

## Day - 5 MongoDB Assignment:

### Listing databases and Creating InsuranceDB

```
insuranceDB> show dbs
```

- admin 40.00 KiB
- college 80.00 KiB
- config 108.00 KiB
- insuranceDB 8.00 KiB
- local 64.00 KiB

```
insuranceDB> use insuranceDB
```

### Creating InsuranceDB collections:

```
db.customers.insertMany([
```

```
{
  customerID: 1,
  firstName: "Virat",
  lastName: "Kohli",
  DOB: ISODate("2000-11-05"),
  phone: "9876543210",
  email: "virat.kohli@gmail.com"
},
{
  customerID: 2,
  firstName: "Rohit",
  lastName: "Sharma",
  DOB: ISODate("2003-03-15"),
  phone: "9876543211",
  email: "rohit.sharma@gmail.com"
},
```

```
{
  customerID: 3,
  firstName: "Sachin",
  lastName: "Tendulkar",
  DOB: ISODate("2010-07-20"),
  phone: "9876543212",
  email: "sachin.t@gmail.com"
},
{
  customerID: 4,
  firstName: "MS",
  lastName: "Dhoni",
  DOB: ISODate("1995-11-25"),
  phone: "9876543213",
  email: "ms.dhoni@gmail.com"
},
{
  customerID: 5,
  firstName: "Hardik",
  lastName: "Pandya",
  DOB: ISODate("2005-01-05"),
  phone: "9876543214",
  email: "hardik.pandya@gmail.com"
}
])
{
  acknowledged: true,
  insertedIds: {
```

```
'0': ObjectId('695763a2c61f3782be1e2631'),
'1': ObjectId('695763a2c61f3782be1e2632'),
'2': ObjectId('695763a2c61f3782be1e2633'),
'3': ObjectId('695763a2c61f3782be1e2634'),
'4': ObjectId('695763a2c61f3782be1e2635')
}
}
```

### **Agents Collections:**

```
db.agents.insertMany([
  {
    agentID: 1,
    agentName: "Rahul Dravid",
    phone: "9123456780",
    city: "Hyderabad"
  },
  {
    agentID: 2,
    agentName: "Anil Kumble",
    phone: "9123456781",
    city: "Nagpur"
  },
  {
    agentID: 3,
    agentName: "Kapil Dev",
    phone: "9123456782",
    city: "Jaipur"
  }
])
```

### **Policies Collections:**

```
db.policies.insertMany([
  {
    policyID: 1,
    policyName: "Kohli Life Secure",
    policyType: "Life",
    premiumAmount: 15000,
    durationYears: 1
  },
  {
    policyID: 2,
    policyName: "Rohit Health Plus",
    policyType: "Health",
    premiumAmount: 12000,
    durationYears: 1
  },
  {
    policyID: 3,
    policyName: "Bumrah Motor Shield",
    policyType: "Motor",
    premiumAmount: 8000,
    durationYears: 1
  },
])
```

```
{
  policyID: 4,
  policyName: "Dhoni Health Gold",
  policyType: "Health",
  premiumAmount: 20000,
  durationYears: 2
}
])
```

**Output:**

```
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('695763c9c61f3782be1e2636'),
    '1': ObjectId('695763c9c61f3782be1e2637'),
    '2': ObjectId('695763c9c61f3782be1e2638')
  }
}
```

**Policies Collection:**

```
db.policies.insertMany([
  {
    policyID: 1,
    policyName: "Kohli Life Secure",
    policyType: "Life",
    premiumAmount: 15000,
    durationYears: 1
  },
```

```
{
  policyID: 2,
  policyName: "Rohit Health Plus",
  policyType: "Health",
  premiumAmount: 12000,
  durationYears: 1
},
{
  policyID: 3,
  policyName: "Bumrah Motor Shield",
  policyType: "Motor",
  premiumAmount: 8000,
  durationYears: 1
},
{
  policyID: 4,
  policyName: "Dhoni Health Gold",
  policyType: "Health",
  premiumAmount: 20000,
  durationYears: 2
}
])
```

**Output:**

```
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('69576414c61f3782be1e2639'),
    '1': ObjectId('69576414c61f3782be1e263a'),
```

```
    '2': ObjectId('69576414c61f3782be1e263b'),
    '3': ObjectId('69576414c61f3782be1e263c')
  }
}
```

#### **Policy Assignments Collection:**

```
db.policyassignments.insertMany([
  {
    assignmentID: 1,
    customerID: 5,
    policyID: 1,
    agentID: 1,
    startDate: ISODate("2023-01-01"),
    endDate: ISODate("2024-01-01")
  },
  {
    assignmentID: 2,
    customerID: 2,
    policyID: 2,
    agentID: 2,
    startDate: ISODate("2024-02-01"),
    endDate: ISODate("2025-02-01")
  },
  {
    assignmentID: 3,
    customerID: 1,
    policyID: 3,
    agentID: 3,
    startDate: ISODate("2023-06-01"),
```

```
        endDate: ISODate("2024-06-01")
      },
      {
        assignmentID: 4,
        customerID: 4,
        policyID: 4,
        agentID: 1,
        startDate: ISODate("2024-01-01"),
        endDate: ISODate("2026-01-01")
      }
    ])
  }
}
```

**Output:**

```
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('695764cbc61f3782be1e263d'),
    '1': ObjectId('695764cbc61f3782be1e263e'),
    '2': ObjectId('695764cbc61f3782be1e263f'),
    '3': ObjectId('695764cbc61f3782be1e2640')
  }
}
```

### Claims Collection:

```
db.claims.insertMany([
  {
    claimID: 1,
    assignmentID: 1,
    claimDate: ISODate("2023-05-10"),
    claimAmount: 30000,
    claimStatus: "Approved"
  },
  {
    claimID: 2,
    assignmentID: 2,
    claimDate: ISODate("2024-06-15"),
    claimAmount: 20000,
    claimStatus: "Rejected"
  },
  {
    claimID: 3,
    assignmentID: 4,
    claimDate: ISODate("2024-08-01"),
    claimAmount: 60000,
    claimStatus: "Approved"
  }
])
```

**Output:**

```
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('695764d3c61f3782be1e2641'),
    '1': ObjectId('695764d3c61f3782be1e2642'),
    '2': ObjectId('695764d3c61f3782be1e2643')
  }
}
```

**CRUD Operations:****BASIC READ QUERIES:****1. Display all customers**

```
insuranceDB> db.customers.find()
```

```
[
  {
    _id: ObjectId('695763a2c61f3782be1e2631'),
    customerID: 1,
    firstName: 'Virat',
    lastName: 'Kohli',
    DOB: ISODate('1998-05-10T00:00:00.000Z'),
    phone: '9876543210',
    email: 'virat.kohli@gmail.com'
  },
  {
    _id: ObjectId('695763a2c61f3782be1e2632'),
    customerID: 2,
    firstName: 'Rohit',
    lastName: 'Sharma',
    DOB: ISODate('2003-03-15T00:00:00.000Z'),
    phone: '9876543211',
    email: 'rohit.sharma@gmail.com'
  },
]
```

```
{
  _id: ObjectId('695763a2c61f3782be1e2633'),
  customerID: 3,
  firstName: 'Sachin',
  lastName: 'Tendulkar',
  DOB: ISODate('2010-07-20T00:00:00.000Z'),
  phone: '9876543212',
  email: 'sachin.t@gmail.com'
},
{
  _id: ObjectId('695763a2c61f3782be1e2634'),
  customerID: 4,
  firstName: 'MS',
  lastName: 'Dhoni',
  DOB: ISODate('1995-11-25T00:00:00.000Z'),
  phone: '9876543213',
  email: 'ms.dhoni@gmail.com'
},
{
  _id: ObjectId('695763a2c61f3782be1e2635'),
  customerID: 5,
  firstName: 'Hardik',
  lastName: 'Pandya',
  DOB: ISODate('2005-01-05T00:00:00.000Z'),
  phone: '9876543214',
  email: 'hardik.pandya@gmail.com'
}
]
```

## 2. Display all agents from Hyderabad

```
insuranceDB> db.agents.find({ city: "Hyderabad" })
[
  {
    _id: ObjectId('6957636ec61f3782be1e262e'),
    agentID: 1,
    agentName: 'Rahul Dravid',
```

```
    phone: '9123456780',  
    city: 'Hyderabad'  
  }  
]
```

### 3. Display customers born after 2000

```
insuranceDB> db.customers.find({ DOB: { $gt: ISODate("2000-01-01") } })
```

```
[  
  {  
    _id: ObjectId('695763a2c61f3782be1e2632'),  
    customerID: 2,  
    firstName: 'Rohit',  
    lastName: 'Sharma',  
    DOB: ISODate('2003-03-15T00:00:00.000Z'),  
    phone: '9876543211',  
    email: 'rohit.sharma@gmail.com'  
  },  
  {  
    _id: ObjectId('695763a2c61f3782be1e2633'),  
    customerID: 3,  
    firstName: 'Sachin',  
    lastName: 'Tendulkar',  
    DOB: ISODate('2010-07-20T00:00:00.000Z'),  
    phone: '9876543212',  
    email: 'sachin.t@gmail.com'  
  },  
  {  
    _id: ObjectId('695763a2c61f3782be1e2635'),  
    customerID: 5,  
    firstName: 'Hardik',  
    lastName: 'Pandya',  
    DOB: ISODate('2005-01-05T00:00:00.000Z'),  
    phone: '9876543214',  
    email: 'hardik.pandya@gmail.com'  
  }  
]
```

## PROJECTIONS:

### 1. Show only customer firstName and email

```
insuranceDB> db.customers.find({}, { _id: 0, firstName: 1, email: 1 })
```

```
[
  { firstName: 'Virat', email: 'virat.kohli@gmail.com' },
  { firstName: 'Rohit', email: 'rohit.sharma@gmail.com' },
  { firstName: 'Sachin', email: 'sachin.t@gmail.com' },
  { firstName: 'MS', email: 'ms.dhoni@gmail.com' },
  { firstName: 'Hardik', email: 'hardik.pandya@gmail.com' }
]
```

### 2.Show all fields except phone from agents

```
insuranceDB> db.agents.find({}, { phone: 0 })
```

```
[
  {
    _id: ObjectId('6957636ec61f3782be1e262e'),
    agentID: 1,
    agentName: 'Rahul Dravid',
    city: 'Hyderabad'
  },
  {
    _id: ObjectId('6957636ec61f3782be1e262f'),
    agentID: 2,
    agentName: 'Anil Kumble',
    city: 'Nagpur'
  },
  {
    _id: ObjectId('6957636ec61f3782be1e2630'),
    agentID: 3,
    agentName: 'Kapil Dev',
    city: 'Jaipur'
  }
]
```

## CONDITIONAL QUERIES:

### 1.Policies with premiumAmount greater than 15000

```
insuranceDB> db.policies.find({ premiumAmount: { $gt: 15000 } })
```

```
[
  {
    _id: ObjectId('69576414c61f3782be1e263c'),
    policyID: 4,
    policyName: 'Health Gold',
    policyType: 'Health',
    premiumAmount: 20000,
    durationYears: 2
  }
]
```

### 2.Claims with status Approved

```
insuranceDB> db.claims.find({ claimStatus: "Approved" })
```

```
[
  {
    _id: ObjectId('695764d3c61f3782be1e2641'),
    claimID: 1,
    assignmentID: 1,
    claimDate: ISODate('2023-05-10T00:00:00.000Z'),
    claimAmount: 30000,
    claimStatus: 'Approved'
  },
  {
    _id: ObjectId('695764d3c61f3782be1e2643'),
    claimID: 3,
    assignmentID: 4,
    claimDate: ISODate('2024-08-01T00:00:00.000Z'),
    claimAmount: 60000,
    claimStatus: 'Approved'
  }
]
```

## UPDATE AND DELETE:

### 1. Update premium of policyID = 2

```
insuranceDB> db.policies.updateOne( { policyID: 2 }, { $set: { premiumAmount: 14000 } })

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

### 2. Increase all Health policy premiums by 10%

```
insuranceDB> db.policies.updateMany({ policyType: "Health" },
{ $mul: { premiumAmount:1.1 } })

{
  acknowledged: true,
  insertedId: null,
  matchedCount: 2,
  modifiedCount: 2,
  upsertedCount: 0
}
```

### 3. Delete claims with claimAmount less than 25000

```
insuranceDB> db.claims.deleteMany({ claimAmount: { $lt: 25000 } })

{ acknowledged: true, deletedCount: 1 }
```

## SORT, LIMIT, COUNT:

### 1 .Sort policies by premiumAmount (descending)

```
insuranceDB> db.policies.find().sort({ premiumAmount: -1 })

[
  {
    _id: ObjectId('69576414c61f3782be1e263c'),
    policyID: 4,
    policyName: 'Health Gold',
```

```
    policyType: 'Health',
    premiumAmount: 22000,
    durationYears: 2
  },
  {
    _id: ObjectId('69576414c61f3782be1e263a'),
    policyID: 2,
    policyName: 'Health Plus',
    policyType: 'Health',
    premiumAmount: 15400.000000000002,
    durationYears: 1
  },
  {
    _id: ObjectId('69576414c61f3782be1e2639'),
    policyID: 1,
    policyName: 'Life Secure',
    policyType: 'Life',
    premiumAmount: 15000,
    durationYears: 1
  },
  {
    _id: ObjectId('69576414c61f3782be1e263b'),
    policyID: 3,
    policyName: 'Motor Shield',
    policyType: 'Motor',
    premiumAmount: 8000,
    durationYears: 1
  }
]
```

## 2.Top 2 highest premium policies:

```
insuranceDB> db.policies.find().sort({ premiumAmount: -1 }).limit(2)
```

**Output:**

```
[
  {
    _id: ObjectId('69576414c61f3782be1e263c'),
    policyID: 4,
    policyName: 'Health Gold',
    policyType: 'Health',
    premiumAmount: 22000,
    durationYears: 2
  },
  {
    _id: ObjectId('69576414c61f3782be1e263a'),
    policyID: 2,
    policyName: 'Health Plus',
    policyType: 'Health',
    premiumAmount: 15400.000000000002,
    durationYears: 1
  }
]
```

**3. Count total number of agents**

```
insuranceDB> db.agents.countDocuments()
```

**Output:**

```
3
```

## Aggregation & Grouping

### 1. Total premium amount of all policies

```
insuranceDB> db.policies.aggregate([  
  
  {  
  
    $group: {  
  
      _id: null, totalPremium: { $sum: "$premiumAmount" }  
  
    }  
  
  }  
  
])
```

#### Output:

```
[ { _id: null, totalPremium: 60400 } ]
```

### 2. Average premium amount per policy type

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

#### Output:

```
[  
  
  { _id: 'Health', avgPremium: 18700 },  
  
  { _id: 'Life', avgPremium: 15000 },  
  
  { _id: 'Motor', avgPremium: 8000 }  
  
]
```

### 3. Number of policies per policy type

```
db.policies.aggregate([  
  
  {  
  
    $group: {  
  
      _id: "$policyType",  
  
      policyCount: { $sum: 1 }  
  
    }  
  
  }  
  
])
```

#### Output:

```
[  
  
  { _id: 'Health', policyCount: 2 },  
  
  { _id: 'Life', policyCount: 1 },  
  
  { _id: 'Motor', policyCount: 1 }  
  
]
```