Day-5 MongoDB Assignment Queries

1. **Initialise mongo shell.**

```
PS C:\Users\DELL> mongosh
Current Mongosh Log ID: 69574d1a2823181c841e2620
Connecting to:          mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+2.5.10
Using MongoDB:          8.2.3
Using Mongosh:          2.5.10

For mongosh info see: https://www.mongodb.com/docs/mongodb-shell/

------
   The server generated these startup warnings when booting
   2026-01-01T14:20:33.962+05:30: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
------
```

2. **Check databases.**

```
test> show dbs;
admin    40.00 KiB
config   12.00 KiB
local    72.00 KiB
```

3. **Create and use Insurance Database.**

```
test> use InsuranceDB
switched to db InsuranceDB
```

4. **CREATE (INSERT):**

   - **Customers collection:**

```
InsuranceDB> db.Customers.insertMany([
... { _id: 1, firstName: "Ravi", lastName: "Kumar", dob: ISODate("1990-05-12"), phone: "9876543210", email: "ravi.kumar@example.com" },
... { _id: 2, firstName: "Priya", lastName: "Sharma", dob: ISODate("1988-11-22"), phone: "9876543211", email: "priya.sharma@example.com" },
... { _id: 3, firstName: "Amit", lastName: "Verma", dob: ISODate("1995-03-15"), phone: "9876543212", email: "amit.verma@example.com" },
... { _id: 4, firstName: "Sneha", lastName: "Reddy", dob: ISODate("1992-07-09"), phone: "9876543213", email: "sneha.reddy@example.com" },
... { _id: 5, firstName: "Chaitanya", lastName: "Talasila", dob: ISODate("2005-04-15"), phone: "9876543210", email: "chaitanya@example.com" }
... ])
...
{
  acknowledged: true,
  insertedIds: { '0': 1, '1': 2, '2': 3, '3': 4, '4': 5 }
}
```

   - **Policies collection:**

```
InsuranceDB> db.Policies.insertMany([
... { _id: 101, name: "Health Secure", type: "Health", premiumAmount: 12000, duration: "3 Years" },
... { _id: 102, name: "Life Shield", type: "Life", premiumAmount: 25000, duration: "10 Years" },
... { _id: 103, name: "Motor Protect", type: "Vehicle", premiumAmount: 8000, duration: "1 Year" },
... { _id: 104, name: "Senior Care", type: "Health", premiumAmount: 18000, duration: "5 Years" }
... ])
...
{
  acknowledged: true,
  insertedIds: { '0': 101, '1': 102, '2': 103, '3': 104 }
}
```

- **Agents Collection:**

```
InsuranceDB> db.Agents.insertMany([
... { _id: 201, name: "Anil Mehta", phone: "9000011111", city: "Hyderabad" },
... { _id: 202, name: "Kavya Rao", phone: "9000011112", city: "Mumbai" },
... { _id: 203, name: "Rohit Singh", phone: "9000011113", city: "Delhi" },
... { _id: 204, name: "Harshadh", phone: "9000041111", city: "Calicut" }
... ])
...
{
  acknowledged: true,
  insertedIds: { '0': 201, '1': 202, '2': 203, '3': 204 }
}
```

- **PolicyAssignments Collection:**

```
InsuranceDB> db.PolicyAssignments.insertMany([
... { _id: 301, customerId: 1, policyId: 101, agentId: 201, startDate: ISODate("2023-01-01"), endDate: ISODate("2026-01-01") },
... { _id: 302, customerId: 1, policyId: 102, agentId: 202, startDate: ISODate("2020-05-10"), endDate: ISODate("2030-05-10") },
... { _id: 303, customerId: 2, policyId: 103, agentId: 201, startDate: ISODate("2024-01-01"), endDate: ISODate("2025-01-01") },
... { _id: 304, customerId: 3, policyId: 104, agentId: 203, startDate: ISODate("2022-06-15"), endDate: ISODate("2027-06-15") },
... { _id: 305, customerId: 4, policyId: 101, agentId: 202, startDate: ISODate("2021-02-02"), endDate: ISODate("2024-02-02") }
... ])
...
{
  acknowledged: true,
  insertedIds: { '0': 301, '1': 302, '2': 303, '3': 304, '4': 305 }
}
```

- **Claims Collection:**

```
InsuranceDB> db.Claims.insertMany([
... { _id: 401, assignmentId: 301, claimDate: ISODate("2024-03-12"), claimAmclaimAmount: 5000, status: "Approved" },
... { _id: 402, assignmentId: 303, claimDate: ISODate("2024-04-15"), claimAmclaimAmount: 12000, status: "Pending" },
... { _id: 403, assignmentId: 305, claimDate: ISODate("2023-10-10"), claimAmclaimAmount: 8000, status: "Rejected" },
... { _id: 404, assignmentId: 304, claimDate: ISODate("2024-01-25"), claimAmclaimAmount: 15000, status: "Approved" },
... { _id: 405, assignmentId: 302, claimDate: ISODate("2024-06-30"), claimAmclaimAmount: 30000, status: "Pending" }
... ])
...
{
  acknowledged: true,
  insertedIds: { '0': 401, '1': 402, '2': 403, '3': 404, '4': 405 }
}
```

- **Payments Collection:**

```
InsuranceDB> db.Payments.insertMany([
... { _id: 501, assignmentId: 301, amount: 6000, date: ISODate("2024-02-10"), status: "Paid", mode: "Online" },
... { _id: 502, assignmentId: 301, amount: 6000, date: ISODate("2024-05-10"), status: "Paid", mode: "Cash" },
... { _id: 503, assignmentId: 302, amount: 25000, date: ISODate("2024-03-05"), status: "Pending", mode: "Cheque" },
... { _id: 504, assignmentId: 303, amount: 8000, date: ISODate("2024-01-15"), status: "Paid", mode: "Online" },
... { _id: 505, assignmentId: 303, amount: 4000, date: ISODate("2024-04-20"), status: "Failed", mode: "Online" },
... { _id: 506, assignmentId: 304, amount: 9000, date: ISODate("2023-12-30"), status: "Paid", mode: "Card" },
... { _id: 507, assignmentId: 304, amount: 9000, date: ISODate("2024-07-10"), status: "Refunded", mode: "Card" },
... { _id: 508, assignmentId: 305, amount: 12000, date: ISODate("2023-08-10"), status: "Paid", mode: "Cash" }
... ])
...
{
  acknowledged: true,
  insertedIds: {
    '0': 501,
    '1': 502,
    '2': 503,
    '3': 504,
    '4': 505,
    '5': 506,
    '6': 507,
    '7': 508
  }
}
```

5. **READ:**
   - **Find All:**

```
use("InsuranceDB");
db.Customers.find().limit(5);
```

```
[
  {
    "_id": 1,
    "firstName": "Ravi",
    "lastName": "Kumar",
    "dob": {
      "$date": "1990-05-12T00:00:00Z"
    },
    "phone": "9876543210",
    "email": "ravi.kumar@example.com"
  },
  {
    "_id": 2,
    "firstName": "Priya",
    "lastName": "Sharma",
    "dob": {
      "$date": "1988-11-22T00:00:00Z"
    },
    "phone": "9876543211",
    "email": "priya.sharma@example.com"
  },
  {
    "_id": 3,
    "firstName": "Amit",
    "lastName": "Verma",
    "dob": {
      "$date": "1995-03-15T00:00:00Z"
    },
    "phone": "9876543212",
    "email": "amit.verma@example.com"
  },
  {
    "_id": 4,
    "firstName": "Sneha",
    "lastName": "Reddy",
    "dob": {
      "$date": "1992-07-09T00:00:00Z"
    },
    "phone": "9876543213",
    "email": "sneha.reddy@example.com"
  },
```

```
  {
    "_id": 5,
    "firstName": "Chaitanya",
    "lastName": "Talasila",
    "dob": {
      "$date": "2005-04-15T00:00:00Z"
    },
    "phone": "9876543210",
    "email": "chaitanya@example.com"
  }
]
```

- **Find One:**

```
use("InsuranceDB");
db.Customers.findOne({ _id: 1 });
```

```
{
  "_id": 1,
  "firstName": "Ravi",
  "lastName": "Kumar",
  "dob": {
    "$date": "1990-05-12T00:00:00Z"
  },
  "phone": "9876543210",
  "email": "ravi.kumar@example.com"
}
```

6. UPDATE

- **Update One:**

```
db.Customers.updateOne(
  { _id: 1 },
  { $set: { phone: "8888888888" } }
);
```

```
{
  "acknowledged": true,
  "insertedId": null,
  "matchedCount": 1,
  "modifiedCount": 1,
  "upsertedCount": 0
}
{
  "_id": 1,
  "firstName": "Ravi",
  "lastName": "Kumar",
  "dob": {
    "$date": "1990-05-12T00:00:00Z"
  },
  "phone": "8888888888",
  "email": "ravi.kumar@example.com"
}
```

- **Update All:**

```
use("InsuranceDB");

db.Claims.updateMany(
  { status: "Pending" },
  { $set: { status: "In Review" } }
);
```

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

- **Upsert:**

```
use("InsuranceDB");
db.Customers.updateOne(
  { _id: 50 },
  { $set: { firstName: "NewUser", email: "new@example.com" } },
  { upsert: true }
);
```

```
{
  "acknowledged": true,
  "insertedId": 50,
  "matchedCount": 0,
  "modifiedCount": 0,
  "upsertedCount": 1
}
```

7. **DELETE:**
- **Delete One:**

```
use("InsuranceDB");
db.Customers.deleteOne({ _id: 12 });
```

```
{
  "acknowledged": true,
  "deletedCount": 0
}
```

- **Delete Many:**

```
use("InsuranceDB");
db.Payments.deleteMany({ status: "Failed" });
```

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

QUERIES:

1. Policies premium between 10000 and 20000:

```javascript
use("InsuranceDB");
db.Policies.find(
 { premiumAmount: { $gte: 10000, $lte: 20000 } },
 { name: 1, premiumAmount: 1 }
);
```

```json
[
  {
    "_id": 101,
    "name": "Health Secure",
    "premiumAmount": 12000
  },
  {
    "_id": 104,
    "name": "Senior Care",
    "premiumAmount": 18000
  }
]
```

2. Policies NOT Life Type:

```javascript
use("InsuranceDB");
db.Policies.find({ type: { $ne: "Life" } });
```

```json
[
  {
    "_id": 101,
    "name": "Health Secure",
    "type": "Health",
    "premiumAmount": 12000,
    "duration": "3 Years"
  },
  {
    "_id": 103,
    "name": "Motor Protect",
    "type": "Vehicle",
```

```
    "premiumAmount": 8000,
    "duration": "1 Year"
  },
  {
    "_id": 104,
    "name": "Senior Care",
    "type": "Health",
    "premiumAmount": 18000,
    "duration": "5 Years"
  }
]
```

3. **Sort policies by premium DESC:**

```
use("InsuranceDB");
db.Policies.find().sort({ premiumAmount: -1 });
```

```
[
  {
    "_id": 102,
    "name": "Life Shield",
    "type": "Life",
    "premiumAmount": 25000,
    "duration": "10 Years"
  },
  {
    "_id": 104,
    "name": "Senior Care",
    "type": "Health",
    "premiumAmount": 18000,
    "duration": "5 Years"
  },
  {
    "_id": 101,
    "name": "Health Secure",
    "type": "Health",
    "premiumAmount": 12000,
    "duration": "3 Years"
  },
  {
    "_id": 103,
    "name": "Motor Protect",
    "type": "Vehicle",
    "premiumAmount": 8000,
    "duration": "1 Year"
```

```
        }
]
```

4. **Top 2 Highest Premium Policies:**

```
use("InsuranceDB");
db.Policies.find().sort({ premiumAmount: -1 }).limit(2);
```

```
[
  {
    "_id": 102,
    "name": "Life Shield",
    "type": "Life",
    "premiumAmount": 25000,
    "duration": "10 Years"
  },
  {
    "_id": 104,
    "name": "Senior Care",
    "type": "Health",
    "premiumAmount": 18000,
    "duration": "5 Years"
  }
]
```

5. **Skip First 2 Policies:**

```
use("InsuranceDB");
db.Policies.find().skip(2);
```

```
[
  {
    "_id": 103,
    "name": "Motor Protect",
    "type": "Vehicle",
    "premiumAmount": 8000,
    "duration": "1 Year"
  },
  {
    "_id": 104,
    "name": "Senior Care",
    "type": "Health",
    "premiumAmount": 18000,
    "duration": "5 Years"
  }
]
```

6. **Count Health Policies:**

```
InsuranceDB> db.Policies.countDocuments({ type: "Health" });
2
```

7. **Add GST 18%**

```
InsuranceDB> db.Policies.countDocuments({ type: "Health" });
2
InsuranceDB> db.Policies.aggregate([
...    {
...      $project: {
...        name: 1,
...        totalPremium: { $multiply: ["$premiumAmount", 1.18] }
...      }
...    }
... ]);
...
[
  { _id: 101, name: 'Health Secure', totalPremium: 14160 },
  { _id: 102, name: 'Life Shield', totalPremium: 29500 },
  { _id: 103, name: 'Motor Protect', totalPremium: 9440 },
  { _id: 104, name: 'Senior Care', totalPremium: 21240 }
]
```

8. **Join PolicyAssignments with Customers:**

```
use("InsuranceDB");
db.PolicyAssignments.aggregate([
  {
    $lookup: {
      from: "Customers",
      localField: "customerId",
      foreignField: "_id",
      as: "customer"
    }
  },
  { $unwind: "$customer" }
]);
```

```
[
  {
    "_id": 301,
    "customerId": 1,
    "policyId": 101,
    "agentId": 201,
    "startDate": {
      "$date": "2023-01-01T00:00:00Z"
    },
```

```json
      "endDate": {
        "$date": "2026-01-01T00:00:00Z"
      },
      "customer": {
        "_id": 1,
        "firstName": "Ravi",
        "lastName": "Kumar",
        "dob": {
          "$date": "1990-05-12T00:00:00Z"
        },
        "phone": "8888888888",
        "email": "ravi.kumar@example.com"
      }
    },
    {
      "_id": 302,
      "customerId": 1,
      "policyId": 102,
      "agentId": 202,
      "startDate": {
        "$date": "2020-05-10T00:00:00Z"
      },
      "endDate": {
        "$date": "2030-05-10T00:00:00Z"
      },
      "customer": {
        "_id": 1,
        "firstName": "Ravi",
        "lastName": "Kumar",
        "dob": {
          "$date": "1990-05-12T00:00:00Z"
        },
        "phone": "8888888888",
        "email": "ravi.kumar@example.com"
      }
    },
    {
      "_id": 303,
      "customerId": 2,
      "policyId": 103,
      "agentId": 201,
      "startDate": {
        "$date": "2024-01-01T00:00:00Z"
      },
      "endDate": {
        "$date": "2025-01-01T00:00:00Z"
      },
      "customer": {
```

```json
      "_id": 2,
      "firstName": "Priya",
      "lastName": "Sharma",
      "dob": {
        "$date": "1988-11-22T00:00:00Z"
      },
      "phone": "9876543211",
      "email": "priya.sharma@example.com"
    }
  },
  {
    "_id": 304,
    "customerId": 3,
    "policyId": 104,
    "agentId": 203,
    "startDate": {
      "$date": "2022-06-15T00:00:00Z"
    },
    "endDate": {
      "$date": "2027-06-15T00:00:00Z"
    },
    "customer": {
      "_id": 3,
      "firstName": "Amit",
      "lastName": "Verma",
      "dob": {
        "$date": "1995-03-15T00:00:00Z"
      },
      "phone": "9876543212",
      "email": "amit.verma@example.com"
    }
  },
  {
    "_id": 305,
    "customerId": 4,
    "policyId": 101,
    "agentId": 202,
    "startDate": {
      "$date": "2021-02-02T00:00:00Z"
    },
    "endDate": {
      "$date": "2024-02-02T00:00:00Z"
    },
    "customer": {
      "_id": 4,
      "firstName": "Sneha",
      "lastName": "Reddy",
      "dob": {
```

```
      "$date": "1992-07-09T00:00:00Z"
    },
    "phone": "9876543213",
    "email": "sneha.reddy@example.com"
  }
 }
]
```

9. **Join PolicyAssignments with Policies:**

```
use("InsuranceDB");
db.PolicyAssignments.aggregate([
  {
    $lookup: {
      from: "Policies",
      localField: "policyId",
      foreignField: "_id",
      as: "policy"
    }
  },
  { $unwind: "$policy" }
]);
```

```
[
  {
    "_id": 301,
    "customerId": 1,
    "policyId": 101,
    "agentId": 201,
    "startDate": {
      "$date": "2023-01-01T00:00:00Z"
    },
    "endDate": {
      "$date": "2026-01-01T00:00:00Z"
    },
    "policy": {
      "_id": 101,
      "name": "Health Secure",
      "type": "Health",
      "premiumAmount": 12000,
      "duration": "3 Years"
    }
  },
  {
    "_id": 302,
    "customerId": 1,
    "policyId": 102,
```

```json
      "agentId": 202,
      "startDate": {
        "$date": "2020-05-10T00:00:00Z"
      },
      "endDate": {
        "$date": "2030-05-10T00:00:00Z"
      },
      "policy": {
        "_id": 102,
        "name": "Life Shield",
        "type": "Life",
        "premiumAmount": 25000,
        "duration": "10 Years"
      }
    },
    {
      "_id": 303,
      "customerId": 2,
      "policyId": 103,
      "agentId": 201,
      "startDate": {
        "$date": "2024-01-01T00:00:00Z"
      },
      "endDate": {
        "$date": "2025-01-01T00:00:00Z"
      },
      "policy": {
        "_id": 103,
        "name": "Motor Protect",
        "type": "Vehicle",
        "premiumAmount": 8000,
        "duration": "1 Year"
      }
    },
    {
      "_id": 304,
      "customerId": 3,
      "policyId": 104,
      "agentId": 203,
      "startDate": {
        "$date": "2022-06-15T00:00:00Z"
      },
      "endDate": {
        "$date": "2027-06-15T00:00:00Z"
      },
      "policy": {
        "_id": 104,
        "name": "Senior Care",
```

```
        "type": "Health",
        "premiumAmount": 18000,
        "duration": "5 Years"
      }
  },
  {
    "_id": 305,
    "customerId": 4,
    "policyId": 101,
    "agentId": 202,
    "startDate": {
      "$date": "2021-02-02T00:00:00Z"
    },
    "endDate": {
      "$date": "2024-02-02T00:00:00Z"
    },
    "policy": {
      "_id": 101,
      "name": "Health Secure",
      "type": "Health",
      "premiumAmount": 12000,
      "duration": "3 Years"
    }
  }
]
```

10. Show only Health policies:

```
use("InsuranceDB");
db.PolicyAssignments.aggregate([
  {
    $lookup: {
      from: "Policies",
      localField: "policyId",
      foreignField: "_id",
      as: "policy"
    }
  },
  { $unwind: "$policy" },
  { $match: { "policy.type": "Health" } }
]);
```

```
[
  {
    "_id": 301,
```

```json
      "customerId": 1,
      "policyId": 101,
      "agentId": 201,
      "startDate": {
        "$date": "2023-01-01T00:00:00Z"
      },
      "endDate": {
        "$date": "2026-01-01T00:00:00Z"
      },
      "policy": {
        "_id": 101,
        "name": "Health Secure",
        "type": "Health",
        "premiumAmount": 12000,
        "duration": "3 Years"
      }
    },
    {
      "_id": 304,
      "customerId": 3,
      "policyId": 104,
      "agentId": 203,
      "startDate": {
        "$date": "2022-06-15T00:00:00Z"
      },
      "endDate": {
        "$date": "2027-06-15T00:00:00Z"
      },
      "policy": {
        "_id": 104,
        "name": "Senior Care",
        "type": "Health",
        "premiumAmount": 18000,
        "duration": "5 Years"
      }
    },
    {
      "_id": 305,
      "customerId": 4,
      "policyId": 101,
      "agentId": 202,
      "startDate": {
        "$date": "2021-02-02T00:00:00Z"
      },
      "endDate": {
        "$date": "2024-02-02T00:00:00Z"
      },
      "policy": {
```

```
    "_id": 101,
    "name": "Health Secure",
    "type": "Health",
    "premiumAmount": 12000,
    "duration": "3 Years"
  }
 }
]
```

11. Show customer name and policy name for each policy assignment:

```
use("InsuranceDB");
db.PolicyAssignments.aggregate([
  { $lookup: { from: "Customers", localField: "customerId", foreignField:
"_id", as: "customer" } },
  { $unwind: "$customer" },

  { $lookup: { from: "Policies", localField: "policyId", foreignField: "_id",
as: "policy" } },
  { $unwind: "$policy" },

  {
    $project: {
      _id: 0,
      customerName: "$customer.firstName",
      policyName: "$policy.name"
    }
  }
}
]);
```

```
[
  {
    "customerName": "Ravi",
    "policyName": "Health Secure"
  },
  {
    "customerName": "Ravi",
    "policyName": "Life Shield"
  },
  {
    "customerName": "Priya",
    "policyName": "Motor Protect"
  },
  {
    "customerName": "Amit",
    "policyName": "Senior Care"
```

```
  },
  {
    "customerName": "Sneha",
    "policyName": "Health Secure"
  }
]
```

12. List all policies sold by agents from Mumbai:

```
use("InsuranceDB");
db.PolicyAssignments.aggregate([
  { $lookup: { from: "Agents", localField: "agentId", foreignField: "_id", as:
"agent" } },
  { $unwind: "$agent" },
  { $match: { "agent.city": "Mumbai" } },

  { $lookup: { from: "Policies", localField: "policyId", foreignField: "_id",
as: "policy" } },
  { $unwind: "$policy" },

  {
    $project: {
      _id: 0,
      policyName: "$policy.name",
      agentName: "$agent.name"
    }
  }
]);
```

```
[
  {
    "policyName": "Life Shield",
    "agentName": "Kavya Rao"
  },
  {
    "policyName": "Health Secure",
    "agentName": "Kavya Rao"
  }
]
```