

## 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:
"90000000001" },
  { agentId: "A002", agentName: "Neha Jain", city: "Mumbai", phone: "90000000002"
},
  { agentId: "A003", agentName: "Rohit Verma", city: "Delhi", phone: "90000000003"
},
  { agentId: "A004", agentName: "Priya Nair", city: "Bangalore", phone:
"90000000004" }
])

```

## 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'),

```

### 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: "90000000099" } }
)

```

```

> 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('695a0dbda4aaa7ec754f322d'),
    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('695a0dbda4aaa7ec754f322e'),
      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": 50000,
  "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

```