

Day - 5 MongoDB Assignment

Create / Use Database:

```
use InsuranceDb
```

Create Collections:

1. Customers Collection:

```
db.customers.insertMany([
  { customerId: 1, firstname: "Ravi", lastname: "Kumar", dob: ISODate("1995-06-12"), phone: "9876543210", email: "ravi@gmail.com" },
  { customerId: 2, firstname: "Anita", lastname: "Sharma", dob: ISODate("1992-03-25"), phone: "9123456780", email: "anita@gmail.com" },
  { customerId: 3, firstname: "Suresh", lastname: "Reddy", dob: ISODate("1988-11-10"), phone: "9988776655", email: "suresh@gmail.com" },
  { customerId: 4, firstname: "Priya", lastname: "Singh", dob: ISODate("1996-08-14"), phone: "9012345678", email: "priya@gmail.com" },
  { customerId: 5, firstname: "Amit", lastname: "Verma", dob: ISODate("1990-01-30"), phone: "9090909090", email: "amit@gmail.com" },
  { customerId: 6, firstname: "Neha", lastname: "Gupta", dob: ISODate("1994-12-05"), phone: "9888888888", email: "neha@gmail.com" },
  { customerId: 7, firstname: "Kiran", lastname: "Patel", dob: ISODate("1987-07-19"), phone: "9777777777", email: "kiran@gmail.com" },
  { customerId: 8, firstname: "Pooja", lastname: "Nair", dob: ISODate("1993-05-22"), phone: "9666666666", email: "pooja@gmail.com" },
  { customerId: 9, firstname: "Rahul", lastname: "Das", dob: ISODate("1991-09-09"), phone: "9555555555", email: "rahul@gmail.com" },
  { customerId: 10, firstname: "Sneha", lastname: "Iyer", dob: ISODate("1997-04-03"), phone: "9444444444", email: "sneha@gmail.com" }
])
```

```
{
    acknowledged: true,
    insertedIds: {
        '0': ObjectId('695a14f601ea930a510d8190'),
        '1': ObjectId('695a14f601ea930a510d8191'),
        '2': ObjectId('695a14f601ea930a510d8192'),
        '3': ObjectId('695a14f601ea930a510d8193'),
        '4': ObjectId('695a14f601ea930a510d8194'),
        '5': ObjectId('695a14f601ea930a510d8195'),
        '6': ObjectId('695a14f601ea930a510d8196'),
        '7': ObjectId('695a14f601ea930a510d8197'),
        '8': ObjectId('695a14f601ea930a510d8198'),
        '9': ObjectId('695a14f601ea930a510d8199')
    }
}
```

2. Policies Collection:

```
db.policies.insertMany([
    { policyId: 101, policyName: "Life Secure", policyType: "Life", premiumAmount: 25000,
durationYears: 20 },
    { policyId: 102, policyName: "Health Plus", policyType: "Health", premiumAmount: 18000,
durationYears: 10 },
    { policyId: 103, policyName: "Car Protect", policyType: "Vehicle", premiumAmount: 12000,
durationYears: 5 },
    { policyId: 104, policyName: "Home Shield", policyType: "Property", premiumAmount: 15000,
durationYears: 15 },
    { policyId: 105, policyName: "Travel Safe", policyType: "Travel", premiumAmount: 8000,
durationYears: 2 },
    { policyId: 106, policyName: "Child Future", policyType: "Life", premiumAmount: 20000,
durationYears: 18 },
    { policyId: 107, policyName: "Senior Care", policyType: "Health", premiumAmount: 22000,
durationYears: 8 },
    { policyId: 108, policyName: "Bike Guard", policyType: "Vehicle", premiumAmount: 6000,
durationYears: 3 }]
```

```

{ policyId: 109, policyName: "Term Life", policyType: "Life", premiumAmount: 30000,
durationYears: 25 },
{ policyId: 110, policyName: "Family Health", policyType: "Health", premiumAmount: 28000,
durationYears: 12 }
])

{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('695a153601ea930a510d819a'),
    '1': ObjectId('695a153601ea930a510d819b'),
    '2': ObjectId('695a153601ea930a510d819c'),
    '3': ObjectId('695a153601ea930a510d819d'),
    '4': ObjectId('695a153601ea930a510d819e'),
    '5': ObjectId('695a153601ea930a510d819f'),
    '6': ObjectId('695a153601ea930a510d81a0'),
    '7': ObjectId('695a153601ea930a510d81a1'),
    '8': ObjectId('695a153601ea930a510d81a2'),
    '9': ObjectId('695a153601ea930a510d81a3')
  }
}

```

3. Agents Collection:

```

db.agents.insertMany([
  { agentId: 201, agentName: "Arjun", phone: "9000011111", city: "Hyderabad" },
  { agentId: 202, agentName: "Meena", phone: "9000022222", city: "Bangalore" },
  { agentId: 203, agentName: "Rahul", phone: "9000033333", city: "Chennai" },
  { agentId: 204, agentName: "Suman", phone: "9000044444", city: "Delhi" },
  { agentId: 205, agentName: "Rohit", phone: "9000055555", city: "Mumbai" },
  { agentId: 206, agentName: "Anjali", phone: "9000066666", city: "Pune" },
  { agentId: 207, agentName: "Vikas", phone: "9000077777", city: "Kolkata" },
  { agentId: 208, agentName: "Divya", phone: "9000088888", city: "Kochi" },
  { agentId: 209, agentName: "Nitin", phone: "9000099999", city: "Jaipur" },
  { agentId: 210, agentName: "Swathi", phone: "9000000000", city: "Vizag" }
])

```

```
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('695a156a01ea930a510d81a4'),
    '1': ObjectId('695a156a01ea930a510d81a5'),
    '2': ObjectId('695a156a01ea930a510d81a6'),
    '3': ObjectId('695a156a01ea930a510d81a7'),
    '4': ObjectId('695a156a01ea930a510d81a8'),
    '5': ObjectId('695a156a01ea930a510d81a9'),
    '6': ObjectId('695a156a01ea930a510d81aa'),
    '7': ObjectId('695a156a01ea930a510d81ab'),
    '8': ObjectId('695a156a01ea930a510d81ac'),
    '9': ObjectId('695a156a01ea930a510d81ad')
  }
}
```

4. PolicyAssignment Collection:

```
db.policyAssignment.insertMany([
  { assignmentId: 301, customerId: 1, policyId: 101, agentId: 201, startDate: ISODate("2022-01-01"), endDate: ISODate("2042-01-01") },
  { assignmentId: 302, customerId: 2, policyId: 102, agentId: 202, startDate: ISODate("2023-05-10"), endDate: ISODate("2033-05-10") },
  { assignmentId: 303, customerId: 3, policyId: 103, agentId: 203, startDate: ISODate("2024-02-15"), endDate: ISODate("2029-02-15") },
  { assignmentId: 304, customerId: 4, policyId: 104, agentId: 204, startDate: ISODate("2021-07-01"), endDate: ISODate("2036-07-01") },
  { assignmentId: 305, customerId: 5, policyId: 105, agentId: 205, startDate: ISODate("2023-11-20"), endDate: ISODate("2025-11-20") },
  { assignmentId: 306, customerId: 6, policyId: 106, agentId: 206, startDate: ISODate("2020-03-18"), endDate: ISODate("2038-03-18") },
  { assignmentId: 307, customerId: 7, policyId: 107, agentId: 207, startDate: ISODate("2022-09-25"), endDate: ISODate("2030-09-25") },
  { assignmentId: 308, customerId: 8, policyId: 108, agentId: 208, startDate: ISODate("2024-01-10"), endDate: ISODate("2027-01-10") },
  { assignmentId: 309, customerId: 9, policyId: 109, agentId: 209, startDate: ISODate("2019-06-05"), endDate: ISODate("2044-06-05") }
])
```

```

    { assignmentId: 310, customerId: 10, policyId: 110, agentId: 210, startDate: ISODate("2023-04-12"), endDate: ISODate("2035-04-12") }

  ])
}

{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('695a157f01ea930a510d81ae'),
    '1': ObjectId('695a157f01ea930a510d81af'),
    '2': ObjectId('695a157f01ea930a510d81b0'),
    '3': ObjectId('695a157f01ea930a510d81b1'),
    '4': ObjectId('695a157f01ea930a510d81b2'),
    '5': ObjectId('695a157f01ea930a510d81b3'),
    '6': ObjectId('695a157f01ea930a510d81b4'),
    '7': ObjectId('695a157f01ea930a510d81b5'),
    '8': ObjectId('695a157f01ea930a510d81b6'),
    '9': ObjectId('695a157f01ea930a510d81b7')
  }
}

```

5. Claims Collection:

```

db.claims.insertMany([
  { claimId: 401, assignmentId: 301, claimDate: ISODate("2023-02-15"), claimAmount: 40000, claimStatus: "Approved" },
  { claimId: 402, assignmentId: 302, claimDate: ISODate("2024-01-20"), claimAmount: 50000, claimStatus: "Approved" },
  { claimId: 403, assignmentId: 303, claimDate: ISODate("2024-08-05"), claimAmount: 15000, claimStatus: "Pending" },
  { claimId: 404, assignmentId: 304, claimDate: ISODate("2022-12-10"), claimAmount: 30000, claimStatus: "Rejected" },
  { claimId: 405, assignmentId: 305, claimDate: ISODate("2024-05-18"), claimAmount: 10000, claimStatus: "Approved" },
  { claimId: 406, assignmentId: 306, claimDate: ISODate("2021-06-25"), claimAmount: 45000, claimStatus: "Approved" },
  { claimId: 407, assignmentId: 307, claimDate: ISODate("2023-11-02"), claimAmount: 25000, claimStatus: "Pending" },
  { claimId: 408, assignmentId: 308, claimDate: ISODate("2024-03-14"), claimAmount: 8000, claimStatus: "Approved" },
]
)

```

```
{ claimId: 409, assignmentId: 309, claimDate: ISODate("2020-10-30"), claimAmount: 60000,  
claimStatus: "Rejected" },  
  
{ claimId: 410, assignmentId: 310, claimDate: ISODate("2024-09-01"), claimAmount: 35000,  
claimStatus: "Pending" }  
])  
  
{  
  acknowledged: true,  
  insertedIds: {  
    '0': ObjectId('695a159001ea930a510d81b8'),  
    '1': ObjectId('695a159001ea930a510d81b9'),  
    '2': ObjectId('695a159001ea930a510d81ba'),  
    '3': ObjectId('695a159001ea930a510d81bb'),  
    '4': ObjectId('695a159001ea930a510d81bc'),  
    '5': ObjectId('695a159001ea930a510d81bd'),  
    '6': ObjectId('695a159001ea930a510d81be'),  
    '7': ObjectId('695a159001ea930a510d81bf'),  
    '8': ObjectId('695a159001ea930a510d81c0'),  
    '9': ObjectId('695a159001ea930a510d81c1')  
  }  
}  
+-----
```

SELECT QUERIES → find():

1 All customers:

```
db.customers.find()
```

```
[ {
    _id: ObjectId('695a14f601ea930a510d8190'),
    customerId: 1,
    firstname: 'Ravi',
    lastname: 'Munar',
    dob: ISODate('1995-06-12T00:00:00.000Z'),
    phone: '9876543210',
    email: 'ravi@gmail.com'
},
{
    _id: ObjectId('695a14f601ea930a510d8191'),
    customerId: 2,
    firstname: 'Anita',
    lastname: 'Sharma',
    dob: ISODate('1992-03-25T00:00:00.000Z'),
    phone: '9123456789',
    email: 'anita@gmail.com'
},
{
    _id: ObjectId('695a14f601ea930a510d8192'),
    customerId: 3,
    firstname: 'Suresh',
    lastname: 'Reddy',
    dob: ISODate('1988-11-10T00:00:00.000Z'),
    phone: '9988776655',
    email: 'suresh@gmail.com'
},
{
    _id: ObjectId('695a14f601ea930a510d8193'),
    customerId: 4,
    firstname: 'Priya',
    lastname: 'Singh',
    dob: ISODate('1996-08-14T00:00:00.000Z'),
    phone: '9812345678',
    email: 'priya@gmail.com'
},
{
    _id: ObjectId('695a14f601ea930a510d8194'),
    customerId: 5,
    firstname: 'Amit',
    lastname: 'Verma',
    dob: ISODate('1990-01-30T00:00:00.000Z'),
    phone: '9999999999',
    email: 'amit@gmail.com'
},
{
    _id: ObjectId('695a14f601ea930a510d8195'),
    customerId: 6,
    firstname: 'Neha',
    lastname: 'Gupta',
    dob: ISODate('1994-12-05T00:00:00.000Z'),
    phone: '9888888888',
    email: 'neha@gmail.com'
},
{
    _id: ObjectId('695a14f601ea930a510d8196'),
    customerId: 7,
    firstname: 'Kiran',
    lastname: 'Patel',
    dob: ISODate('1987-07-19T00:00:00.000Z'),
    phone: '9777777777',
    email: 'kiran@gmail.com'
},
{
    _id: ObjectId('695a14f601ea930a510d8197'),
    customerId: 8,
    firstname: 'Pooja',
    lastname: 'Mair',
    dob: ISODate('1993-05-22T00:00:00.000Z'),
    phone: '9666666666',
    email: 'pooja@gmail.com'
},
{
    _id: ObjectId('695a14f601ea930a510d8198'),
    customerId: 9,
    firstname: 'Rahul',
    lastname: 'Das',
    dob: ISODate('1991-09-09T00:00:00.000Z'),
    phone: '9555555555',
    email: 'rahul@gmail.com'
},
{
    _id: ObjectId('695a14f601ea930a510d8199'),
    customerId: 10,
    firstname: 'Sneha',
    lastname: 'Iyer',
    dob: ISODate('1997-04-03T00:00:00.000Z'),
    phone: '9444444444',
    email: 'sneha@gmail.com'
}
]
Insurance0>
```

2. **firstname, lastname, email:**

```
db.customers.find({}, { firstname:1, lastname:1, email:1, _id:0 })
```

```

InsuranceDb> db.customers.find({}, { firstname:1, lastname:1, email:1, _id:0 })
[
  { firstname: 'Ravi', lastname: 'Kumar', email: 'ravi@gmail.com' },
  { firstname: 'Anita', lastname: 'Sharma', email: 'anita@gmail.com' },
  { firstname: 'Suresh', lastname: 'Reddy', email: 'suresh@gmail.com' },
  { firstname: 'Priya', lastname: 'Singh', email: 'priya@gmail.com' },
  { firstname: 'Amit', lastname: 'Verma', email: 'amit@gmail.com' },
  { firstname: 'Neha', lastname: 'Gupta', email: 'neha@gmail.com' },
  { firstname: 'Kiran', lastname: 'Patel', email: 'kiran@gmail.com' },
  { firstname: 'Pooja', lastname: 'Nair', email: 'pooja@gmail.com' },
  { firstname: 'Rahul', lastname: 'Das', email: 'rahul@gmail.com' },
  { firstname: 'Sneha', lastname: 'Iyer', email: 'sneha@gmail.com' }
]

```

3. policy name & premium:

```
db.policies.find({}, { policyName:1, premiumAmount:1, _id:0 })
```

```

InsuranceDb> db.policies.find({}, { policyName:1, premiumAmount:1, _id:0 })
[
  { policyName: 'Life Secure', premiumAmount: 25000 },
  { policyName: 'Health Plus', premiumAmount: 18000 },
  { policyName: 'Car Protect', premiumAmount: 12000 },
  { policyName: 'Home Shield', premiumAmount: 15000 },
  { policyName: 'Travel Safe', premiumAmount: 8000 },
  { policyName: 'Child Future', premiumAmount: 20000 },
  { policyName: 'Senior Care', premiumAmount: 22000 },
  { policyName: 'Bike Guard', premiumAmount: 6000 },
  { policyName: 'Term Life', premiumAmount: 30000 },
  { policyName: 'Family Health', premiumAmount: 28000 }
]

```

UPDATE QUERIES → updateOne / updateMany:

1 Increase Health premium by 10%:

```

db.policies.updateMany(
  { policyType: "Health" },
  { $mul: { premiumAmount: 1.1 } }
)
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 3,
  modifiedCount: 3,
  upsertedCount: 0
}

```

2 Change agent city:

```
db.agents.updateOne(
```

```
{ agentId: 205 },  
{ $set: { city: "Delhi" } }  
}  
  
{  
  acknowledged: true,  
  insertedId: null,  
  matchedCount: 1,  
  modifiedCount: 1,  
  upsertedCount: 0  
}
```

GROUP BY → aggregate():

1 Policies per type:

```
db.policies.aggregate([  
  { $group: { _id: "$policyType", count: { $sum: 1 } } }  
])  
  
[  
  { _id: 'Travel', count: 1 },  
  { _id: 'Life', count: 3 },  
  { _id: 'Health', count: 3 },  
  { _id: 'Property', count: 1 },  
  { _id: 'Vehicle', count: 2 }  
]
```

2 Policies per agent:

```
db.policyAssignment.aggregate([  
  { $group: { _id: "$agentId", count: { $sum: 1 } } }  
])
```

```
[  
  { _id: 206, count: 1 },  
  { _id: 201, count: 1 },  
  { _id: 204, count: 1 },  
  { _id: 202, count: 1 },  
  { _id: 203, count: 1 },  
  { _id: 205, count: 1 },  
  { _id: 209, count: 1 },  
  { _id: 210, count: 1 },  
  { _id: 208, count: 1 },  
  { _id: 207, count: 1 }]  
]
```

AGGREGATE FUNCTIONS:

Total customers:

```
db.customers.countDocuments()
```

```
InsuranceDb> db.customers.countDocuments()  
10
```

Average premium:

```
db.policies.aggregate([  
  { $group: { _id: null, avgPremium: { $avg: "$premiumAmount" } } }  
])
```

```
InsuranceDb> db.policies.aggregate([  
...  { $group: { _id: null, avgPremium: { $avg: "$premiumAmount" } } }  
... ])  
[ { _id: null, avgPremium: 19080 } ]
```

Max & Min claim:

```
db.claims.aggregate([  
  { $group: { _id: null, max: { $max: "$claimAmount" }, min: { $min: "$claimAmount" } } }  
])
```

```
InsuranceDb> db.claims.aggregate([  
...  { $group: { _id: null, max: { $max: "$claimAmount" }, min: { $min: "$claimAmount" } } }  
... ])  
[ { _id: null, max: 60000, min: 8000 } ]
```