

MongoDB

Create database

```
use insuredb
```

Create Collections

```
db.createCollection('customers')
```

```
db.createCollection('Policies')
```

```
db.createCollection('PolicyAssignments')
```

```
db.createCollection('Claims')
```

```
db.createCollection('Agents')
```

Inserting Data

Customers

```
db.customers.insertMany([ { customerID: 1, FirstName: "Anand", LastName: "chedapangu",
DateOfBirth: ISODate("2003-08-23"), Phone: "9573634476", Email: "anandch1119@gmail.com" }, {
customerID: 2, FirstName: "Abhi", LastName: "Banda", DateOfBirth: ISODate("2003-12-26"), Phone:
"7396939296", Email: "abhi7@gmail.com" }, { customerID: 3, FirstName: "Abhi", LastName:
"chanda", DateOfBirth: ISODate("2005-12-26"), Phone: "7396908296", Email:
"abhichanda@gmail.com" } ] )
```

Policies

```
db.policies.insertMany([ { PolicyID: 1, PolicyName: "Health", PolicyType: "General",
PremiumAmount: 50000, DurationYears: 2 }, { PolicyID: 2, PolicyName: "Term", PolicyType: "Life
Insurance", PremiumAmount: 100000, DurationYears: 5 }, { PolicyID: 3, PolicyName: "General",
PolicyType: "Health", PremiumAmount: 500000, DurationYears: 2 }, { PolicyID: 4, PolicyName: "Life",
PolicyType: "Health", PremiumAmount: 100000, DurationYears: 9 }, { PolicyID: 5, PolicyName: "Term",
PolicyType: "Life", PremiumAmount: 100000, DurationYears: 1 }, { PolicyID: 6, PolicyName: "Motor",
PolicyType: "Motor", PremiumAmount: 500000, DurationYears: 1 }, { PolicyID: 7, PolicyName:
"Family", PolicyType: "Health", PremiumAmount: 100000, DurationYears: 1 } ] )
```

Agents

```
db.Agents.insertMany([ { AgentID: 1, AgentName: "Ram", Phone: "848483210", City: "Hyderabad" }, { AgentID: 2, AgentName: "Ramesh", Phone: "848903210", City: "Hyderabad" }, { AgentID: 3, AgentName: "Poojitha", Phone: "9191918323", City: "kamareddy" }, { AgentID: 4, AgentName: "Srinitha", Phone: "848909890", City: "karimnagar" } ] );
```

PolicyAssignments

```
db.PolicyAssignments.insertMany([ { AssignmentID: 1, customerID: 1, PolicyID: 1, AgentID: 1, StartDate: ISODate("2023-08-23"), EndDate: ISODate("2025-08-24") }, { AssignmentID: 2, customerID: 2, PolicyID: 1, AgentID: 2, StartDate: ISODate("2023-10-23"), EndDate: ISODate("2026-08-24") } ] )
```

Claims

```
db.Claims.insertMany([ { ClaimID: 101, AssignmentID: 1, ClaimDate: ISODate("2023-08-24"), ClaimAmount: 50000, ClaimStatus: "success" }, { ClaimID: 102, AssignmentID: 2, ClaimDate: ISODate("2023-12-24"), ClaimAmount: 100000, ClaimStatus: "success" }, { ClaimID: 103, AssignmentID: 2, ClaimDate: ISODate("2024-08-24"), ClaimAmount: 100000, ClaimStatus: "Rejected" }, { ClaimID: 104, AssignmentID: 2, ClaimDate: ISODate("2023-12-24"), ClaimAmount: 100000, ClaimStatus: "Approved" }, { ClaimID: 105, AssignmentID: 1, ClaimDate: ISODate("2024-06-24"), ClaimAmount: 100000, ClaimStatus: "Rejected" }, { ClaimID: 106, AssignmentID: 1, ClaimDate: ISODate("2025-02-24"), ClaimAmount: 100000, ClaimStatus: "Pending" } ] )
```

Queries

1. Display all the collections

```
show collections
```

```
Agents
Claims
customers
Policies
PolicyAssignments
```

2. Find the agent whose name is Poojitha.

```
db.Agents.find({Agentname:'Poojitha'})
```

```
[ {
    _id: ObjectId('695753fab3e73282e3cb0cf8'),
    AgentID: 3,
    AgentName: 'Poojitha',
    Phone: '9191918323',
    City: 'kamareddy'
}]
```

3. Display all records from the Agents collection.

```
db.Agents.find({})
```

```
[  
  {  
    _id: ObjectId('69576510b3e73282e3cb0d02'),  
    AgentID: 1,  
    AgentName: 'Ram',  
    Phone: '848483210',  
    City: 'Hyderabad'  
  },  
  {  
    _id: ObjectId('69576510b3e73282e3cb0d03'),  
    AgentID: 2,  
    AgentName: 'Ramesh',  
    Phone: '848903210',  
    City: 'Hyderabad'  
  },  
  {  
    _id: ObjectId('69576510b3e73282e3cb0d04'),  
    AgentID: 3,  
    AgentName: 'Poojitha',  
    Phone: '9191918323',  
    City: 'kamareddy'  
  },  
  {  
    _id: ObjectId('69576510b3e73282e3cb0d05'),  
    AgentID: 4,  
    AgentName: 'Srinitha',  
    Phone: '848909890',  
    City: 'karimnagar'  
  }  
]
```

4. Display only FirstName and LastName of all customers.

```
db.customers.find({}, {_id: 0, FirstName: 1, LastName: 1})
```

```
[  
  { FirstName: 'Anand', LastName: 'chedapangu' },  
  { FirstName: 'Abhi', LastName: 'Banda' },  
  { FirstName: 'Abhi', LastName: 'chanda' }  
]
```

5. Find all policies whose type is Health or Motor.

```
db.Policies.find({PolicyType: { $in : ['Health','Motor']}})
```

```
[ {
    _id: ObjectId('69575359b3e73282e3cb0cef'),
    PolicyID: 3,
    PolicyName: 'General',
    PolicyType: 'Health',
    PremiumAmount: 500000,
    DurationYears: 2
},
{
    _id: ObjectId('69575359b3e73282e3cb0cf0'),
    PolicyID: 4,
    PolicyName: 'Life',
    PolicyType: 'Health',
    PremiumAmount: 1000000,
    DurationYears: 9
},
{
    _id: ObjectId('69575359b3e73282e3cb0cf2'),
    PolicyID: 6,
    PolicyName: 'Motor',
    PolicyType: 'Motor',
    PremiumAmount: 500000,
    DurationYears: 1
},
{
    _id: ObjectId('69575359b3e73282e3cb0cf3'),
    PolicyID: 7,
    PolicyName: 'Family',
    PolicyType: 'Health',
    PremiumAmount: 100000,
    DurationYears: 1
}
]
```

6. Find all customers whose FirstName starts with 'Ab'.

```
db.customers.find({FirstName: { $regex : '^Ab'}})
```

```
[ {
    _id: ObjectId('695752d3b3e73282e3cb0ce4'),
    customerID: 2,
    FirstName: 'Abhi',
    LastName: 'Banda',
    DateOfBirth: ISODate('2003-12-26T00:00:00.000Z'),
    Phone: '7396939296',
    Email: 'abhi7@gmail.com'
},
{
    _id: ObjectId('695752d3b3e73282e3cb0ce5'),
    customerID: 3,
    FirstName: 'Abhi',
    LastName: 'chanda',
    DateOfBirth: ISODate('2005-12-26T00:00:00.000Z'),
    Phone: '7396908296',
    Email: 'abhichanda@gmail.com'
}
]
```

7. Display all customer names in uppercase.

```
db.customers.aggregate({ $project: { Upper : {$toUpper : "$FirstName"} }})
```

```
[  
  { _id: ObjectId('695752d3b3e73282e3cb0ce3'), Upper: 'ANAND' },  
  { _id: ObjectId('695752d3b3e73282e3cb0ce4'), Upper: 'ABHI' },  
  { _id: ObjectId('695752d3b3e73282e3cb0ce5'), Upper: 'ABHI' }  
]
```

8. Display the full name of all customers by joining FirstName and LastName.

```
db.customers.aggregate({$project: {_id:0,FullName : {$concat :["$FirstName","$LastName"]}}})  
  
[  
  { FullName: 'Anand chedapangu' },  
  { FullName: 'Abhi Banda' },  
  { FullName: 'Abhi chanda' }  
]
```

9. Find all policies whose premium amount is greater than or equal to 5,00,000.

```
db.Policies.find({PremiumAmount : {$gte : 500000}})  
  
[  
  {  
    _id: ObjectId('69575359b3e73282e3cb0cef'),  
    PolicyID: 3,  
    PolicyName: 'General',  
    PolicyType: 'Health',  
    PremiumAmount: 500000,  
    DurationYears: 2  
  },  
  {  
    _id: ObjectId('69575359b3e73282e3cb0cf2'),  
    PolicyID: 6,  
    PolicyName: 'Motor',  
    PolicyType: 'Motor',  
    PremiumAmount: 500000,  
    DurationYears: 1  
  }  
]
```

10. Calculate 10% tax on premium and display only those policies whose premium is greater than 1,00,000.

```
db.Policies.aggregate([{$project:{PolicyName:1,PremiumAmount:1,tax:  
{$multiply:[ "$PremiumAmount", 0.1 ]}}},{$match:{PremiumAmount:{$gt:100000}}}] )
```

```
[  
  {  
    _id: ObjectId('69575359b3e73282e3cb0cef'),  
    PolicyName: 'General',  
    PremiumAmount: 50000,  
    tax: 5000  
  },  
  {  
    _id: ObjectId('69575359b3e73282e3cb0cf2'),  
    PolicyName: 'Motor',  
    PremiumAmount: 50000,  
    tax: 5000  
  }  
]
```

11.Update the city of agent Poojitha to Kamareddy.

```
db.Agents.updateOne({AgentName:'Poojitha'},{$set:{City:'Kamareddy'}})
```

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

12.Insert a new customer Rishi if he does not exist, otherwise update his details.

```
db.customers.updateOne({FirstName:'Rishi'},{$set:{customerId:4,FirstName:'Rishi',LastName:'Karthikeya',DateOfBirth: ISODate("2003-08-23"),Phone: "9573634476",Email: "rishi742@gmail.com"}}, {upsert:true})
```

```
{  
  acknowledged: true,  
  insertedId: ObjectId('6957845e0947354c775206fe'),  
  matchedCount: 0,  
  modifiedCount: 0,  
  upsertedCount: 1  
}
```

13.Increase the premium amount of all policies by 10,000.

```
db.Policies.updateMany({}, { $inc: { PremiumAmount: 10000 } })
```

```
{  
    acknowledged: true,  
    insertedId: null,  
    matchedCount: 7,  
    modifiedCount: 7,  
    upsertedCount: 0  
}
```

14. Split the email ID of customers into username and domain.

```
db.customers.aggregate({$project: {EmailPart: {$split: ["$Email", '@']}}})
```

```
[  
  {  
    _id: ObjectId('695752d3b3e73282e3cb0ce3'),  
    EmailPart: [ 'anandch1119', 'gmail.com' ]  
  },  
  {  
    _id: ObjectId('695752d3b3e73282e3cb0ce4'),  
    EmailPart: [ 'abhi7', 'gmail.com' ]  
  },  
  {  
    _id: ObjectId('695752d3b3e73282e3cb0ce5'),  
    EmailPart: [ 'abhichanda', 'gmail.com' ]  
  },  
  {  
    _id: ObjectId('6957845e0947354c775206fe'),  
    EmailPart: [ 'rishi742', 'gmail.com' ]  
  }  
]
```

15. Find all claims whose amount is less than or equal to 1,00,000 and whose status is Rejected or Pending.

```
db.CClaims.find({$and:[{ClaimAmount:{$lte:100000}},{ClaimStatus:{$in:["Rejected","Pending"]}}]})
```

```
[  
  {  
    _id: ObjectId('6957543ab3e73282e3cb0cfe'),  
    ClaimID: 103,  
    AssignmentID: 2,  
    ClaimDate: ISODate('2024-08-24T00:00:00.000Z'),  
    ClaimAmount: 100000,  
    ClaimStatus: 'Rejected'  
  },  
  {  
    _id: ObjectId('6957543ab3e73282e3cb0d00'),  
    ClaimID: 105,  
    AssignmentID: 1,  
    ClaimDate: ISODate('2024-06-24T00:00:00.000Z'),  
    ClaimAmount: 100000,  
    ClaimStatus: 'Rejected'  
  },  
  {  
    _id: ObjectId('6957543ab3e73282e3cb0d01'),  
    ClaimID: 106,  
    AssignmentID: 1,  
    ClaimDate: ISODate('2025-02-24T00:00:00.000Z'),  
    ClaimAmount: 100000,  
    ClaimStatus: 'Pending'  
  }  
]
```

16.Replace gmail with outlook in all customer email IDs.

```
db.customers.aggregate({ $project:{ _id:0,newEmail:{ $replaceOne:{input:"$Email",  
find:"gmail",replacement:"outlook"}}}})
```

```
[  
  { newEmail: 'anandch1119@outlook.com' },  
  { newEmail: 'abhi7@outlook.com' },  
  { newEmail: 'abhichanda@outlook.com' },  
  { newEmail: 'rishi742@outlook.com' }  
]
```

17.Delete the policy whose PolicyID is 2.

```
db.Policies.deleteOne({PolicyID:2})
```

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

18.Delete all claims whose status is success.

```
db.Cclaims.deleteMany({ClaimStatus:'success'})
```

```
{ acknowledged: true, deletedCount: 2 }
```

19.Display all customers sorted by Date of Birth in ascending order.

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

```
[  
  {  
    _id: ObjectId('695752d3b3e73282e3cb0ce3'),  
    customerID: 1,  
    FirstName: 'Anand',  
    LastName: 'chedapangu',  
    DateOfBirth: ISODate('2003-08-23T00:00:00.000Z'),  
    Phone: '9573634476',  
    Email: 'anandch1119@gmail.com'  
  },  
  {  
    _id: ObjectId('6957845e0947354c775206fe'),  
    FirstName: 'Rishi',  
    DateOfBirth: ISODate('2003-08-23T00:00:00.000Z'),  
    Email: 'rishi742@gmail.com',  
    LastName: 'Karthikeya',  
    Phone: '9573634476',  
    customerID: 4  
  },  
  {  
    _id: ObjectId('695752d3b3e73282e3cb0ce4'),  
    customerID: 2,  
    FirstName: 'Abhi',  
    LastName: 'Banda',  
    DateOfBirth: ISODate('2003-12-26T00:00:00.000Z'),  
    Phone: '7396939296',  
    Email: 'abhi7@gmail.com'  
  },  
  {  
    _id: ObjectId('695752d3b3e73282e3cb0ce5'),  
    customerID: 3,  
    FirstName: 'Abhi',  
    LastName: 'chanda',  
    DateOfBirth: ISODate('2005-12-26T00:00:00.000Z'),  
    Phone: '7396908296',  
    Email: 'abhichanda@gmail.com'  
  }  
]
```

20. Display the top 2 policies with the highest premium amount.

```
db.Policies.find().sort({ PremiumAmount: -1 }).limit(2)
```

```
[  
  {  
    _id: ObjectId('69575359b3e73282e3cb0cf2'),  
    PolicyID: 6,  
    PolicyName: 'Motor',  
    PolicyType: 'Motor',  
    PremiumAmount: 510000,  
    DurationYears: 1  
  },  
  {  
    _id: ObjectId('69575359b3e73282e3cb0cef'),  
    PolicyID: 3,  
    PolicyName: 'General',  
    PolicyType: 'Health',  
    PremiumAmount: 510000,  
    DurationYears: 2  
  }  
]
```

21. Customers who have policies

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

```
[  
  {  
    _id: ObjectId('695752d3b3e73282e3cb0ce3'),  
    customerId: 1,  
    FirstName: 'Anand',  
    LastName: 'chedapangu',  
    DateOfBirth: ISODate('2003-08-23T00:00:00.000Z'),  
    Phone: '9573634476',  
    Email: 'anandch1119@gmail.com',  
    policyDetails: {  
      _id: ObjectId('69575426b3e73282e3cb0cfa'),  
      AssignmentID: 1,  
      customerID: 1,  
      PolicyID: 1,  
      AgentID: 1,  
      StartDate: ISODate('2023-08-23T00:00:00.000Z'),  
      EndDate: ISODate('2025-08-24T00:00:00.000Z')  
    }  
  },  
  {  
    _id: ObjectId('695752d3b3e73282e3cb0ce4'),  
    customerId: 2,  
    FirstName: 'Abhi',  
    LastName: 'Banda',  
    DateOfBirth: ISODate('2003-12-26T00:00:00.000Z'),  
    Phone: '7396939296',  
    Email: 'abhi7@gmail.com',  
    policyDetails: {  
      _id: ObjectId('69575426b3e73282e3cb0cfb'),  
      AssignmentID: 2,  
      customerID: 2,  
      PolicyID: 1,  
      AgentID: 2,  
      StartDate: ISODate('2023-10-23T00:00:00.000Z'),  
      EndDate: ISODate('2026-08-24T00:00:00.000Z')  
    }  
  }  
]
```

22.All customers, even without policies

```
db.customers.aggregate([ { $lookup: { from: "PolicyAssignments", localField:  
"customerID",foreignField: "customerID", as: "policyDetails" } } ])
```

```
ins@inslaptop: ~ % db.customers.aggregate([ { $lookup: { from: "PolicyAssignments", localField:  
"customerID",foreignField: "customerID", as: "policyDetails" } } ])  
[  
  {  
    _id: ObjectId('695752d3b3e73282e3cb0ce3'),  
    customerID: 1,  
    FirstName: 'Anand',  
    LastName: 'Chedapangu',  
    DateOfBirth: ISODate('2003-08-23T00:00:00.000Z'),  
    Phone: '9573634476',  
    Email: 'anandch119@gmail.com',  
    policyDetails: [  
      {  
        _id: ObjectId('69575426b3e73282e3cb0cfa'),  
        AssignmentID: 1,  
        customerID: 1,  
        PolicyID: 1,  
        AgentID: 1,  
        StartDate: ISODate('2023-08-23T00:00:00.000Z'),  
        EndDate: ISODate('2025-08-24T00:00:00.000Z')  
      }  
    ],  
  },  
  {  
    _id: ObjectId('695752d3b3e73282e3cb0ce4'),  
    customerID: 2,  
    FirstName: 'Abhi',  
    LastName: 'Banda',  
    DateOfBirth: ISODate('2003-12-26T00:00:00.000Z'),  
    Phone: '7396939296',  
    Email: 'abhi7@gmail.com',  
    policyDetails: [  
      {  
        _id: ObjectId('69575426b3e73282e3cb0cfb'),  
        AssignmentID: 2,  
        customerID: 2,  
        PolicyID: 1,  
        AgentID: 2,  
        StartDate: ISODate('2023-10-23T00:00:00.000Z'),  
        EndDate: ISODate('2026-08-24T00:00:00.000Z')  
      }  
    ],  
  },  
  {  
    _id: ObjectId('695752d3b3e73282e3cb0ce5'),  
    customerID: 3,  
    FirstName: 'Abhi',  
    LastName: 'Chanda',  
    DateOfBirth: ISODate('2005-12-26T00:00:00.000Z'),  
    Phone: '7396908296',  
    Email: 'abhichanda@gmail.com',  
    policyDetails: []  
  },  
  {  
    _id: ObjectId('6957845e0947354c775206fe'),  
    FirstName: 'Rishi',  
    DateOfBirth: ISODate('2003-08-23T00:00:00.000Z'),  
    Email: 'rishi742@gmail.com',  
    LastName: 'Karthikeya',  
    Phone: '9573634476',  
    customerID: 4,  
    policyDetails: []  
  }  
]
```

23.JOIN with Multiple Tables (Customer → Policy → Claim)

```
db.customers.aggregate([ { $lookup: { from: "PolicyAssignments", localField:  
"customerID", foreignField: "customerID", as: "policy" } }, { $unwind: "$policy" },{$limit:  
1}, { $lookup: { from: "Claims", localField: "Policies.PolicyID", foreignField: "PolicyID",  
as: "claims" } } ])
```

```
[  
  {  
    _id: ObjectId('695752d3b3e73282e3cb0ce3'),  
    customerID: 1,  
    FirstName: 'Anand',  
    LastName: 'chedapangu',  
    DateOfBirth: ISODate('2003-08-23T00:00:00.000Z'),  
    Phone: '9573634476',  
    Email: 'anandch1119@gmail.com',  
    policy: {  
      _id: ObjectId('69575426b3e73282e3cb0cfa'),  
      AssignmentID: 1,  
      customerID: 1,  
      PolicyID: 1,  
      AgentID: 1,  
      StartDate: ISODate('2023-08-23T00:00:00.000Z'),  
      EndDate: ISODate('2025-08-24T00:00:00.000Z')  
    },  
    claims: [  
      {  
        _id: ObjectId('6957543ab3e73282e3cb0cfe'),  
        ClaimID: 103,  
        AssignmentID: 2,  
        ClaimDate: ISODate('2024-08-24T00:00:00.000Z'),  
        ClaimAmount: 100000,  
        ClaimStatus: 'Rejected'  
      },  
      {  
        _id: ObjectId('6957543ab3e73282e3cb0cff'),  
        ClaimID: 104,  
        AssignmentID: 2,  
        ClaimDate: ISODate('2023-12-24T00:00:00.000Z'),  
        ClaimAmount: 100000,  
        ClaimStatus: 'Approved'  
      },  
      {  
        _id: ObjectId('6957543ab3e73282e3cb0d00'),  
        ClaimID: 105,  
        AssignmentID: 1,  
        ClaimDate: ISODate('2024-06-24T00:00:00.000Z'),  
        ClaimAmount: 100000,  
        ClaimStatus: 'Rejected'  
      },  
      {  
        _id: ObjectId('6957543ab3e73282e3cb0d01'),  
        ClaimID: 106,  
        AssignmentID: 1,  
        ClaimDate: ISODate('2025-02-24T00:00:00.000Z'),  
        ClaimAmount: 100000,  
        ClaimStatus: 'Pending'  
      }  
    ]  
  }]  
]
```