

## **Day - 5 MongoDB Assignment**

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### **Database creation:**

```
test> use insuranceDB;
```

### **Collections creation:**

```
insuranceDB> db.createCollection("Customers");
{ ok: 1 }
insuranceDB> db.createCollection("PolicyAssignments");
{ ok: 1 }
insuranceDB> db.createCollection("Policies");
{ ok: 1 }
insuranceDB> db.createCollection("Claims");
{ ok: 1 }
insuranceDB> db.createCollection("Agents");
{ ok: 1 }
```

### **Insertion Commands:**

```
insuranceDB>
db.Customers.insertOne({ "CustomerID": "1", "FirstName": "Bharath", "LastName": "Gurumetkal",
"DateOfBirth": "2025-10-05", "Phone": "8555665544", "Email": "bharath@gmail.com" });
{
  acknowledged: true,
  insertedId: ObjectId('69574fb668007c95b2434bd2')
}
```

```
insuranceDB> db.Customers.insertMany([
...
...
  {
    CustomerID: "2",
    FirstName: "Sashi",
    LastName: "Kala",
    DateOfBirth: "1999-01-05",
```

```
...     Phone: "6555665544",
...     Email: "sashi@gmail.com"
... },
... {
...     CustomerID: "3",
...     FirstName: "Anita",
...     LastName: "Verma",
...     DateOfBirth: "1997-08-20",
...     Phone: "9876543222",
...     Email: "anita@gmail.com"
... },
... {
...     CustomerID: "4",
...     FirstName: "Amit",
...     LastName: "Kumar",
...     DateOfBirth: "1996-03-15",
...     Phone: "9123456789",
...     Email: "amit@gmail.com"
... },
... {
...     CustomerID: "5",
...     FirstName: "Priya",
...     LastName: "Singh",
...     DateOfBirth: "2000-11-25",
...     Phone: "9988776655",
...     Email: "priya@gmail.com"
... }
... ]);
{
    acknowledged: true,
    insertedIds: {
        '0': ObjectId('6957508568007c95b2434bd3'),
        '1': ObjectId('6957508568007c95b2434bd4'),
        '2': ObjectId('6957508568007c95b2434bd5'),
        '3': ObjectId('6957508568007c95b2434bd6')
    }
}
```

```
insuranceDB> db.Policies.insertMany([
...   {
...     PolicyID: "P101",
...     PolicyName: "Health Secure",
...     PolicyType: "Health",
...     PremiumAmount: 5000,
...     DurationYears: 5
...   },
...   {
...     PolicyID: "P102",
...     PolicyName: "Life Shield",
...     PolicyType: "Life",
...     PremiumAmount: 8000,
...     DurationYears: 10
...   },
...   {
...     PolicyID: "P103",
...     PolicyName: "Car Protect",
...     PolicyType: "Vehicle",
...     PremiumAmount: 3000,
...     DurationYears: 3
...   },
...   {
...     PolicyID: "P104",
...     PolicyName: "Home Safe",
...     PolicyType: "Property",
...     PremiumAmount: 6500,
...     DurationYears: 7
...   },
...   {
...     PolicyID: "P105",
...     PolicyName: "Travel Guard",
...     PolicyType: "Travel",
...     PremiumAmount: 2500,
...     DurationYears: 2
...   }
... ]);
{
  acknowledged: true,
```

```
insertedIds: {
  '0': ObjectId('6957512568007c95b2434bd7'),
  '1': ObjectId('6957512568007c95b2434bd8'),
  '2': ObjectId('6957512568007c95b2434bd9'),
  '3': ObjectId('6957512568007c95b2434bda'),
  '4': ObjectId('6957512568007c95b2434bdb')
}
}
```

```
insuranceDB> db.PolicyAssignments.insertMany([
...   {
...     AssignmentID: "A001",
...     CustomerID: "1",
...     PolicyID: "P101",
...     AgentID: "AG01",
...     StartDate: "2024-01-10",
...     EndDate: "2029-01-10"
...   },
...   {
...     AssignmentID: "A002",
...     CustomerID: "2",
...     PolicyID: "P102",
...     AgentID: "AG02",
...     StartDate: "2023-06-15",
...     EndDate: "2033-06-15"
...   },
...   {
...     AssignmentID: "A003",
...     CustomerID: "3",
...     PolicyID: "P103",
...     AgentID: "AG03",
...     StartDate: "2024-03-20",
...     EndDate: "2027-03-20"
...   },
...   {
...     AssignmentID: "A004",
...     CustomerID: "4",
...     PolicyID: "P104",
...     AgentID: "AG01",
...   }
])
```

```
...     StartDate: "2022-11-01",
...     EndDate: "2029-11-01"
...   },
...   {
...     AssignmentID: "A005",
...     CustomerID: "5",
...     PolicyID: "P105",
...     AgentID: "AG02",
...     StartDate: "2025-02-05",
...     EndDate: "2027-02-05"
...   }
... );
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('6957514d68007c95b2434bdc'),
    '1': ObjectId('6957514d68007c95b2434bdd'),
    '2': ObjectId('6957514d68007c95b2434bde'),
    '3': ObjectId('6957514d68007c95b2434bdf'),
    '4': ObjectId('6957514d68007c95b2434be0')
  }
}
```

```
insuranceDB> db.Claims.insertMany([
...   {
...     ClaimID: "C001",
...     CustomerID: "1",
...     PolicyID: "P101",
...     ClaimDate: "2024-05-10",
...     ClaimAmount: 25000,
...     ClaimStatus: "Approved",
...     Description: "Hospitalization expenses"
...   },
...   {
...     ClaimID: "C002",
...     CustomerID: "2",
...     PolicyID: "P102",
```

```
...     ClaimDate: "2024-08-15",
...     ClaimAmount: 50000,
...     ClaimStatus: "Pending",
...     Description: "Life insurance maturity claim"
...   },
...   {
...     ClaimID: "C003",
...     CustomerID: "3",
...     PolicyID: "P103",
...     ClaimDate: "2024-03-22",
...     ClaimAmount: 15000,
...     ClaimStatus: "Rejected",
...     Description: "Car accident repair claim"
...   },
...   {
...     ClaimID: "C004",
...     CustomerID: "4",
...     PolicyID: "P104",
...     ClaimDate: "2023-12-01",
...     ClaimAmount: 40000,
...     ClaimStatus: "Approved",
...     Description: "House damage due to fire"
...   },
...   {
...     ClaimID: "C005",
...     CustomerID: "5",
...     PolicyID: "P105",
...     ClaimDate: "2025-01-05",
...     ClaimAmount: 12000,
...     ClaimStatus: "Pending",
...     Description: "Travel cancellation claim"
...   }
... ]);
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('6957518968007c95b2434be1'),
    '1': ObjectId('6957518968007c95b2434be2'),
    '2': ObjectId('6957518968007c95b2434be3'),
    '3': ObjectId('6957518968007c95b2434be4'),
  }
}
```

```
'4': ObjectId('6957518968007c95b2434be5')
}
}
```

```
> db.Agents.insertMany([
... {
...   AgentID: "AG01",
...   AgentName: "Ramesh Kumar",
...   Phone: "9876500011",
...   City: "Delhi"
... },
... {
...   AgentID: "AG02",
...   AgentName: "Sita Rao",
...   Phone: "9876500022",
...   City: "Mumbai"
... },
... {
...   AgentID: "AG03",
...   AgentName: "Arjun Patel",
...   Phone: "9876500033",
...   City: "Ahmedabad"
... },
... {
...   AgentID: "AG04",
...   AgentName: "Meena Iyer",
...   Phone: "9876500044",
...   City: "Chennai"
... },
... {
...   AgentID: "AG05",
...   AgentName: "Vikram Singh",
...   Phone: "9876500055",
...   City: "Bangalore"
... }
... ]);
```

```
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('695751f068007c95b2434be6'),
    '1': ObjectId('695751f068007c95b2434be7'),
    '2': ObjectId('695751f068007c95b2434be8'),
    '3': ObjectId('695751f068007c95b2434be9'),
    '4': ObjectId('695751f068007c95b2434bea')
  }
}
```

## **Find():**

### **Find all documents in a collection**

```
insuranceDB> db.Customers.find().pretty();
[
  {
    _id: ObjectId('69574fb668007c95b2434bd2'),
    CustomerID: '1',
    FirstName: 'Bharath',
    LastName: 'Gurumetkal',
    DateOfBirth: '2025-10-05',
    Phone: '8555665544',
    Email: 'bharath@gmail.com'
  },
  {
    _id: ObjectId('6957508568007c95b2434bd3'),
    CustomerID: '2',
    FirstName: 'Sashi',
    LastName: 'Kala',
    DateOfBirth: '1999-01-05',
    Phone: '6555665544',
    Email: 'sashi@gmail.com'
  },
  {
    _id: ObjectId('6957508568007c95b2434bd4'),
    CustomerID: '3',
    FirstName: 'Anita',
    LastName: 'Verma',
    DateOfBirth: '1997-08-20',
  }
]
```

```

Phone: '9876543222',
Email: 'anita@gmail.com'
},
{
  _id: ObjectId('6957508568007c95b2434bd5'),
  CustomerID: '4',
  FirstName: 'Amit',
  LastName: 'Kumar',
  DateOfBirth: '1996-03-15',
  Phone: '9123456789',
  Email: 'amit@gmail.com'
},
{
  _id: ObjectId('6957508568007c95b2434bd6'),
  CustomerID: '5',
  FirstName: 'Priya',
  LastName: 'Singh',
  DateOfBirth: '2000-11-25',
  Phone: '9988776655',
  Email: 'priya@gmail.com'
}
]

```

### **Find a Customer by CustomerID**

```

insuranceDB> db.Customers.find({ CustomerID: "2" });
[
  {
    _id: ObjectId('6957508568007c95b2434bd3'),
    CustomerID: '2',
    FirstName: 'Sashi',
    LastName: 'Kala',
    DateOfBirth: '1999-01-05',
    Phone: '6555665544',
    Email: 'sashi@gmail.com'
  }
]

```

### **Find only specific fields**

```

insuranceDB> db.Customers.find(

```

```
... { CustomerID: "3" },
... { FirstName: 1, LastName: 1, Email: 1, _id: 0 }
...
[ { FirstName: 'Anita', LastName: 'Verma', Email: 'anita@gmail.com' } ]
```

### Find records using AND condition

```
insuranceDB> db.Policies.find({
... PolicyType: "Life",
... DurationYears: { $gte: 10 }
... });
[
{
  _id: ObjectId('6957512568007c95b2434bd8'),
  PolicyID: 'P102',
  PolicyName: 'Life Shield',
  PolicyType: 'Life',
  PremiumAmount: 8000,
  DurationYears: 10
}
```

### Find records using OR condition

```
insuranceDB> db.Agents.find({
... $or: [
...   { City: "Delhi" },
...   { City: "Mumbai" }
... ]
... });
[
{
  _id: ObjectId('695751f068007c95b2434be6'),
  AgentID: 'AG01',
  AgentName: 'Ramesh Kumar',
  Phone: '9876500011',
  City: 'Delhi'
},
{
  _id: ObjectId('695751f068007c95b2434be7'),
  AgentID: 'AG02',
  AgentName: 'Sita Rao',
  Phone: '9876500022',
```

```
        City: 'Mumbai'  
    }  
]
```

### Find with sorting

```
insuranceDB> db.Policies.find().sort({ PremiumAmount: -1 });  
[  
  {  
    _id: ObjectId('6957512568007c95b2434bd8'),  
    PolicyID: 'P102',  
    PolicyName: 'Life Shield',  
    PolicyType: 'Life',  
    PremiumAmount: 8000,  
    DurationYears: 10  
  },  
  {  
    _id: ObjectId('6957512568007c95b2434bda'),  
    PolicyID: 'P104',  
    PolicyName: 'Home Safe',  
    PolicyType: 'Property',  
    PremiumAmount: 6500,  
    DurationYears: 7  
  },  
  {  
    _id: ObjectId('6957512568007c95b2434bd7'),  
    PolicyID: 'P101',  
    PolicyName: 'Health Secure',  
    PolicyType: 'Health',  
    PremiumAmount: 5000,  
    DurationYears: 5  
  },  
  {  
    _id: ObjectId('6957512568007c95b2434bd9'),  
    PolicyID: 'P103',  
    PolicyName: 'Car Protect',  
    PolicyType: 'Vehicle',  
    PremiumAmount: 3000,  
    DurationYears: 3  
  },
```

```
{
  _id: ObjectId('6957512568007c95b2434bdb'),
  PolicyID: 'P105',
  PolicyName: 'Travel Guard',
  PolicyType: 'Travel',
  PremiumAmount: 2500,
  DurationYears: 2
}
]
```

## Find with limit

```
insuranceDB> db.Claims.find().limit(3);
[
  {
    _id: ObjectId('6957518968007c95b2434be1'),
    ClaimID: 'C001',
    CustomerID: '1',
    PolicyID: 'P101',
    ClaimDate: '2024-05-10',
    ClaimAmount: 25000,
    ClaimStatus: 'Approved',
    Description: 'Hospitalization expenses'
  },
  {
    _id: ObjectId('6957518968007c95b2434be2'),
    ClaimID: 'C002',
    CustomerID: '2',
    PolicyID: 'P102',
    ClaimDate: '2024-08-15',
    ClaimAmount: 50000,
    ClaimStatus: 'Pending',
    Description: 'Life insurance maturity claim'
  },
  {
    _id: ObjectId('6957518968007c95b2434be3'),
    ClaimID: 'C003',
    CustomerID: '3',
```

```
PolicyID: 'P103',
ClaimDate: '2024-03-22',
ClaimAmount: 15000,
ClaimStatus: 'Rejected',
Description: 'Car accident repair claim'
}
]
```

### **Find with skip + limit**

```
insuranceDB> db.Customers.find().skip(2).limit(2);
[
  {
    _id: ObjectId('6957508568007c95b2434bd4'),
    CustomerID: '3',
    FirstName: 'Anita',
    LastName: 'Verma',
    DateOfBirth: '1997-08-20',
    Email: 'anita@gmail.com',
    MobileNumber: '9876543222'
  },
  {
    _id: ObjectId('6957508568007c95b2434bd5'),
    CustomerID: '4',
    FirstName: 'Amit',
    LastName: 'Kumar',
    DateOfBirth: '1996-03-15',
    Email: 'amit@gmail.com',
    MobileNumber: '9123456789'
  }
]
```

## **Update:**

### **Update ONE document**

```
insuranceDB> db.Customers.updateOne(
...   { CustomerID: "2" },
...   { $set: { Phone: "9998887776" } }
... );
```

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

## Update MANY documents

```
insuranceDB> db.Policies.updateMany(  
...   { PolicyType: "Health" },  
...   { $set: { PremiumAmount: 5500 } }  
... );  
{  
  acknowledged: true,  
  insertedId: null,  
  matchedCount: 1,  
  modifiedCount: 1,  
  upsertedCount: 0  
}
```

## Add a new field to existing documents

```
insuranceDB> db.Agents.updateMany(  
...   {},  
...   { $set: { Email: "agent@insurance.com" } }  
... );  
{  
  acknowledged: true,  
  insertedId: null,  
  matchedCount: 5,  
  modifiedCount: 5,  
  upsertedCount: 0  
}
```

Increment a numeric value (**\$inc**)

### **Rename a field (`$rename`)**

```
> db.Customers.updateMany(  
...   {},  
...   { $rename: { "Phone": "MobileNumber" } }  
... );  
{  
  acknowledged: true,  
  insertedId: null,  
  matchedCount: 5,  
  modifiedCount: 5,  
  upsertedCount: 0  
}
```

## **Delete Commands:**

### **Delete ONE document**

```
insuranceDB> db.Customers.deleteOne({ CustomerID: "5" });  
{ acknowledged: true, deletedCount: 1 }
```

### **Delete MANY documents**

```
insuranceDB> db.Claims.deleteMany({ ClaimStatus: "Rejected" });  
{ acknowledged: true, deletedCount: 1 }
```

### **Delete Policies with low premium**

```
insuranceDB> db.Policies.deleteMany({ PremiumAmount: { $lt: 3000 } });  
{ acknowledged: true, deletedCount: 1 }
```

### **Delete all Agents from a city**

```
insuranceDB> db.Agents.deleteMany({ City: "Pune" });  
{ acknowledged: true, deletedCount: 0 }
```

### **Delete ALL documents in a collection**

```
insuranceDB> db.Claims.deleteMany({});  
{ acknowledged: true, deletedCount: 4 }
```

### **Drop entire collection**

```
insuranceDB> db.Claims.drop();  
true
```

## **MongoDB Aggregation:**

### **Total Claim Amount per Customer**

```
insuranceDB> db.Claims.aggregate([
...   {
...     $group: {
...       _id: "$CustomerID",
...       TotalClaimAmount: { $sum: "$ClaimAmount" }
...     }
...   }
... ]);
```

### **Average Premium Amount by Policy Type**

```
insuranceDB> db.Policies.aggregate([
...   {
...     $group: {
...       _id: "$PolicyType",
...       AvgPremium: { $avg: "$PremiumAmount" }
...     }
...   }
... ]);
```

[  
  { \_id: 'Property', AvgPremium: 6500 },  
  { \_id: 'Life', AvgPremium: 8000 },  
  { \_id: 'Health', AvgPremium: 5500 },  
  { \_id: 'Vehicle', AvgPremium: 3000 }  
]

### **Find Customers Who Made Claims Above 20,000**

```
db.Claims.aggregate([
...   {
...     $match: { ClaimAmount: { $gt: 20000 } }
...   },
...   {
...     $project: {
...       _id: 0,
...       CustomerID: 1,
```

```
...     ClaimAmount: 1,  
...     ClaimStatus: 1  
...   }  
... }  
... ];
```

### Sort Policies by Premium Amount

```
insuranceDB> db.Policies.aggregate([  
...   {  
...     $sort: { PremiumAmount: -1 }  
...   }  
... ]);  
[  
  {  
    _id: ObjectId('6957512568007c95b2434bd8'),  
    PolicyID: 'P102',  
    PolicyName: 'Life Shield',  
    PolicyType: 'Life',  
    PremiumAmount: 8000,  
    DurationYears: 10  
  },  
  {  
    _id: ObjectId('6957512568007c95b2434bda'),  
    PolicyID: 'P104',  
    PolicyName: 'Home Safe',  
    PolicyType: 'Property',  
    PremiumAmount: 6500,  
    DurationYears: 7  
  },  
  {  
    _id: ObjectId('6957512568007c95b2434bd7'),  
    PolicyID: 'P101',  
    PolicyName: 'Health Secure',  
    PolicyType: 'Health',  
    PremiumAmount: 5500,  
    DurationYears: 5  
  },  
  {  
    _id: ObjectId('6957512568007c95b2434bd9'),  
    PolicyID: 'P103',  
    PolicyName: 'Auto Protect',  
    PolicyType: 'Automobile',  
    PremiumAmount: 4500,  
    DurationYears: 3  
  }];
```

```
PolicyID: 'P103',
PolicyName: 'Car Protect',
PolicyType: 'Vehicle',
PremiumAmount: 3000,
DurationYears: 3
}
]
```

### Join Claims with Policies (\$lookup)

```
insuranceDB> db.Claims.aggregate([
...   {
...     $lookup: {
...       from: "Policies",
...       localField: "PolicyID",
...       foreignField: "PolicyID",
...       as: "PolicyDetails"
...     }
...   }
... ]);
```

### Count Policies Assigned to Each Agent

```
insuranceDB> db.PolicyAssignments.aggregate([
...   {
...     $group: {
...       _id: "$AgentID",
...       TotalPolicies: { $sum: 1 }
...     }
...   }
... ]);
```

```
[
  { _id: 'AG03', TotalPolicies: 1 },
  { _id: 'AG01', TotalPolicies: 2 },
  { _id: 'AG02', TotalPolicies: 2 }
]
```