

LAB ASSIGNMENT – 3

DATE: 02/02/2026

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RollNo: UG/02/BTCSEAIML/2023/075

RegNO: AU/2023/0010993

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_AIML075
switched to db collegeDB_AIML075
collegeDB_AIML075> db.createCollection("Students_AIML075")
{ ok: 1 }
collegeDB_AIML075> db.Students_AIML075.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('69804c5a86c63d39831e2621'),
    '1': ObjectId('69804c5a86c63d39831e2622'),
    '2': ObjectId('69804c5a86c63d39831e2623'),
    '3': ObjectId('69804c5a86c63d39831e2624'),
    '4': ObjectId('69804c5a86c63d39831e2625')
  }
}
```

Lab Questions

Q1. Display all student records from the collection.

```
collegeDB_AIML075> db.Students_AIML075.find()
[
  {
    _id: ObjectId('69804c5a86c63d39831e2621'),
    roll_no: 1,
    name: 'Amit',
    age: 20,
    department: 'CSE',
    marks: 78
  },
  {
    _id: ObjectId('69804c5a86c63d39831e2622'),
    roll_no: 2,
    name: 'Neha',
    age: 19,
    department: 'IT',
    city: 'Delhi',
    marks: 65
  },
  {
    _id: ObjectId('69804c5a86c63d39831e2623'),
    roll_no: 3,
    name: 'Ravi',
    age: 21,
    department: 'CSE',
    city: 'Mumbai',
    marks: 82
  },
  {
    _id: ObjectId('69804c5a86c63d39831e2624'),
    roll_no: 4,
    name: 'Pooja',
    age: 22,
    department: 'ECE',
    city: 'Chennai',
    marks: 70
  },
  {
    _id: ObjectId('69804c5a86c63d39831e2625'),
    roll_no: 5,
    name: 'Karan',
    age: 20,
    department: 'IT',
    marks: 85
  }
]
```

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

```
collegeDB_AIML075> db.Students_AIML075.find({}, {name:1, department:1, _id:0})
[
  { 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_AIML075> db.Students_AIML075.find({department:"CSE"})
[
  marks: 78
  {,
    _id: ObjectId('69804c5a86c63d39831e2621'),
    roll_no: 1,Id('69804c5a86c63d39831e2622'),
    name: 'Amit',
    age: 20,eha',
    department: 'CSE',
    city: 'Kolkata',,,
    marks: 78lhi',
  },marks: 65
  {,
    _id: ObjectId('69804c5a86c63d39831e2623'),
    roll_no: 3,Id('69804c5a86c63d39831e2623'),
    name: 'Ravi',
    age: 21,avi',
    department: 'CSE',
    city: 'Mumbai',E',
    marks: 82mbai',
  }
  marks: 82
],
```

Q4. Find students whose age is greater than 20.

```
collegeDB_AIML075> db.Students_AIML075.find({age:{$gt:20}})
[
  {
    _id: ObjectId('69804c5a86c63d39831e2623'),
    roll_no: 3,
    name: 'Ravi',
    age: 21,
    department: 'CSE',
    city: 'Mumbai',
    marks: 82
  },
  {
    _id: ObjectId('69804c5a86c63d39831e2624'),
    roll_no: 4,
    name: 'Pooja',
    age: 22,
    department: 'ECE',
    city: 'Chennai',
    marks: 70
  }
]
```

Q5. Find students who scored less than 70 marks.

```
collegeDB_AIML075> db.Students_AIML075.find({marks:{$lt:70}})
[
  {
    _id: ObjectId('69804c5a86c63d39831e2622'),
    roll_no: 2,
    name: 'Neha',
    age: 19,
    department: 'IT',
    city: 'Delhi',
    marks: 65
  },
  {
    _id: ObjectId('69804c5a86c63d39831e2625'),
    roll_no: 5,
    name: 'Karan',
    age: 20,
    department: 'IT',
    city: 'Kolkata',
    marks: 55
  }
]
```

Q6. Display students belonging to Kolkata city.

```
collegeDB_AIML075> db.Students_AIML075.find({city:"Kolkata"})
[
  {
    _id: ObjectId('69804c5a86c63d39831e2621'),
    roll_no: 1,
    name: 'Amit',
    age: 20,
    department: 'CSE',
    city: 'Kolkata',
    marks: 78
  },
  {
    _id: ObjectId('69804c5a86c63d39831e2625'),
    roll_no: 5,
    name: 'Karan',
    age: 20,
    department: 'IT',
    city: 'Kolkata',
    marks: 55
  }
]
```

Q7. Sort students by age in ascending order.

```
collegeDB_AIML075> db.Students_AIML075.find().sort({age:1})
[
  {
    _id: ObjectId('69804c5a86c63d39831e2622'),
    roll_no: 2,
    name: 'Neha',
    age: 19,
    department: 'IT',
    city: 'Delhi',
    marks: 65
  },
  {
    _id: ObjectId('69804c5a86c63d39831e2621'),
    roll_no: 1,
    name: 'Amit',
    age: 20,
    department: 'CSE',
    city: 'Kolkata',
    marks: 78
  },
  {
    _id: ObjectId('69804c5a86c63d39831e2625'),
    roll_no: 5,
    name: 'Karan',
    age: 20,
    department: 'IT',
    city: 'Kolkata',
    marks: 55
  },
]
```

```

  {
    _id: ObjectId('69804c5a86c63d39831e2623'),
    roll_no: 3,
    name: 'Ravi',
    age: 21,
    department: 'CSE',
    city: 'Mumbai',
    marks: 82
  },
  {
    _id: ObjectId('69804c5a86c63d39831e2624'),
    roll_no: 4,
    name: 'Pooja',
    age: 22,
    department: 'ECE',
    city: 'Chennai',
    marks: 70
  }
]
```

Q8. Sort students by marks in descending order.

```
collegeDB_AIIML075> db.Students_AIIML075.find().sort({marks:-1})
[
  {
    _id: ObjectId('69804c5a86c63d39831e2623'),
    roll_no: 3,
    name: 'Ravi',
    age: 21,
    department: 'CSE',
    city: 'Mumbai',
    marks: 82
  },
  {
    _id: ObjectId('69804c5a86c63d39831e2621'),
    roll_no: 1,
    name: 'Amit',
    age: 20,
    department: 'CSE',
    city: 'Kolkata',
    marks: 78
  },
  {
    _id: ObjectId('69804c5a86c63d39831e2624'),
    roll_no: 4,
    name: 'Pooja',
    age: 22,
    department: 'ECE',
    city: 'Chennai',
    marks: 70
  },
  {
    _id: ObjectId('69804c5a86c63d39831e2622'),
    roll_no: 2,
    name: 'Neha',
    age: 19,
    department: 'IT',
    city: 'Delhi',
    marks: 65
  },
]
```

Q9. Display only the first three student records.

```
collegeDB_AIIML075> db.Students_AIIML075.find().limit(3)
[
  {
    _id: ObjectId('69804c5a86c63d39831e2621'),
    roll_no: 1,
    name: 'Amit',
    age: 20,
    department: 'CSE',
    city: 'Kolkata',
    marks: 78
  },
  {
    _id: ObjectId('69804c5a86c63d39831e2622'),
    roll_no: 2,
    name: 'Neha',
    age: 19,
    department: 'IT',
    city: 'Delhi',
    marks: 65
  },
  {
    _id: ObjectId('69804c5a86c63d39831e2623'),
    roll_no: 3,
    name: 'Ravi',
    age: 21,
    department: 'CSE',
    city: 'Mumbai',
    marks: 82
  }
]
```

Q10. Update the marks of student Neha to 72.

```
collegeDB_AIML075> db.Students_AIML075.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_AIML075> db.Students_AIML075.updateMany({}, {$inc:{marks:5}})
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 5,
  modifiedCount: 5,
  upsertedCount: 0
}
```

Q12. Delete the student having roll number 5.

```
collegeDB_AIML075> db.Students_AIML075.deleteOne({roll_no:5})
{ acknowledged: true, deletedCount: 1 }
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 5,
  modifiedCount: 5,
  upsertedCount: 0
}
```

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

```
[ acknowledged: true, deletedCount: 1 }
  {cknowledged: true,
    _id: ObjectId('69804c5a86c63d39831e2621'),
    roll_no: 1, 5,
    name: 'Amit',5,
    age: 20,unt: 0
    department: 'CSE',
    city: 'Kolkata',
    marks: 83
  },
  {
    _id: ObjectId('69804c5a86c63d39831e2623'),
    roll_no: 3,
    name: 'Ravi',
    age: 21,
    department: 'CSE',
    city: 'Mumbai',
    marks: 87
  },
  {
    _id: ObjectId('69804c5a86c63d39831e2624'),
    roll_no: 4,
    name: 'Pooja',
    age: 22,
    department: 'ECE',
    city: 'Chennai',
    marks: 75
  }
]
```

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

```
collegeDB_AIML075> db.Students_AIML075.find({department:{$in:["CSE","IT"]}})
[
  {
    _id: ObjectId('69804c5a86c63d39831e2621'),
    roll_no: 1,
    name: 'Amit',
    age: 20,
    department: 'CSE',
    city: 'Kolkata',
    marks: 83
  },
  {
    _id: ObjectId('69804c5a86c63d39831e2622'),
    roll_no: 2,
    name: 'Neha',
    age: 19,
    department: 'IT',
    city: 'Delhi',
    marks: 77
  },
  {
    _id: ObjectId('69804c5a86c63d39831e2623'),
    roll_no: 3,
    name: 'Ravi',
    age: 21,
    department: 'CSE',
    city: 'Mumbai',
    marks: 87
  }
]
```

MONGODB COMPASS

