

Experiment 7

Install MongoDB Compass. Create and manage NoSQL Databases with MongoDB

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1. Create database: product
2. Create collection: inventory
3. Perform following operations on created collections:
 - a. Insert documents (one and many).

```
db.inventory.insertOne({"id": "1",  
  "name": "Abc",  
  "status": "D",  
  "qty": "35"})
```

```
db.inventory.insertOne({"id": "2",  
  "name": "pbc",  
  "status": "A",  
  "qty": "20"})
```

```
db.inventory.insertOne({"id": "3",  
  "name": "pqr",  
  "status": "A",  
  "qty": "40"})
```

- b. Update documents (one and many).

```
db.inventory.updateOne({"id":"1"},{$set :{"qty":"10"}})
```

- c. Replace documents (one and many)

```
.db.inventory.replaceOne({"id":"2"},{"id":"2","name":"rst","status":"C"})
```

- d. Delete documents (one and many)

```
.db.inventory.deleteOne({"id":"3"})
```

- e. Find documents.

```
db.inventory.find()
```

Use filter to find documents in database. Perform following queries in filter on inventory collection.

- a)

```

> db.inventory.find({ status: "D" })
< {
  _id: ObjectId('673db4d31e9292029a374d6f'),
  id: '1',
  name: 'Abc',
  status: 'D',
  qty: '10'
}
{
  _id: ObjectId('673db56a1e9292029a374d72'),
  id: '4',
  name: 'xyz',
  status: 'D',
  qty: '33'
}

```

b)

```

> db.inventory.find({ status: { $in: ["A", "D"] } })
< {
  _id: ObjectId('673db4d31e9292029a374d6f'),
  id: '1',
  name: 'Abc',
  status: 'D',
  qty: '10'
}
{
  _id: ObjectId('673db56a1e9292029a374d72'),
  id: '4',
  name: 'xyz',
  status: 'D',
  qty: '33'
}

```

c)db.inventory.find({ status: "A", qty: { \$lt: 30 } })

d)db.inventory.find({
 \$or: [
 { status: "A" },
 { qty: { \$lt: 30 } }
]
})

d)db.inventory.find({status:"A",\$or:[{qty:{\$lt:30}},{name:/^p/}]})

Q2

Problem Statement 2:

1. Create collection: books under product database

2. Insert the following documents into a books collection:

```
{ "title": "1984", "author": "George Orwell", "year": 1949, "genre": "Dystopian" }
```

```
{ "title": "To Kill a Mockingbird", "author": "Harper Lee", "year": 1960, "genre": "Fiction" }
```

```
{ "title": "The Great Gatsby", "author": "F. Scott Fitzgerald", "year": 1925, "genre": "Fiction" }
```

```
{ "title": "Brave New World", "author": "Aldous Huxley", "year": 1932, "genre": "Dystopian" }
```

Add more such documents.

```
> db.books.insertOne({ "title": "1984", "author": "George Orwell", "year": 1949, "genre": "Dystopian" })
< {
  acknowledged: true,
  insertedId: ObjectId('673dbd3142acaee917dac671')
}
> db.books.insertOne({ "title": "To Kill a Mockingbird", "author": "Harper Lee", "year": 1960, "genre": "Fiction" })
< {
  acknowledged: true,
  insertedId: ObjectId('673dbd4242acaee917dac672')
}
> db.books.insertOne({ "title": "The Great Gatsby", "author": "F. Scott Fitzgerald", "year": 1925, "genre": "Fiction" })
< {
  acknowledged: true,
  insertedId: ObjectId('673dbd5842acaee917dac673')
}
> db.books.insertOne({ "title": "Brave New World", "author": "Aldous Huxley", "year": 1932, "genre": "Dystopian" })
< {
  acknowledged: true,
  insertedId: ObjectId('673dbd7742acaee917dac674')
}
```

1. Find all books published after the year 1950.

```
> db.books.find({ year: { $gt: 1950 } })
< {
  _id: ObjectId('673dbd4242acaee917dac672'),
  title: 'To Kill a Mockingbird',
  author: 'Harper Lee',
  year: 1960,
  genre: 'Fiction'
}
```

2 Find all Dystopian books published before 1950.

```
> db.books.find({ genre: "Dystopian", year: { $lt: 1950 } })
< {
  _id: ObjectId('673dbd3142acaee917dac671'),
  title: '1984',
  author: 'George Orwell',
  year: 1949,
  genre: 'Dystopian'
}
{
  _id: ObjectId('673dbd7742acaee917dac674'),
  title: 'Brave New World',
  author: 'Aldous Huxley',
  year: 1932,
  genre: 'Dystopian'
}
```

3 Update the genre of "1984" to "Science Fiction".

```
> db.books.updateOne({"title":1984},{ $set :{gener:"science fiction"}})
< {
  acknowledged: true,
  insertedId: null,
  matchedCount: 0,
  modifiedCount: 0,
  upsertedCount: 0
}
```

Delete all books in the "Fiction" genre.

```
> db.books.deleteMany({ genre: "Fiction" })
< {
  acknowledged: true,
  deletedCount: 2
}
```

Calculate the total number of books for each genre.

```
> db.books.aggregate([
  { $group: { _id: "$genre", totalBooks: { $sum: 1 } } }
])
< {
  _id: 'Dystopian',
  totalBooks: 2
}
```

Create an index on the author field to improve query performance.

```
> db.books.createIndex({ author: 1 })
< author_1
```

Retrieve all books sorted by year in ascending order.

```
> db.books.find().sort({ year: 1 })
< {
  _id: ObjectId('673dbd7742acaee917dac674'),
  title: 'Brave New World',
  author: 'Aldous Huxley',
  year: 1932,
  genre: 'Dystopian'
}
{
  _id: ObjectId('673dbd3142acaee917dac671'),
  title: '1984',
  author: 'George Orwell',
  year: 1949,
  genre: 'Dystopian'
}
```

Count the number of books written by "Harper Lee". And Retrieve only the titles and authors of all books.

```
> db.books.countDocuments({ author: "Harper Lee" })
< 0
> db.books.find({}, { title: 1, author: 1 })
< {
  _id: ObjectId('673dbd3142acaee917dac671'),
  title: '1984',
  author: 'George Orwell'
}
{
  _id: ObjectId('673dbd7742acaee917dac674'),
  title: 'Brave New World',
  author: 'Aldous Huxley'
}
```

1. Use filter to find documents in database. Perform following queries in filter on inventory collection.

- a. Find books published between 1930 and 1960.

```
> db.books.find({
  year: { $gte: 1930, $lte: 1960 }
})
< {
  _id: ObjectId('673dbd3142acaee917dac671'),
  title: '1984',
  author: 'George Orwell',
  year: 1949,
  genre: 'Dystopian'
}
{
  _id: ObjectId('673dbd7742acaee917dac674'),
  title: 'Brave New World',
  author: 'Aldous Huxley',
  year: 1932,
  genre: 'Dystopian'
}
```

- b. Find books with titles containing the word "The".

```
db.books.find({
  title: { $regex: "The", $options: "i" }
})
```

- c. Find all books published before 1950 and in the Fiction genre.

```
db.books.find({
  year: { $lt: 1950 },
  genre: "Fiction"
})
```

- d. Find all books not written by Aldous Huxley.

```
> db.books.find({
  author: { $ne: "Aldous Huxley" }
})
< {
  _id: ObjectId('673dbd3142acaee917dac671'),
  title: '1984',
  author: 'George Orwell',
  year: 1949,
  genre: 'Dystopian'
}
```

