

## Day 5 – MongoDB Assignment(Katta Sai Rutvik)

### Create DataBase

```
use insurance_db
```

```
test> use insurance_db
switched to db insurance_db
insurance_db>
```

### Create Collections and Insert

Create customers collection

```
> use insurance_db
< switched to db insurance_db
> db.createCollection("customers")
< { ok: 1 }
insurance_db>
```

### Insert one customer

```
> db.customers.insertOne({
    customerId: "C001",
    name: "Rahul Sharma",
    age: 30,
    gender: "Male",
    city: "Hyderabad",
    phone: "9876543210",
    email: "rahul@gmail.com"
})
< {
    acknowledged: true,
    insertedId: ObjectId('695a09f5a4aaa7ec754f3223')
}
```

## Insert many customers

```
db.customers.insertMany([
  {
    customerId: "C002",
    name: "Anita Verma",
    age: 28,
    gender: "Female",
    city: "Bangalore",
    phone: "9876543211",
    email: "anita@gmail.com"
  },
  {
    customerId: "C003",
    name: "Ravi Kumar",
    age: 35,
    gender: "Male",
    city: "Chennai",
    phone: "9876543212",
    email: "ravi@gmail.com"
  },
  {
    customerId: "C004",
    name: "Sneha Reddy",
    age: 26,
    gender: "Female",
    city: "Hyderabad",
    phone: "9876543213",
    email: "sneha@gmail.com"
  },
  {
    customerId: "C005",
    name: "Kiran Patel",
    age: 40,
    gender: "Male",
    city: "Ahmedabad",
    phone: "9876543214",
    email: "kiran@gmail.com"
  },
  {
    customerId: "C006",
    name: "Pooja Mehta",
    age: 32,
    gender: "Female",
    city: "Mumbai",
    phone: "9876543215",
    email: "pooja@gmail.com"
  },
  {
    customerId: "C007",
```

```
        name: "Amit Singh",
        age: 45,
        gender: "Male",
        city: "Delhi",
        phone: "9876543216",
        email: "amit@gmail.com"
    }
])
```

```
acknowledged: true,
insertedIds: [
    '0': ObjectId('695a0beca4aaa7ec754f3224'),
    '1': ObjectId('695a0beca4aaa7ec754f3225'),
    '2': ObjectId('695a0beca4aaa7ec754f3226'),
    '3': ObjectId('695a0beca4aaa7ec754f3227'),
    '4': ObjectId('695a0beca4aaa7ec754f3228'),
    '5': ObjectId('695a0beca4aaa7ec754f3229')
]
```

## Create policies collection

```
db.createCollection("policies")
```

```
db.createCollection("policies")
{ ok: 1 }
```

## Insert many policies

```
db.policies.insertMany([
{
    policyId: "P101",
    policyName: "Health Plus",
    policyType: "Health",
    premiumAmount: 12000,
    durationYears: 5
},
{
    policyId: "P102",
    policyName: "Life Secure",
    policyType: "Life",
    premiumAmount: 15000,
    durationYears: 10
},
```

```
{  
    policyId: "P103",  
    policyName: "Vehicle Protect",  
    policyType: "Vehicle",  
    premiumAmount: 8000,  
    durationYears: 3  
}  
])
```

```
acknowledged: true,  
insertedIds: {  
    '0': ObjectId('695a0ca8a4aaa7ec754f322a'),  
    '1': ObjectId('695a0ca8a4aaa7ec754f322b'),  
    '2': ObjectId('695a0ca8a4aaa7ec754f322c')  
}
```

## Create agents collection

```
db.createCollection("agents")
```

## Insert agents

```
db.agents.insertMany([  
    { agentId: "A001", agentName: "Suresh Rao", city: "Hyderabad", phone:  
    "9000000001" },  
    { agentId: "A002", agentName: "Neha Jain", city: "Mumbai", phone: "9000000002"  
},  
    { agentId: "A003", agentName: "Rohit Verma", city: "Delhi", phone: "9000000003"  
},  
    { agentId: "A004", agentName: "Priya Nair", city: "Bangalore", phone:  
    "9000000004" }  
])
```

## Create policyAssignment

```
db.createCollection("policyAssignments")
```

## Insert policy assignments

```
db.policyAssignments.insertMany([  
    { assignmentId: "PA001", customerId: "C001", policyId: "P101", agentId: "A001",  
    startDate: ISODate("2024-01-01"), endDate: ISODate("2029-01-01") },
```

```

    { assignmentId: "PA002", customerId: "C002", policyId: "P102", agentId: "A002",
startDate: ISODate("2023-06-01"), endDate: ISODate("2033-06-01") },
    { assignmentId: "PA003", customerId: "C003", policyId: "P103", agentId: "A003",
startDate: ISODate("2024-03-01"), endDate: ISODate("2027-03-01") },
    { assignmentId: "PA004", customerId: "C004", policyId: "P101", agentId: "A004",
startDate: ISODate("2024-02-15"), endDate: ISODate("2029-02-15") },
    { assignmentId: "PA005", customerId: "C005", policyId: "P102", agentId: "A001",
startDate: ISODate("2023-11-01"), endDate: ISODate("2033-11-01") },
    { assignmentId: "PA006", customerId: "C006", policyId: "P101", agentId: "A002",
startDate: ISODate("2024-05-10"), endDate: ISODate("2029-05-10") }
])

```

```

acknowledged: true,
insertedIds: {
  '0': ObjectId('695a0f0ba4aaa7ec754f3231'),
  '1': ObjectId('695a0f0ba4aaa7ec754f3232'),
  '2': ObjectId('695a0f0ba4aaa7ec754f3233'),
  '3': ObjectId('695a0f0ba4aaa7ec754f3234'),
  '4': ObjectId('695a0f0ba4aaa7ec754f3235'),
  '5': ObjectId('695a0f0ba4aaa7ec754f3236')
}

```

## Create claims

```
db.createCollection("claims")
```

## Insert claims

```

db.claims.insertMany([
  { claimId: "CL001", assignmentId: "PA001", claimAmount: 50000, claimDate:
ISODate("2024-09-10"), claimStatus: "Approved" },
  { claimId: "CL002", assignmentId: "PA002", claimAmount: 100000, claimDate:
ISODate("2024-10-15"), claimStatus: "Pending" },
  { claimId: "CL003", assignmentId: "PA003", claimAmount: 30000, claimDate:
ISODate("2024-08-20"), claimStatus: "Approved" },
  { claimId: "CL004", assignmentId: "PA004", claimAmount: 45000, claimDate:
ISODate("2024-09-05"), claimStatus: "Rejected" },
  { claimId: "CL005", assignmentId: "PA005", claimAmount: 120000, claimDate:
ISODate("2024-10-01"), claimStatus: "Pending" },
  { claimId: "CL006", assignmentId: "PA006", claimAmount: 60000, claimDate:
ISODate("2024-11-12"), claimStatus: "Approved" }
])

```

```
    acknowledged: true,
    insertedIds: {
      '0': ObjectId('695a0f62a4aaa7ec754f3237'),
      '1': ObjectId('695a0f62a4aaa7ec754f3238'),
      '2': ObjectId('695a0f62a4aaa7ec754f3239'),
      '3': ObjectId('695a0f62a4aaa7ec754f323a'),
      '4': ObjectId('695a0f62a4aaa7ec754f323b'),
      '5': ObjectId('695a0f62a4aaa7ec754f323c')
    }
}
```

## Find commands

### Find all agents

```
db.agents.find()
> db.agents.find()
< [
  {
    _id: ObjectId('695a0dbda4aaa7ec754f322d'),
    agentId: 'A001',
    agentName: 'Suresh Rao',
    city: 'Hyderabad',
    phone: '9000000001'
  },
  {
    _id: ObjectId('695a0dbda4aaa7ec754f322e'),
    agentId: 'A002',
    agentName: 'Neha Jain',
    city: 'Mumbai',
    phone: '9000000002'
  },
  {
    _id: ObjectId('695a0dbda4aaa7ec754f322f'),
    agentId: 'A003',
    agentName: 'Rohit Verma',
    city: 'Delhi',
    phone: '9000000003'
  },
  {
    _id: ObjectId('695a0dbda4aaa7ec754f3230'),
    agentId: 'A004',
    agentName: 'Karan Singh',
    city: 'Pune',
    phone: '9000000004'
  }
]
```

### Find customers from Hyderabad

```
db.customers.find({ city: "Hyderabad" })
```

```
> db.customers.find({ city: "Hyderabad" })
< [
  {
    _id: ObjectId('695a09f5a4aaa7ec754f3223'),
    customerId: 'C001',
    name: 'Rahul Sharma',
    age: 30,
    gender: 'Male',
    city: 'Hyderabad',
    phone: '9876543210',
    email: 'rahul@gmail.com'
  },
  {
    _id: ObjectId('695a0beca4aaa7ec754f3226'),
    customerId: 'C004',
    name: 'Sneha Reddy',
    age: 26,
    gender: 'Female',
    city: 'Hyderabad',
    phone: '9876543213',
    email: 'sneha@gmail.com'
  }
]
insurance_db> |
```

### Find customers older than 30

```
db.customers.find({ age: { $gt: 30 } })
```

```
> db.customers.find({ age: { $gt: 30 } })
< [
  {
    _id: ObjectId('695a0beca4aaa7ec754f3225'),
    customerId: 'C003',
    name: 'Ravi Kumar',
    age: 35,
    gender: 'Male',
    city: 'Chennai',
    phone: '9876543212',
    email: 'ravi@gmail.com'
  },
  {
    _id: ObjectId('695a0beca4aaa7ec754f3227'),
    customerId: 'C005',
    name: 'Kiran Patel',
    age: 40,
    gender: 'Male',
    city: 'Ahmedabad',
    phone: '9876543214',
    email: 'kiran@gmail.com'
  },
  {
    _id: ObjectId('695a0beca4aaa7ec754f3228'),
    customerId: 'C006',
    name: 'Pooja Mehta',
  }
]
```

## Find claims with status Approved

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

```
> db.claims.find({ claimStatus: "Approved" })
< [
  {
    _id: ObjectId('695a0f62a4aaa7ec754f3237'),
    claimId: 'CL001',
    assignmentId: 'PA001',
    claimAmount: 50000,
    claimDate: 2024-09-10T00:00:00.000Z,
    claimStatus: 'Approved'
  },
  {
    _id: ObjectId('695a0f62a4aaa7ec754f3239'),
    claimId: 'CL003',
    assignmentId: 'PA003',
    claimAmount: 30000,
    claimDate: 2024-08-20T00:00:00.000Z,
    claimStatus: 'Approved'
  },
  {
    _id: ObjectId('695a0f62a4aaa7ec754f323c'),
    claimId: 'CL006',
    assignmentId: 'PA006',
    claimAmount: 60000,
  }
]
```

## Update commands

Update the city of customer C001 to Bangalore.

```
db.customers.updateOne(
```

```
{ customerId: "C001" },
{ $set: { city: "Bangalore" } }
)
db.customers.updateOne(
  { customerId: "C001" },
  { $set: { city: "Bangalore" } }
)
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
.
```

**Update all customers living in Hyderabad to Secunderabad.**

```
db.customers.updateMany(
  { city: "Hyderabad" },
  { $set: { city: "Secunderabad" } }
)

db.customers.updateMany(
  { city: "Hyderabad" },
  { $set: { city: "Secunderabad" } }
)
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
```

**Update the phone number of agent A003**

```
db.agents.updateOne(
  { agentId: "A003" },
  { $set: { phone: "9000000099" } }
)
```

```
> db.agents.updateOne(  
  { agentId: "A003" },  
  { $set: { phone: "9000000099" } }  
< {  
  acknowledged: true,  
  insertedId: null,  
  matchedCount: 1,  
  modifiedCount: 1,  
  upsertedCount: 0  
}  
.
```

## Delete Commands

### Delete the customer with customerId C007

```
db.customers.deleteOne({ customerId: "C007" })  
> db.customers.deleteOne({ customerId: "C007" })  
< {  
  acknowledged: true,  
  deletedCount: 1  
}
```

### Delete all policy assignments handled by agent A004

```
db.policyAssignments.deleteMany({ agentId: "A004" })
```

```
> db.policyAssignments.deleteMany({ agentId: "A004" })  
< {  
  acknowledged: true,  
  deletedCount: 1  
}
```

## Aggregation Commands

### Count total number of customers in each city

```
db.customers.aggregate([  
  { $group: { _id: "$city", totalCustomers: { $sum: 1 } } }  
])
```

```
> db.customers.aggregate([
  { $group: { _id: "$city", totalCustomers: { $sum: 1 } } }
])
< [
  {
    _id: 'Bangalore',
    totalCustomers: 2
  },
  {
    _id: 'Mumbai',
    totalCustomers: 1
  },
  {
    _id: 'Chennai',
    totalCustomers: 1
  },
  {
    _id: 'Ahmedabad',
    totalCustomers: 1
  },
  {
    _id: 'Secunderabad',
    totalCustomers: 1
  }
]
```

## Find total claim amount by claim status

```
db.claims.aggregate([
  { $group: { _id: "$claimStatus", totalAmount: { $sum: "$claimAmount" } } }
])
```

```
> db.claims.aggregate([
  { $group: { _id: "$claimStatus", totalAmount: { $sum: "$claimAmount" } } }
])
< [
  {
    _id: 'Approved',
    totalAmount: 140000
  },
  {
    _id: 'Rejected',
    totalAmount: 45000
  },
  {
    _id: 'Pending',
    totalAmount: 220000
  }
]
```

## Find number of policies assigned to each agent

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

```
> db.policyAssignments.aggregate([
  { $group: { _id: "$agentId", totalPolicies: { $sum: 1 } } }
])
< [
  {
    _id: 'A001',
    totalPolicies: 2
  },
  {
    _id: 'A002',
    totalPolicies: 2
  },
  {
    _id: 'A003',
    totalPolicies: 1
  }
]
```

## Find average premium amount by policy type

```
db.policies.aggregate([
  { $group: { _id: "$policyType", avgPremium: { $avg: "$premiumAmount" } } }
])
> db.policies.aggregate([
  { $group: { _id: "$policyType", avgPremium: { $avg: "$premiumAmount" } } }
])
< [
  {
    _id: 'Life',
    avgPremium: 15000
  },
  {
    _id: 'Vehicle',
    avgPremium: 8000
  },
  {
    _id: 'Health',
    avgPremium: 12000
  }
]
```

## \$lookup commands

### Display customers with their assigned policies

```
db.policyAssignments.aggregate([
  {
    $lookup: {
      from: "customers",
      localField: "customerId",
      foreignField: "customerId",
      as: "customerDetails"
    }
  },
  {
    $lookup: {
      from: "policies",
      localField: "policyId",
      foreignField: "policyId",
      as: "policyDetails"
    }
  }
])
```

```

        }
    ]
< {
    _id: ObjectId('695a0f0ba4aaa7ec754f3231'),
    assignmentId: 'PA001',
    customerId: 'C001',
    policyId: 'P101',
    agentId: 'A001',
    startDate: 2024-01-01T00:00:00.000Z,
    endDate: 2029-01-01T00:00:00.000Z,
    customerDetails: [
        {
            _id: ObjectId('695a09f5a4aaa7ec754f3223'),
            customerId: 'C001',
            name: 'Rahul Sharma',
            age: 30,
            gender: 'Male',
            city: 'Bangalore',
            phone: '9876543210',
            email: 'rahul@gmail.com'
        }
    ],
    policyDetails: [
        {
            _id: ObjectId('695a0ca8a4aaa7ec754f322a'),
            policyId: 'P101',
            policyName: 'Health Plus',
        }
    ]
}
]

```

## Display policy assignments with agent details

```

db.policyAssignments.aggregate([
{
    $lookup: {
        from: "agents",
        localField: "agentId",
        foreignField: "agentId",
        as: "agentDetails"
    }
}
])

```

```

        _id: ObjectId('695a0fdbda4aaa7ec754f322d'),
        agentId: 'A001',
        agentName: 'Suresh Rao',
        city: 'Hyderabad',
        phone: '9000000001'
    }
]
}
{
    _id: ObjectId('695a0f0ba4aaa7ec754f3236'),
    assignmentId: 'PA006',
    customerId: 'C006',
    policyId: 'P101',
    agentId: 'A002',
    startDate: 2024-05-10T00:00:00.000Z,
    endDate: 2029-05-10T00:00:00.000Z,
    agentDetails: [
        {
            _id: ObjectId('695a0fdbda4aaa7ec754f322e'),
            agentId: 'A002',
            agentName: 'Neha Jain',
            city: 'Mumbai',
            phone: '9000000002'
        }
    ]
}

```

## Display claims with customer name

```
db.claims.aggregate([
  {
    $lookup: {
      from: "policyAssignments",
      localField: "assignmentId",
      foreignField: "assignmentId",
      as: "assignmentDetails"
    }
  },
  {
    $lookup: {
      from: "customers",
      localField: "assignmentDetails.customerId",
      foreignField: "customerId",
      as: "customerDetails"
    }
  }
])
```

```
_id: ObjectId('695a0f62a4aaa7ec754f3237'),
claimId: 'CL001',
assignmentId: 'PA001',
claimAmount: 5000,
claimDate: 2024-09-10T00:00:00.000Z,
claimStatus: 'Approved',
assignmentDetails: [
  {
    _id: ObjectId('695a0f0ba4aaa7ec754f3231'),
    assignmentId: 'PA001',
    customerId: 'C001',
    policyId: 'P101',
    agentId: 'A001',
    startDate: 2024-01-01T00:00:00.000Z,
    endDate: 2029-01-01T00:00:00.000Z
  }
],
customerDetails: [
  {
    _id: ObjectId('695a09f5a4aaa7ec754f3223'),
    customerId: 'C001',
    name: 'Rahul Sharma',
    age: 30,
    gender: 'Male',
    city: 'Bangalore',
    phone: '9876543210'
  }
]
```

## SORT, LIMIT, SKIP Commands

### Display customers sorted by age (ascending)

```
db.customers.find().sort({ age: 1 })
```

```
> db.customers.find().sort({ age: 1 })
< [
  {
    _id: ObjectId('695a0beca4aaa7ec754f3226'),
    customerId: 'C004',
    name: 'Sneha Reddy',
    age: 26,
    gender: 'Female',
    city: 'Secunderabad',
    phone: '9876543213',
    email: 'sneha@gmail.com'
  },
  {
    _id: ObjectId('695a0beca4aaa7ec754f3224'),
    customerId: 'C002',
    name: 'Anita Verma',
    age: 28,
    gender: 'Female',
    city: 'Bangalore',
    phone: '9876543211',
    email: 'anita@gmail.com'
  },
  {
    _id: ObjectId('695a09f5a4aaa7ec754f3223'),
    customerId: 'C001'
  }
]
```

## Display top 3 highest claim amounts

```
db.claims.find().sort({ claimAmount: -1 }).limit(3)
```

```
> db.claims.find().sort({ claimAmount: -1 }).limit(3)
< [
  {
    _id: ObjectId('695a0f62a4aaa7ec754f323b'),
    claimId: 'CL005',
    assignmentId: 'PA005',
    claimAmount: 120000,
    claimDate: 2024-10-01T00:00:00.000Z,
    claimStatus: 'Pending'
  },
  {
    _id: ObjectId('695a0f62a4aaa7ec754f3238'),
    claimId: 'CL002',
    assignmentId: 'PA002',
    claimAmount: 100000,
    claimDate: 2024-10-15T00:00:00.000Z,
    claimStatus: 'Pending'
  },
  {
    _id: ObjectId('695a0f62a4aaa7ec754f323c'),
    claimId: 'CL006',
    assignmentId: 'PA006',
    claimAmount: 60000,
    claimDate: 2024-11-12T00:00:00.000Z,
    claimStatus: 'Approved'
  }
]
```

## Skip first 2 customers and display remaining

```
db.customers.find().skip(2)
```

```
> db.customers.find().skip(2)
< [
  {
    _id: ObjectId('695a0beca4aaa7ec754f3225'),
    customerId: 'C003',
    name: 'Ravi Kumar',
    age: 35,
    gender: 'Male',
    city: 'Chennai',
    phone: '9876543212',
    email: 'ravi@gmail.com'
  },
  {
    _id: ObjectId('695a0beca4aaa7ec754f3226'),
    customerId: 'C004',
    name: 'Sneha Reddy',
    age: 26,
    gender: 'Female',
    city: 'Secunderabad',
    phone: '9876543213',
    email: 'sneha@gmail.com'
  },
  {
    _id: ObjectId('695a0beca4aaa7ec754f3227'),
    customerId: 'C005',
    name: 'Kiran Patel',
  }
]
```

## Indexes Commands

### Create an index on customer city

```
db.customers.createIndex({ city: 1 })
```

```
> db.customers.createIndex({ city: 1 })
< city_1
+----+
```

### Create a unique index on customerId

```
db.customers.createIndex({ customerId: 1 }, { unique: true })
```

```
> db.customers.createIndex({ customerId: 1 }, { unique: true })
< customerId_1
+----+
```