

# LAB ASSIGNMENT – 5

Name: DISHA BISWAS

Programme: B.Tech CSE(DA)

Roll Number: UG/02/BTCSEDA/2023/004

Registration No: AU/2023/0009796

```
test> use companyDB
switched to db companyDB
companyDB> db.employees.insertMany([
  { emp_id: 101, name: "Amit", department: "IT", designation: "Developer", city: "Mumbai", salary: 60000, experience: 3 },
  { emp_id: 102, name: "Neha", department: "HR", designation: "HR Executive", city: "Delhi", salary: 45000, experience: 2 },
  { emp_id: 103, name: "Ravi", department: "IT", designation: "Tester", city: "Mumbai", salary: 50000, experience: 4 },
  { emp_id: 104, name: "Pooja", department: "Finance", designation: "Accountant", city: "Chennai", salary: 55000, experience: 5 },
  { emp_id: 105, name: "Waran", department: "IT", designation: "Developer", city: "Kolkata", salary: 50000, experience: 6 },
  { emp_id: 106, name: "Sneha", department: "HR", designation: "Developer", city: "Kolkata", salary: 55000, experience: 6 },
  { emp_id: 107, name: "Arjun", department: "Finance", designation: "Analyst", city: "Mumbai", salary: 40000, experience: 2 },
  { emp_id: 108, name: "Neera", department: "IT", designation: "Developer", city: "Bangalore", salary: 75000, experience: 8 },
  { emp_id: 109, name: "Shohit", department: "IT", designation: "Team Lead", city: "Pune", salary: 90000, experience: 10 },
  { emp_id: 110, name: "Anjali", department: "HR", designation: "Recruiter", city: "Mumbai", salary: 42000, experience: 1 }
])

{
  acknowledged: true,
  insertedIds: [
    '0': ObjectId('60933cef8f993df0db1e2621'),
    '1': ObjectId('60933cef8f993df0db1e2622'),
    '2': ObjectId('60933cef8f993df0db1e2623'),
    '3': ObjectId('60933cef8f993df0db1e2624'),
    '4': ObjectId('60933cef8f993df0db1e2625'),
    '5': ObjectId('60933cef8f993df0db1e2626'),
    '6': ObjectId('60933cef8f993df0db1e2627'),
    '7': ObjectId('60933cef8f993df0db1e2628'),
    '8': ObjectId('60933cef8f993df0db1e2629'),
    '9': ObjectId('60933cef8f993df0db1e262a')
  ]
}
companyDB> db.employees.find().pretty()
[
  {
    _id: ObjectId('60933cef8f993df0db1e2621'),
    emp_id: 101,
    name: 'Amit',
    department: 'IT',
    designation: 'Developer',
    city: 'Mumbai',
    salary: 60000,
    experience: 3
  }
]
```

## LAB QUESTIONS:

Q1. Display all employee records.

```
}

companyDB> db.employees.find()
[ {
  _id: ObjectId('6994161ce8dbda7a081e2621'),
  emp_id: 181,
  name: 'Ankit',
  department: 'IT',
  designation: 'Developer',
  city: 'Kolkata',
  salary: 68000,
  experience: 3
},
{
  _id: ObjectId('6994161ce8dbda7a081e2622'),
  emp_id: 182,
  name: 'Neha',
  department: 'HR',
  designation: 'HR Executive',
  city: 'Delhi',
  salary: 45000,
  experience: 2
},
{
  _id: ObjectId('6994161ce8dbda7a081e2623'),
  emp_id: 183,
  name: 'Ravi',
  department: 'IT',
  designation: 'Tester',
  city: 'Mumbai',
  salary: 58000,
  experience: 4
},
{
  _id: ObjectId('6994161ce8dbda7a081e2624'),
  emp_id: 184,
  name: 'Pooja',
  department: 'Finance',
  designation: 'Accountant',
  city: 'Chennai',
  salary: 55000,
  experience: 5
},
{
  _id: ObjectId('6994161ce8dbda7a081e2625'),
  emp_id: 185,
  name: 'Karan',
  department: 'IT',
  designation: 'Developer',
  city: 'Kolkata',
  salary: 65000,
  experience: 6
},
{
  _id: ObjectId('6994161ce8dbda7a081e2626'),
  emp_id: 186,
  name: 'Shreya',
  department: 'HR',
  designation: 'Manager',
  city: 'Delhi',
  salary: 70000,
  experience: 7
},
{
  _id: ObjectId('6994161ce8dbda7a081e2627'),
  emp_id: 187,
  name: 'Arjun',
  department: 'Finance',
  designation: 'Analyst',
  city: 'Mumbai',
  salary: 48000,
  experience: 2
},
{
  _id: ObjectId('6994161ce8dbda7a081e2628'),
  emp_id: 188,
  name: 'Reena',
  department: 'IT',
  designation: 'Developer',
  city: 'Bangalore',
  salary: 75000,
  experience: 8
},
{
  _id: ObjectId('6994161ce8dbda7a081e2629'),
  emp_id: 189,
  name: 'Rohit',
  department: 'IT',
  designation: 'Team Lead',
  city: 'Pune'
},
```

```
{
  _id: ObjectId('6994161ce8dbda7a081e262a'),
  emp_id: 190,
  name: 'Amit',
  department: 'IT',
  designation: 'Manager',
  city: 'Mumbai',
  salary: 80000,
  experience: 9
},
{
  _id: ObjectId('6994161ce8dbda7a081e262b'),
  emp_id: 191,
  name: 'Neha',
  department: 'HR',
  designation: 'Manager',
  city: 'Delhi',
  salary: 60000,
  experience: 7
},
{
  _id: ObjectId('6994161ce8dbda7a081e262c'),
  emp_id: 192,
  name: 'Ravi',
  department: 'IT',
  designation: 'Analyst',
  city: 'Chennai',
  salary: 50000,
  experience: 5
},
{
  _id: ObjectId('6994161ce8dbda7a081e262d'),
  emp_id: 193,
  name: 'Pooja',
  department: 'Finance',
  designation: 'Accountant',
  city: 'Kolkata',
  salary: 52000,
  experience: 6
},
{
  _id: ObjectId('6994161ce8dbda7a081e262e'),
  emp_id: 194,
  name: 'Karan',
  department: 'IT',
  designation: 'Developer',
  city: 'Mumbai',
  salary: 62000,
  experience: 7
},
{
  _id: ObjectId('6994161ce8dbda7a081e262f'),
  emp_id: 195,
  name: 'Shreya',
  department: 'HR',
  designation: 'Manager',
  city: 'Delhi',
  salary: 72000,
  experience: 8
},
{
  _id: ObjectId('6994161ce8dbda7a081e2630'),
  emp_id: 196,
  name: 'Arjun',
  department: 'Finance',
  designation: 'Analyst',
  city: 'Chennai',
  salary: 45000,
  experience: 3
},
{
  _id: ObjectId('6994161ce8dbda7a081e2631'),
  emp_id: 197,
  name: 'Reena',
  department: 'IT',
  designation: 'Developer',
  city: 'Bangalore',
  salary: 78000,
  experience: 9
},
{
  _id: ObjectId('6994161ce8dbda7a081e2632'),
  emp_id: 198,
  name: 'Rohit',
  department: 'IT',
  designation: 'Team Lead',
  city: 'Pune'
},
```

```
_id: ObjectId('6994161ce0dbda7a081e262a'),
emp_id: 110,
name: 'Anjali',
department: 'HR',
designation: 'Recruiter',
city: 'Kolkata',
salary: 42000,
experience: 1
}
```

Q2. Create an index on emp\_id field.

```
companyDB> db.employees.createIndex({ emp_id: 1 })
emp_id_1
```

Q3. Create an index on department field.

```
companyDB> db.employees.createIndex({ department: 1 })
department_1
```

Q4. Create a compound index on department and salary.

```
companyDB> db.employees.createIndex({ department: 1, salary: 1 })
department_1_salary_1
```

Q5. Find employees working in IT department.

```
companyDB> db.employees.find({ department: "IT" })
[ {
  _id: ObjectId('6994161ce0dbda7a081e2621'),
  emp_id: 101,
  name: 'Neet',
  department: 'IT',
  designation: 'Developer',
  city: 'Kolkata',
  salary: 68000,
  experience: 3
},
{
  _id: ObjectId('6994161ce0dbda7a081e2621'),
  emp_id: 103,
  name: 'Ravi',
  department: 'IT',
  designation: 'Tester',
  city: 'Mumbai',
  salary: 50000,
  experience: 4
},
{
  _id: ObjectId('6994161ce0dbda7a081e2625'),
  emp_id: 105,
  name: 'Karan',
  department: 'IT',
  designation: 'Developer',
  city: 'Kolkata',
  salary: 65000,
  experience: 6
},
{
  _id: ObjectId('6994161ce0dbda7a081e2628'),
  emp_id: 108,
  name: 'Meera',
  department: 'IT',
  designation: 'Developer',
  city: 'Bangalore',
  salary: 75000,
  experience: 8
}]
```

```
{  
  _id: ObjectId('6994161ce0dbda7a081e2629'),  
  emp_id: 109,  
  name: 'Rohit',  
  department: 'IT',  
  designation: 'Team Lead',  
  city: 'Pune',  
  salary: 90000,  
  experience: 10  
}
```

Q6. Display employees whose salary is greater than 60,000.

```
companyDB> db.employees.find({ salary: { $gt: 60000 } })  
[  
  {  
    _id: ObjectId('6994161ce0dbda7a081e2625'),  
    emp_id: 105,  
    name: 'Haran',  
    department: 'IT',  
    designation: 'Developer',  
    city: 'Kolkata',  
    salary: 65000,  
    experience: 6  
  },  
  {  
    _id: ObjectId('6994161ce0dbda7a081e2626'),  
    emp_id: 106,  
    name: 'Sneha',  
    department: 'HR',  
    designation: 'Manager',  
    city: 'Delhi',  
    salary: 70000,  
    experience: 7  
  },  
  {  
    _id: ObjectId('6994161ce0dbda7a081e2628'),  
    emp_id: 108,  
    name: 'Meera',  
    department: 'IT',  
    designation: 'Developer',  
    city: 'Bangalore',  
    salary: 75000,  
    experience: 8  
  },  
  {  
    _id: ObjectId('6994161ce0dbda7a081e2629'),  
    emp_id: 109,  
    name: 'Rohit',  
    department: 'IT',  
    designation: 'Team Lead',  
    city: 'Pune',  
    salary: 90000,  
    experience: 10  
  },  
]
```

Q7. Sort employees by salary in descending order.

```
companyDB> db.employees.find().sort({ salary: -1 })
[ {
    _id: ObjectId('6994161ce0dbda7a081e2629'),
    emp_id: 109,
    name: 'Rohit',
    department: 'IT',
    designation: 'Team Lead',
    city: 'Pune',
    salary: 90000,
    experience: 10
},
{
    _id: ObjectId('6994161ce0dbda7a081e2628'),
    emp_id: 108,
    name: 'Neera',
    department: 'IT',
    designation: 'Developer',
    city: 'Bangalore',
    salary: 75000,
    experience: 8
},
{
    _id: ObjectId('6994161ce0dbda7a081e2626'),
    emp_id: 106,
    name: 'Sneha',
    department: 'HR',
    designation: 'Manager',
    city: 'Delhi',
    salary: 70000,
    experience: 7
},
{
    _id: ObjectId('6994161ce0dbda7a081e2625'),
    emp_id: 105,
    name: 'Karan',
    department: 'IT',
    designation: 'Developer',
    city: 'Kolkata',
    salary: 65000,
    experience: 6
} ]
```

```
{
    _id: ObjectId('6994161ce0dbda7a081e2621'),
    emp_id: 101,
    name: 'Amit',
    department: 'IT',
    designation: 'Developer',
    city: 'Kolkata',
    salary: 60000,
    experience: 3
}

{
    _id: ObjectId('6994161ce0dbda7a081e2624'),
    emp_id: 104,
    name: 'Pooja',
    department: 'Finance',
    designation: 'Accountant',
    city: 'Chennai',
    salary: 55000,
    experience: 5
}

{
    _id: ObjectId('6994161ce0dbda7a081e2623'),
    emp_id: 103,
    name: 'Ravi',
    department: 'IT',
    designation: 'Tester',
    city: 'Mumbai',
    salary: 50000,
    experience: 4
}

{
    _id: ObjectId('6994161ce0dbda7a081e2627'),
    emp_id: 107,
    name: 'Arjun',
    department: 'Finance',
    designation: 'Analyst',
    city: 'Mumbai',
    salary: 48000,
    experience: 2
}
```

```
[{"_id": ObjectId('6994161ce0dbda7a881e2622'),  
 "emp_id": 182,  
 "name": "Neha",  
 "department": "HR",  
 "designation": "HR Executive",  
 "city": "Delhi",  
 "salary": 45000,  
 "experience": 2},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e262a'),  
 "emp_id": 110,  
 "name": "Anjali",  
 "department": "HR",  
 "designation": "Recruiter",  
 "city": "Mumbai",  
 "salary": 42000,  
 "experience": 1},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2629'),  
 "emp_id": 109,  
 "name": "Rohit",  
 "department": "IT",  
 "designation": "Team Lead",  
 "city": "Pune",  
 "salary": 90000,  
 "experience": 10},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2628'),  
 "emp_id": 108,  
 "name": "Meera",  
 "department": "IT",  
 "designation": "Developer",  
 "city": "Bangalore",  
 "salary": 75000,  
 "experience": 8},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2626'),  
 "emp_id": 106,  
 "name": "Sneha",  
 "department": "HR",  
 "designation": "Manager",  
 "city": "Delhi",  
 "salary": 70000,  
 "experience": 7},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2625'),  
 "emp_id": 105,  
 "name": "Amit",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Chennai",  
 "salary": 80000,  
 "experience": 12},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2624'),  
 "emp_id": 104,  
 "name": "Vishal",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Pune",  
 "salary": 78000,  
 "experience": 11},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2623'),  
 "emp_id": 103,  
 "name": "Rahul",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Mumbai",  
 "salary": 76000,  
 "experience": 10},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2622'),  
 "emp_id": 102,  
 "name": "Karan",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Chennai",  
 "salary": 74000,  
 "experience": 9},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2621'),  
 "emp_id": 101,  
 "name": "Raj",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Pune",  
 "salary": 72000,  
 "experience": 8},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2620'),  
 "emp_id": 100,  
 "name": "Shivam",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Mumbai",  
 "salary": 70000,  
 "experience": 7},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e261f'),  
 "emp_id": 99,  
 "name": "Aayush",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Chennai",  
 "salary": 68000,  
 "experience": 6},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e261e'),  
 "emp_id": 98,  
 "name": "Akash",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Pune",  
 "salary": 66000,  
 "experience": 5},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e261d'),  
 "emp_id": 97,  
 "name": "Vikas",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Mumbai",  
 "salary": 64000,  
 "experience": 4},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e261c'),  
 "emp_id": 96,  
 "name": "Rishabh",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Chennai",  
 "salary": 62000,  
 "experience": 3},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e261b'),  
 "emp_id": 95,  
 "name": "Aman",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Pune",  
 "salary": 60000,  
 "experience": 2},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e261a'),  
 "emp_id": 94,  
 "name": "Rahul",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Mumbai",  
 "salary": 58000,  
 "experience": 1},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2619'),  
 "emp_id": 93,  
 "name": "Vikram",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Chennai",  
 "salary": 56000,  
 "experience": 0},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2618'),  
 "emp_id": 92,  
 "name": "Amit",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Pune",  
 "salary": 54000,  
 "experience": -1},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2617'),  
 "emp_id": 91,  
 "name": "Rishabh",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Mumbai",  
 "salary": 52000,  
 "experience": -2},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2616'),  
 "emp_id": 90,  
 "name": "Aayush",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Chennai",  
 "salary": 50000,  
 "experience": -3},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2615'),  
 "emp_id": 89,  
 "name": "Akash",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Pune",  
 "salary": 48000,  
 "experience": -4},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2614'),  
 "emp_id": 88,  
 "name": "Vikas",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Mumbai",  
 "salary": 46000,  
 "experience": -5},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2613'),  
 "emp_id": 87,  
 "name": "Rishabh",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Chennai",  
 "salary": 44000,  
 "experience": -6},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2612'),  
 "emp_id": 86,  
 "name": "Aman",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Pune",  
 "salary": 42000,  
 "experience": -7},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2611'),  
 "emp_id": 85,  
 "name": "Rahul",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Mumbai",  
 "salary": 40000,  
 "experience": -8},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2610'),  
 "emp_id": 84,  
 "name": "Vikram",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Chennai",  
 "salary": 38000,  
 "experience": -9},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2609'),  
 "emp_id": 83,  
 "name": "Amit",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Pune",  
 "salary": 36000,  
 "experience": -10},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2608'),  
 "emp_id": 82,  
 "name": "Rishabh",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Mumbai",  
 "salary": 34000,  
 "experience": -11},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2607'),  
 "emp_id": 81,  
 "name": "Aayush",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Chennai",  
 "salary": 32000,  
 "experience": -12},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2606'),  
 "emp_id": 80,  
 "name": "Akash",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Pune",  
 "salary": 30000,  
 "experience": -13},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2605'),  
 "emp_id": 79,  
 "name": "Vikram",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Mumbai",  
 "salary": 28000,  
 "experience": -14},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2604'),  
 "emp_id": 78,  
 "name": "Rishabh",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Chennai",  
 "salary": 26000,  
 "experience": -15},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2603'),  
 "emp_id": 77,  
 "name": "Aman",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Pune",  
 "salary": 24000,  
 "experience": -16},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2602'),  
 "emp_id": 76,  
 "name": "Rahul",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Mumbai",  
 "salary": 22000,  
 "experience": -17},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2601'),  
 "emp_id": 75,  
 "name": "Vikram",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Chennai",  
 "salary": 20000,  
 "experience": -18},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2600'),  
 "emp_id": 74,  
 "name": "Amit",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Pune",  
 "salary": 18000,  
 "experience": -19},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2609'),  
 "emp_id": 73,  
 "name": "Rishabh",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Mumbai",  
 "salary": 16000,  
 "experience": -20},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2608'),  
 "emp_id": 72,  
 "name": "Aayush",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Chennai",  
 "salary": 14000,  
 "experience": -21},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2607'),  
 "emp_id": 71,  
 "name": "Akash",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Pune",  
 "salary": 12000,  
 "experience": -22},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2606'),  
 "emp_id": 70,  
 "name": "Vikram",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Mumbai",  
 "salary": 10000,  
 "experience": -23},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2605'),  
 "emp_id": 69,  
 "name": "Rishabh",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Chennai",  
 "salary": 8000,  
 "experience": -24},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2604'),  
 "emp_id": 68,  
 "name": "Aman",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Pune",  
 "salary": 6000,  
 "experience": -25},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2603'),  
 "emp_id": 67,  
 "name": "Rahul",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Mumbai",  
 "salary": 4000,  
 "experience": -26},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2602'),  
 "emp_id": 66,  
 "name": "Vikram",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Chennai",  
 "salary": 2000,  
 "experience": -27},  
,  
 {"_id": ObjectId('6994161ce0dbda7a881e2601'),  
 "emp_id": 65,  
 "name": "Amit",  
 "department": "IT",  
 "designation": "Software Engineer",  
 "city": "Pune",  
 "salary": 0,  
 "experience": -28}],  
 "ok": 1
```

Q8. Display top 3 highest paid employees.

```
] companyDB> db.employees.find().sort({ salary: -1 }).limit(3)  
[  
  {  
    "_id": ObjectId('6994161ce0dbda7a881e2629'),  
    "emp_id": 109,  
    "name": "Rohit",  
    "department": "IT",  
    "designation": "Team Lead",  
    "city": "Pune",  
    "salary": 90000,  
    "experience": 10},  
  {  
    "_id": ObjectId('6994161ce0dbda7a881e2628'),  
    "emp_id": 108,  
    "name": "Meera",  
    "department": "IT",  
    "designation": "Developer",  
    "city": "Bangalore",  
    "salary": 75000,  
    "experience": 8},  
  {  
    "_id": ObjectId('6994161ce0dbda7a881e2626'),  
    "emp_id": 106,  
    "name": "Sneha",  
    "department": "HR",  
    "designation": "Manager",  
    "city": "Delhi",  
    "salary": 70000,  
    "experience": 7},  
]
```

Q9. Display employees having experience more than 5 years.

```
companyDB> db.employees.find({ experience: { $gt: 6 } })
[ {
    _id: ObjectId('6994161c80bda7a001e2635'),
    emp_id: 105,
    name: 'Karan',
    department: 'IT',
    designation: 'Developer',
    city: 'Mumbai',
    salary: 55000,
    experience: 6
},
{
    _id: ObjectId('6994161c80bda7a001e2638'),
    emp_id: 106,
    name: 'Sneha',
    department: 'HR',
    designation: 'Manager',
    city: 'Delhi',
    salary: 70000,
    experience: 7
},
{
    _id: ObjectId('6994161c80bda7a001e2639'),
    emp_id: 108,
    name: 'Neeraj',
    department: 'IT',
    designation: 'Developer',
    city: 'Bangalore',
    salary: 75000,
    experience: 8
},
{
    _id: ObjectId('6994161c80bda7a001e2629'),
    emp_id: 109,
    name: 'Rahul',
    department: 'IT',
    designation: 'Team Lead',
    city: 'Pune',
    salary: 80000,
    experience: 10
}
]
```

## Q10. Analyze query performance using explain().

```
companyDB> db.employees.find({ department: "IT" }).explain("executionStats")
{
  explainVersion: '3',
  queryPlanner: {
    namespace: 'companyDB.employees',
    parsedQuery: { department: { '$eq': 'IT' } },
    indexFilterSet: false,
    queryHash: 'EB9CSE66',
    planCacheShapeHash: 'EB9CSE66',
    planCacheKey: '2SCB5GZ',
    optimizationTimeMillis: 0,
    maxIndexedOrSolutionsReached: false,
    maxIndexedAndSolutionsReached: false,
    maxScansToExplodeReached: false,
    prunedSimilarIndexes: false,
    winningPlan: {
      isCached: false,
      stage: 'FETCH',
      inputStage: {
        stage: 'IXSCAN',
        keyPattern: { department: 1 },
        indexName: 'department_1',
        isMultiKey: false,
        multiKeyPaths: { department: [] },
        isUnique: false,
        isSparse: false,
        isPartial: false,
        indexVersion: 2,
        direction: 'forward',
        indexBounds: { department: [ ("IT", "IT") ] }
      }
    }
  }
}
```

```
rejectedPlans: [
  {
    isCached: false,
    stage: 'FETCH',
    inputStage: {
      stage: 'IXSCAN',
      keyPattern: { department: 1, salary: 1 },
      indexName: 'department_1_salary_1',
      isMultiKey: false,
      multiKeyPaths: { department: [], salary: [] },
      isUnique: false,
      isSparse: false,
      isPartial: false,
      indexVersion: 2,
      direction: 'forward',
      indexBounds: {
        department: [ "[\"IT\", \"IT\"]" ],
        salary: [ "[MinKey, MaxKey]" ]
      }
    }
  }
]
```

```
executionStats: {
  executionSuccess: true,
  nReturned: 5,
  executionTimeMillis: 0,
  totalKeysExamined: 5,
  totalDocsExamined: 5,
  executionStages: {
    isCached: false,
    stage: 'FETCH',
    nReturned: 5,
    executionTimeMillisEstimate: 0,
    works: 7,
    advanced: 5,
    needTime: 0,
    needYield: 0,
    saveState: 0,
    restoreState: 0,
    isEOF: 1,
    docsExamined: 5,
    alreadyHasObj: 0,
    inputStage: {
      stage: 'IXSCAN',
      nReturned: 5,
      executionTimeMillisEstimate: 0,
      works: 6,
      advanced: 5,
      needTime: 0,
      needYield: 0,
      saveState: 0,
      restoreState: 0,
      isEOF: 1,
      keyPattern: { department: 1 },
      indexName: 'department_1',
      isMultiKey: false,
      multiKeyPaths: { department: [] },
      isUnique: false,
      isSparse: false,
      isPartial: false,
      indexVersion: 2,
      direction: 'forward',
      indexBounds: { department: [ "[\"IT\", \"IT\"]" ] },
      keysExamined: 5,
      seekMs: 1,
      dupesTested: 0,
      dupesDropped: 0
    }
  }
}
```

```
queryShapeHash: 'FB21473C47D680791041400ABE6DD21E41AEC879B940CA03BB7489CAE4290E3D',
command: {
  find: 'employees',
  filter: { department: 'IT' },
  '$db': 'companyDB'
},
serverInfo: {
  host: 'LAPTOP-QP45PJS4',
  port: 27017,
  version: '8.2.3',
  gitVersion: '36f41c9c38a2f13f834d833ba03c3463c891fb01'
},
serverParameters: {
  internalQueryFacetBufferSizeBytes: 104857600,
  internalQueryFacetMaxOutputDocSizeBytes: 104857600,
  internalLookupStageIntermediateDocumentMaxSizeBytes: 104857600,
  internalDocumentSourceGroupMaxMemoryBytes: 104857600,
  internalQueryMaxBlockingSortMemoryUsageBytes: 104857600,
  internalQueryProhibitBlockingMergeOnMongoS: 0,
  internalQueryMaxAddToSetBytes: 104857600,
  internalDocumentSourceSetWindowFieldsMaxMemoryBytes: 104857600,
  internalQueryFrameworkControl: 'trySbeRestricted',
  internalQueryPlannerIgnoreIndexWithCollationForRegex: 1
},
ok: 1
}
companyDB> |
```