null,  
  matchedCount: 5,  
  modifiedCount: 5,  
  upsertedCount: 0  
}
```

Q12. Delete the student having roll number 5.

```
collegeDB_020> db.students_020.deleteOne({ roll_no: 5 })  
|  
{ acknowledged: true, deletedCount: 1 }  
collegeDB_020> █
```

Q13. Find students whose age is between 20 and 22.

```
[collegeDB_020> db.students_020.find({
|   age: { $gte: 20, $lte: 22 }
| })
[
  {
    _id: ObjectId('698044c63f62d03d50c92e3d'),
    roll_no: 1,
    name: 'Amit',
    age: 20,
    department: 'CSE',
    city: 'Kolkata',
    marks: 83
  },
  {
    _id: ObjectId('698044c63f62d03d50c92e3f'),
    roll_no: 3,
    name: 'Ravi',
    age: 21,
    department: 'CSE',
    city: 'Mumbai',
    marks: 87
  },
  {
    _id: ObjectId('698044c63f62d03d50c92e40'),
    roll_no: 4,
    name: 'Pooja',
    age: 22,
    department: 'ECE',
    city: 'Chennai',
    marks: 75
  }
]
```

Q14. Display students belonging to either CSE or IT department.

```
collegeDB_020> db.students_020.find({
|   department: { $in: ["CSE", "IT"] }
| })
[
  {
    _id: ObjectId('698044c63f62d03d50c92e3d'),
    roll_no: 1,
    name: 'Amit',
    age: 20,
    department: 'CSE',
    city: 'Kolkata',
    marks: 83
  },
  {
    _id: ObjectId('698044c63f62d03d50c92e3e'),
    roll_no: 2,
    name: 'Neha',
    age: 19,
    department: 'IT',
    city: 'Delhi',
    marks: 77
  },
  {
    _id: ObjectId('698044c63f62d03d50c92e3f'),
    roll_no: 3,
    name: 'Ravi',
    age: 21,
    department: 'CSE',
    city: 'Mumbai',
    marks: 87
  }
]
```

## MONGODB COMPASS

CONNECTIONS (1)

localhost:27017

Search connections

ADD DATA UPDATE DELETE EXPORT DATA EXPORT CODE

\_id: ObjectId('698044c63f62d03d50c92e3d')  
roll\_no : 1  
name : "Amit"  
age : 20  
department : "CSE"  
city : "Kolkata"  
marks : 83

\_id: ObjectId('698044c63f62d03d50c92e3e')  
roll\_no : 2  
name : "Neha"  
age : 19  
department : "IT"  
city : "Delhi"  
marks : 77

\_id: ObjectId('698044c63f62d03d50c92e3f')  
roll\_no : 3  
name : "Ravi"  
age : 21  
department : "CSE"  
city : "Mumbai"  
marks : 87

\_id: ObjectId('698044c63f62d03d50c92e40')  
roll\_no : 4  
name : "Pooja"  
age : 22  
department : "ECE"  
city : "Chennai"  
marks : 75