

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: '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 }
]
```