

Name: Sowanthari R P

Date: 30.07.2024

## Task 1

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

Query:

```
> db.Students.insertMany([
  {name: "Bob", age: 22, grade: "A", subjects: ["History", "Philosophy", "Arts"]},
  {name: "Charlie", age: 21, grade: "C", subjects: ["Physics", "Chemistry", "Music"]},
  {name: "David", age: 23, grade: "B", subjects: ["Literature", "Arts", "Finance"]},
  {name: "Eva", age: 20, grade: "A", subjects: ["Biology", "Mathematics", "Drama"]},
  {name: "Frank", age: 24, grade: "B", subjects: ["Economics", "Geography", "Sociology"]},
  {name: "Grace", age: 22, grade: "A", subjects: ["Psychology", "Anthropology", "Theater"]},
  {name: "Hannah", age: 21, grade: "C", subjects: ["Engineering", "Arts", "Design"]},
  {name: "Ivy", age: 23, grade: "B", subjects: ["Law", "Journalism", "Classics"]},
  {name: "Jack", age: 20, grade: "A", subjects: ["Computer Science", "Music", "Finance"]}
])
```

Result:

```
< {
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('66a903c3f4725d5744a2a2be'),
    '1': ObjectId('66a903c3f4725d5744a2a2bf'),
    '2': ObjectId('66a903c3f4725d5744a2a2c0'),
    '3': ObjectId('66a903c3f4725d5744a2a2c1'),
    '4': ObjectId('66a903c3f4725d5744a2a2c2'),
    '5': ObjectId('66a903c3f4725d5744a2a2c3'),
    '6': ObjectId('66a903c3f4725d5744a2a2c4'),
    '7': ObjectId('66a903c3f4725d5744a2a2c5'),
    '8': ObjectId('66a903c3f4725d5744a2a2c6')
  }
}
```

2.Find all students.

Query: db.Students.find()

Result:

```
[
  {
    _id: ObjectId('66a902fbf4725d5744a2a2bd'),
    name: 'Alice',
    age: 20,
    grade: 'B',
    subjects: [ 'Math', 'English', 'Finance' ]
  },
  {
    _id: ObjectId('66a903c3f4725d5744a2a2be'),
    name: 'Bob',
    age: 22,
    grade: 'A',
    subjects: [ 'History', 'Philosophy', 'Arts' ]
  },
  {
    _id: ObjectId('66a903c3f4725d5744a2a2bf'),
    name: 'Charlie',
    age: 21,
    grade: 'C',
    subjects: [ 'Physics', 'Chemistry', 'Music' ]
  },
  {
    _id: ObjectId('66a903c3f4725d5744a2a2c0'),
    name: 'David',
    age: 23,
    grade: 'B',
    subjects: [ 'Literature', 'Arts', 'Finance' ]
  },
  {
    _id: ObjectId('66a903c3f4725d5744a2a2c1'),
    name: 'Eva',
    age: 20,
    grade: 'A',
    subjects: [ 'Biology', 'Mathematics', 'Drama' ]
  },
  {
    _id: ObjectId('66a903c3f4725d5744a2a2c2'),
    name: 'Frank',
    age: 24,
    grade: 'B',
    subjects: [ 'Economics', 'Geography', 'Sociology' ]
  },
]
```

```
{
  _id: ObjectId('66a903c3f4725d5744a2a2c3'),
  name: 'Grace',
  age: 22,
  grade: 'A',
  subjects: [ 'Psychology', 'Anthropology', 'Theater' ]
},
{
  _id: ObjectId('66a903c3f4725d5744a2a2c4'),
  name: 'Hannah',
  age: 21,
  grade: 'C',
  subjects: [ 'Engineering', 'Arts', 'Design' ]
},
{
  _id: ObjectId('66a903c3f4725d5744a2a2c5'),
  name: 'Ivy',
  age: 23,
  grade: 'B',
  subjects: [ 'Law', 'Journalism', 'Classics' ]
},
{
  _id: ObjectId('66a903c3f4725d5744a2a2c6'),
  name: 'Jack',
  age: 20,
  grade: 'A',
  subjects: [ 'Computer Science', 'Music', 'Finance' ]
},
{
  _id: ObjectId('66a90414f4725d5744a2a2c7'),
  name: 'Supriya',
  age: 22,
  grade: 'C',
  subjects: [ 'Math', 'Science' ]
}
```

### 3. Find students who are older than 15 years

Query: `db.Students.find({age:{$gt:15}})`

Result:

```
[
  {
    _id: ObjectId('66a902fbf4725d5744a2a2bd'),
    name: 'Alice',
    age: 20,
    grade: 'B',
    subjects: [ 'Math', 'English', 'Finance' ]
  },
  {
    _id: ObjectId('66a903c3f4725d5744a2a2be'),
    name: 'Bob',
    age: 22,
    grade: 'A',
    subjects: [ 'History', 'Philosophy', 'Arts' ]
  },
  {
    _id: ObjectId('66a903c3f4725d5744a2a2bf'),
    name: 'Charlie',
    age: 21,
    grade: 'C',
    subjects: [ 'Physics', 'Chemistry', 'Music' ]
  },
  {
    _id: ObjectId('66a903c3f4725d5744a2a2c0'),
    name: 'David',
    age: 23,
    grade: 'B',
    subjects: [ 'Literature', 'Arts', 'Finance' ]
  },
  {
    _id: ObjectId('66a903c3f4725d5744a2a2c1'),
    name: 'Eva',
    age: 20,
    grade: 'A',
    subjects: [ 'Biology', 'Mathematics', 'Drama' ]
  },
  {
    _id: ObjectId('66a903c3f4725d5744a2a2c2'),
    name: 'Frank',
    age: 24,
    grade: 'B',
    subjects: [ 'Economics', 'Geography', 'Sociology' ]
  },
]
```

```

{
  _id: ObjectId('66a903c3f4725d5744a2a2c3'),
  name: 'Grace',
  age: 22,
  grade: 'A',
  subjects: [ 'Psychology', 'Anthropology', 'Theater' ]
},
{
  _id: ObjectId('66a903c3f4725d5744a2a2c4'),
  name: 'Hannah',
  age: 21,
  grade: 'C',
  subjects: [ 'Engineering', 'Arts', 'Design' ]
},
{
  _id: ObjectId('66a903c3f4725d5744a2a2c5'),
  name: 'Ivy',
  age: 23,
  grade: 'B',
  subjects: [ 'Law', 'Journalism', 'Classics' ]
},
{
  _id: ObjectId('66a903c3f4725d5744a2a2c6'),
  name: 'Jack',
  age: 20,
  grade: 'A',
  subjects: [ 'Computer Science', 'Music', 'Finance' ]
},
{
  _id: ObjectId('66a90414f4725d5744a2a2c7'),
  name: 'Supriya',
  age: 22,
  grade: 'C',
  subjects: [ 'Math', 'Science' ]
}

```

4. Find students who have "Math" as one of their subjects.

Query: `db.Students.find({subjects:{$in:["Math"]}})`

Result:

```

Training> db.Students.find({subjects:{$in:["Math"]}})
[
  {
    _id: ObjectId('66a902fbf4725d5744a2a2bd'),
    name: 'Alice',
    age: 20,
    grade: 'B',
    subjects: [ 'Math', 'English', 'Finance' ]
  },
  {
    _id: ObjectId('66a90414f4725d5744a2a2c7'),
    name: 'Supriya',
    age: 22,
    grade: 'C',
    subjects: [ 'Math', 'Science' ]
  }
]

```

5. Find students who have "Math" and "Humanities" subjects.

Query: `db.Students.find({ $and: [ { subjects: { $in: ["Math"] } }, { subjects: { $in: ["Humanities"] } } ] })`

Result:

```
[
  {
    _id: ObjectId('66a91009f4725d5744a2a2c8'),
    name: 'Swan',
    age: 14,
    grade: 'C',
    subjects: [ 'Math', 'Humanities' ]
  }
]
```

6. Find students who do not have both "Finance" and "Arts" subjects.

Query: `db.Students.find({subjects:{ $nin:["Finance","Arts"]}})`

Result:

```
[
  {
    _id: ObjectId('66a903c3f4725d5744a2a2bf'),
    name: 'Charlie',
    age: 21,
    grade: 'C',
    subjects: [ 'Physics', 'Chemistry', 'Music' ]
  },
  {
    _id: ObjectId('66a903c3f4725d5744a2a2c1'),
    name: 'Eva',
    age: 20,
    grade: 'A',
    subjects: [ 'Biology', 'Mathematics', 'Drama' ]
  },
  {
    _id: ObjectId('66a903c3f4725d5744a2a2c2'),
    name: 'Frank',
    age: 24,
    grade: 'B',
    subjects: [ 'Economics', 'Geography', 'Sociology' ]
  },
  {
    _id: ObjectId('66a903c3f4725d5744a2a2c3'),
    name: 'Grace',
    age: 22,
    grade: 'A',
    subjects: [ 'Psychology', 'Anthropology', 'Theater' ]
  },
  {
    _id: ObjectId('66a903c3f4725d5744a2a2c5'),
    name: 'Ivy',
    age: 23,
    grade: 'B',
    subjects: [ 'Law', 'Journalism', 'Classics' ]
  },
]
```

7. Update the grade of a student named "Supriya" to "A".

Query:

```
db.Students.updateOne({name:"Supriya"},{$set:{grade:"A"}})
```

Result:

```
Training> db.Students.find({name:"Supriya"})
[
  {
    _id: ObjectId('66a90414f4725d5744a2a2c7'),
    name: 'Supriya',
    age: 22,
    grade: 'A',
    subjects: [ 'Math', 'Science' ]
  }
]
```