

Name : Prathik Balaji N

Date : 30/07/24

1 . Basic CRUD Operations

Create :

```
use cricketDB;
```

```
db.players.insertOne({  
  name: "Virat Kohli",  
  age: 32,  
  team: "India",  
  role: "Batsman",  
  matches: 254,  
  runs: 12169,  
  wickets: 4  
});
```

```
db.players.insertMany([  
  {  
    name: "Jasprit Bumrah",  
    age: 28,  
    team: "India",  
    role: "Bowler",  
    matches: 67,  
    runs: 19,  
    wickets: 104  
  },  
  {  
    name: "Ben Stokes",  
    age: 31,  
    team: "England",  
    role: "All-rounder",  
    matches: 104,  
    runs: 4650,  
    wickets: 174  
  }  
]);
```

Read :

```
db.players.findOne({ name: "Virat Kohli" });
```

Result :

```
> db.players.findOne({ name: "Virat Kohli" });
< {
  _id: ObjectId('66a9991f00b8a925bf5c2ad9'),
  name: 'Virat Kohli',
  age: 32,
  team: 'India',
  role: 'Batsman',
  matches: 254,
  runs: 12169,
  wickets: 4
}
```

```
db.players.find();
```

Result :

```
> db.players.find();
< [
  {
    _id: ObjectId('66a9991f00b8a925bf5c2ad9'),
    name: 'Virat Kohli',
    age: 32,
    team: 'India',
    role: 'Batsman',
    matches: 254,
    runs: 12169,
    wickets: 4
  },
  {
    _id: ObjectId('66a9991f00b8a925bf5c2ada'),
    name: 'Jasprit Bumrah',
    age: 28,
    team: 'India',
    role: 'Bowler',
    matches: 67,
    runs: 19,
    wickets: 104
  },
  {
    _id: ObjectId('66a9991f00b8a925bf5c2adb'),
    name: 'Ben Stokes',
    age: 31,
    team: 'England',
    role: 'All-rounder',
    matches: 104,
    runs: 4650,
    wickets: 174
  }
]
```

```
db.players.find({ team: "India" });
```

Result :

```
> db.players.find({ team: "India" });
< {
  _id: ObjectId('66a9991f00b8a925bf5c2ad9'),
  name: 'Virat Kohli',
  age: 32,
  team: 'India',
  role: 'Batsman',
  matches: 254,
  runs: 12169,
  wickets: 4
}
{
  _id: ObjectId('66a9991f00b8a925bf5c2ada'),
  name: 'Jasprit Bumrah',
  age: 28,
  team: 'India',
  role: 'Bowler',
  matches: 67,
  runs: 19,
  wickets: 104
}
```

```
db.players.find({ matches: { $gt: 100 } });
```

Result :

```
db.players.find({ matches: { $gt: 100 } });
{
  _id: ObjectId('66a9991f00b8a925bf5c2ad9'),
  name: 'Virat Kohli',
  age: 32,
  team: 'India',
  role: 'Batsman',
  matches: 254,
  runs: 12169,
  wickets: 4
}
{
  _id: ObjectId('66a9991f00b8a925bf5c2adb'),
  name: 'Ben Stokes',
  age: 31,
  team: 'England',
  role: 'All-rounder',
  matches: 104,
  runs: 4650,
  wickets: 174
}
```

Update :

```
db.players.updateOne(  
  { name: "Virat Kohli" }, { $set: { age: 33 } } );
```

```
db.players.updateMany(  
  { team: "India" }, { $set: { status: "active" } } );
```

Delete :

```
db.players.deleteOne({ name: "Virat Kohli" });
```

```
db.players.deleteMany({ team: "India", matches: { $lt: 50 } });
```

2.Create: Insert multiple documents into a collection called students with fields such as name, age, grade, and subjects.

```
db.students.insertMany([  
  {  
    name: "Prathik",  
    age: 14,  
    grades: [  
      { subject: "Math", marks: 85 },  
      { subject: "Science", marks: 88 },  
      { subject: "History", marks: 82 }  
    ]  
  },  
  {  
    name: "Dhanapal",  
    age: 15,  
    grades: [  
      { subject: "English", marks: 90 },  
      { subject: "Math", marks: 92 },  
      { subject: "Geography", marks: 89 }  
    ]  
  },  
  {  
    name: "Sidd",  
    age: 13,  
    grades: [  
      { subject: "Math", marks: 78 },  
      { subject: "Science", marks: 80 },  
      { subject: "Art", marks: 85 }  
    ]  
  },  
  {  
    name: "Tapan",
```

```

    age: 16,
    grades: [
      { subject: "Math", marks: 88 },
      { subject: "Computer Science", marks: 91 },
      { subject: "History", marks: 87 }
    ]
  },
  {
    name: "Sownthari",
    age: 14,
    grades: [
      { subject: "Math", marks: 92 },
      { subject: "Science", marks: 95 },
      { subject: "Physical Education", marks: 89 }
    ]
  }
]);

```

3.Find All Students

```
db.students.find().pretty();
```

Result :

```

> db.students.find().pretty();
< {
  _id: ObjectId('66a99c0600b8a925bf5c2adc'),
  name: 'Prathik',
  age: 14,
  grades: [
    {
      subject: 'Math',
      marks: 85
    },
    {
      subject: 'Science',
      marks: 88
    },
    {
      subject: 'History',
      marks: 82
    }
  ]
}

```

4.Find Students Who Are Older Than 15 Years.

```
db.students.find({ age: { $gt: 15 } }).pretty();
```

Result :

```
> db.students.find({ age: { $gt: 15 } }).pretty();
< {
  _id: ObjectId('66a99c0600b8a925bf5c2adf'),
  name: 'Tapan',
  age: 16,
  grades: [
    {
      subject: 'Math',
      marks: 88
    },
    {
      subject: 'Computer Science',
      marks: 91
    },
    {
      subject: 'History',
      marks: 87
    }
  ]
}
```

5.Find Students Who Have "Math" as One of Their Subjects

```
db.students.find({ "grades.subject": "Math" }).pretty();
```

Result :

```
> db.students.find({ "grades.subject": "Math" }).pretty();
< {
  _id: ObjectId('66a99c0600b8a925bf5c2adc'),
  name: 'Prathik',
  age: 14,
  grades: [
    {
      subject: 'Math',
      marks: 85
    },
    {
      subject: 'Science',
      marks: 88
    },
    {
      subject: 'History',
      marks: 82
    }
  ]
}
```

6. Find Students Who Have "Math" and "Humanities" Subjects

```
db.students.find({ $and: [ { "grades.subject": "Math" }, { "grades.subject": "Humanities" } ]
}).pretty();
```

Result :

```
> db.students.find({
  $and: [
    { "grades.subject": "Math" },
    { "grades.subject": "Humanities" }
  ]
}).pretty();
< {
  _id: ObjectId('66a99e2500b8a925bf5c2ae1'),
  name: 'Supriya',
  age: 14,
  grades: [
    {
      subject: 'Math',
      marks: 85
    },
    {
      subject: 'Humanities',
      marks: 88
    },
    {
      subject: 'History',
      marks: 82
    }
  ]
}
```

7. Find Students Who Do Not Have Both "Finance" and "Arts" Subjects

```
db.students.find({
  $nor: [
    { "grades.subject": "Finance" },
    { "grades.subject": "Arts" }
  ]
}).pretty();
```

Result :

```
db.students.find({
  $nor: [
    { "grades.subject": "Finance" },
    { "grades.subject": "Arts" }
  ]
}).pretty();
< {
  _id: ObjectId('66a99c0600b8a925bf5c2adc'),
  name: 'Prathik',
  age: 14,
  grades: [
    {
      subject: 'Math',
      marks: 85
    },
    {
      subject: 'Science',
      marks: 88
    },
    {
      subject: 'History',
      marks: 82
    }
  ]
}
```

8. Update: Update the Grade of a Student Named "Supriya" to "A"

```
db.students.updateOne(
  { name: "Supriya", "grades.subject": "Math" },
  { $set: { "grades.$marks": "A" } }
);
```


Result :

```
{
  _id: ObjectId('66a99e2500b8a925bf5c2ae1'),
  name: 'Supriya',
  age: 14,
  grades: [
    {
      subject: 'Math',
      marks: 'A'
    },
    {
      subject: 'Humanities',
      marks: 88
    },
    {
      subject: 'History',
      marks: 82
    }
  ]
}
```