

Date: 30/07/2024

## Assignment 1: MongoDB Basic CRUD Operations

### Create Collection and use that Collection

```
> MONGOSH
> use Students
< switched to db Students
Students> |
```

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

Query:

```
db.students.insertMany([
  { name: "Supriya", age: 16, grade: "B", subjects: ["Math", "Humanities"] },
  { name: "John", age: 14, grade: "C", subjects: ["Math", "Science"] },
  { name: "Mary", age: 17, grade: "A", subjects: ["Math", "Arts"] },
  { name: "Peter", age: 15, grade: "B", subjects: ["Humanities", "Arts"] },
  { name: "Sara", age: 16, grade: "C", subjects: ["Math", "Finance"] }
]);
```

```
> MONGOSH
> use Students
< switched to db Students
> db.Students.insertMany([
  { name: "Supriya", age: 16, grade: "B", subjects: ["Math", "Humanities"] },
  { name: "John", age: 14, grade: "C", subjects: ["Math", "Science"] },
  { name: "Mary", age: 17, grade: "A", subjects: ["Math", "Arts"] },
  { name: "Peter", age: 15, grade: "B", subjects: ["Humanities", "Arts"] },
  { name: "Sara", age: 16, grade: "C", subjects: ["Math", "Finance"] }
]);
< {
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('66a8ff42ea6ced3cce73db48'),
    '1': ObjectId('66a8ff42ea6ced3cce73db49'),
    '2': ObjectId('66a8ff42ea6ced3cce73db4a'),
    '3': ObjectId('66a8ff42ea6ced3cce73db4b'),
    '4': ObjectId('66a8ff42ea6ced3cce73db4c')
  }
}
Students> |
```

**Find all students.**

Query : `db.students.find({});`

```
>_MONGOSH
> db.Students.find({});
< {
  _id: ObjectId('66a8ff42ea6ced3cce73db48'),
  name: 'Supriya',
  age: 16,
  grade: 'B',
  subjects: [
    'Math',
    'Humanities'
  ]
}
{
  _id: ObjectId('66a8ff42ea6ced3cce73db49'),
  name: 'John',
  age: 14,
  grade: 'C',
  subjects: [
    'Math',
    'Science'
  ]
}
}
```

```
>_MONGOSH
{
  _id: ObjectId('66a8ff42ea6ced3cce73db4a'),
  name: 'Mary',
  age: 17,
  grade: 'A',
  subjects: [
    'Math',
    'Arts'
  ]
}
{
  _id: ObjectId('66a8ff42ea6ced3cce73db4b'),
  name: 'Peter',
  age: 15,
  grade: 'B',
  subjects: [
    'Humanities',
    'Arts'
  ]
}
}
```

```
  'Arts'
]
}
{
  _id: ObjectId('66a8ff42ea6ced3cce73db4c'),
  name: 'Sara',
  age: 16,
  grade: 'C',
  subjects: [
    'Math',
    'Finance'
  ]
}
}
Students>
```

**Find students who are older than 15 years.**

Query:

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

```
>_MONGOSH
<
> db.Students.find({ age: { $gt: 15 } });
< {
  _id: ObjectId('66a8ff42ea6ced3cce73db48'),
  name: 'Supriya',
  age: 16,
  grade: 'B',
  subjects: [
    'Math',
    'Humanities'
  ]
}
{
  _id: ObjectId('66a8ff42ea6ced3cce73db4a'),
  name: 'Mary',
  age: 17,
  grade: 'A',
  subjects: [
    'Math',
    'Arts'
  ]
}
}
```

```
>_MONGOSH
}
{
  _id: ObjectId('66a8ff42ea6ced3cce73db4a'),
  name: 'Mary',
  age: 17,
  grade: 'A',
  subjects: [
    'Math',
    'Arts'
  ]
}
{
  _id: ObjectId('66a8ff42ea6ced3cce73db4c'),
  name: 'Sara',
  age: 16,
  grade: 'C',
  subjects: [
    'Math',
    'Finance'
  ]
}
}
Students>
```

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

Query :

```
db.students.find({ subjects: "Math" });
```

```
>_MONGOSH
> db.Students.find({ subjects: "Math" });
< {
  _id: ObjectId('66a8ff42ea6ced3cce73db48'),
  name: 'Supriya',
  age: 16,
  grade: 'B',
  subjects: [
    'Math',
    'Humanities'
  ]
}
{
  _id: ObjectId('66a8ff42ea6ced3cce73db49'),
  name: 'John',
  age: 14,
  grade: 'C',
  subjects: [
    'Math',
    'Science'
  ]
}
```

```
>_MONGOSH
}
{
  _id: ObjectId('66a8ff42ea6ced3cce73db4a'),
  name: 'Mary',
  age: 17,
  grade: 'A',
  subjects: [
    'Math',
    'Arts'
  ]
}
{
  _id: ObjectId('66a8ff42ea6ced3cce73db4c'),
  name: 'Sara',
  age: 16,
  grade: 'C',
  subjects: [
    'Math',
    'Finance'
  ]
}
Students>
```

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

Query:

```
db.students.find({ subjects: { $all: ["Math", "Humanities"] } });
```

```
> db.Students.find({ subjects: { $all: ["Math", "Humanities"] } });
< {
  _id: ObjectId('66a8ff42ea6ced3cce73db48'),
  name: 'Supriya',
  age: 16,
  grade: 'B',
  subjects: [
    'Math',
    'Humanities'
  ]
}
```

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

Query:

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

```
> _MONGOOSH
> db.Students.find({
  $nor: [
    { subjects: "Finance" },
    { subjects: "Arts" }
  ]
});
< {
  _id: ObjectId('66a8ff42ea6ced3cce73db48'),
  name: 'Supriya',
  age: 16,
  grade: 'B',
  subjects: [
    'Math',
    'Humanities'
  ]
}
{
  _id: ObjectId('66a8ff42ea6ced3cce73db49'),
  name: 'John',
  age: 14,
  grade: 'C',
  subjects: [
    'Math',
    'Arts'
  ]
}
```

```

>_MONGOSH
{
  _id: ObjectId('66a8ff42ea6ced3cce73db49'),
  name: 'John',
  age: 14,
  grade: 'C',
  subjects: [
    'Math',
    'Science'
  ]
}

```

**Update: Update the grade of a student named "Supriya" to "A"**

Query:

```

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

```

```

> db.Students.updateOne(
  { name: "Supriya" },
  { $set: { grade: "A" } }
);
< {
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
Students>

```

Output:

```

> db.Students.find({ name: "Supriya" });
< {
  _id: ObjectId('66a8ff42ea6ced3cce73db48'),
  name: 'Supriya',
  age: 16,
  grade: 'A',
  subjects: [
    'Math',
    'Humanities'
  ]
}
Students>

```