

# MongoDB

## Create database

```
use insurededb
```

## 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: 100000,
    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: 500000,
    tax: 50000
  },
  {
    _id: ObjectId('69575359b3e73282e3cb0cf2'),
    PolicyName: 'Motor',
    PremiumAmount: 500000,
    tax: 50000
  }
]
```

### 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.Claims.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.Claims.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" } } ])
```

```
InsuranceDB> db.customers.aggregate([ { $lookup: { from: "PolicyAssignments", localField:
[
  {
    _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')
      }
    ]
  },
  {
    _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'
      }
    ]
  }
]
```