

**IT2234 (p) Web Service and Server Technologies.**

**University of Vavuniya**

**Faculty of Applied science**

**Department of physical science**

**Tutorial – 03 2021/ICT/84**

Date: 2024.04.28

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1. Create a database bookshop.
2. Create a collection books.
3. Insert the following data.

```
{
  "title": "The Hobbit",
  "author": "J.R.R. Tolkien",
  "published_year": 1937,
  "genres": ["Fantasy", "Adventure"],
  "pages": 310,
  "available": true,
  "rating": 4.8
},
{
  "title": "1984",
  "author": "George Orwell",
  "published_year": 1949,
  "genres": ["Dystopian", "Political Fiction"],
  "pages": 328,
  "available": true,
  "rating": 4.7
},
{
  "title": "To Kill a Mockingbird",
  "author": "Harper Lee",
  "published_year": 1960,
  "genres": ["Southern Gothic", "Drama"],
  "pages": 281,
  "available": false,
  "rating": 4.6
},
```

```

{
  "title": "The Great Gatsby",
  "author": "F. Scott Fitzgerald",
  "published_year": 1925,
  "genres": ["Tragedy"],
  "pages": 180,
  "available": true,
  "rating": 4.4
},
{
  "title": "Brave New World",
  "author": "Aldous Huxley",
  "published_year": 1932,
  "genres": ["Science Fiction", "Dystopian"],
  "pages": 311,
  "available": true,
  "rating": 4.2
}

```

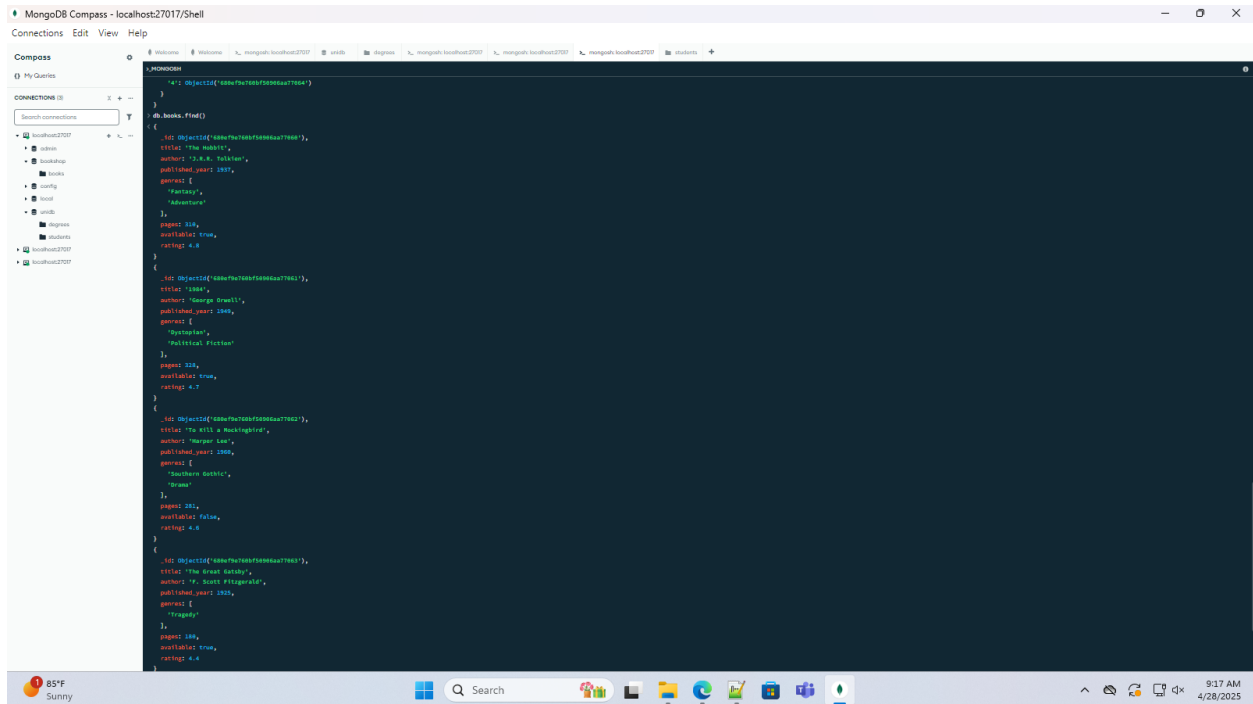
The screenshot shows the MongoDB Compass application running on a Windows operating system. The main window displays a collection of books in the 'books' database. The interface includes a sidebar on the left with 'Connections' and 'My Queries' sections. The main area shows a list of books with their details, including title, author, published year, genres, pages, availability, and rating. The bottom status bar indicates the system temperature is 85°F and the date is 4/28/2025.

```

{
  "title": "The Great Gatsby",
  "author": "F. Scott Fitzgerald",
  "published_year": 1925,
  "genres": ["Tragedy"],
  "pages": 180,
  "available": true,
  "rating": 4.4
},
{
  "title": "Brave New World",
  "author": "Aldous Huxley",
  "published_year": 1932,
  "genres": ["Science Fiction", "Dystopian"],
  "pages": 311,
  "available": true,
  "rating": 4.2
}

```

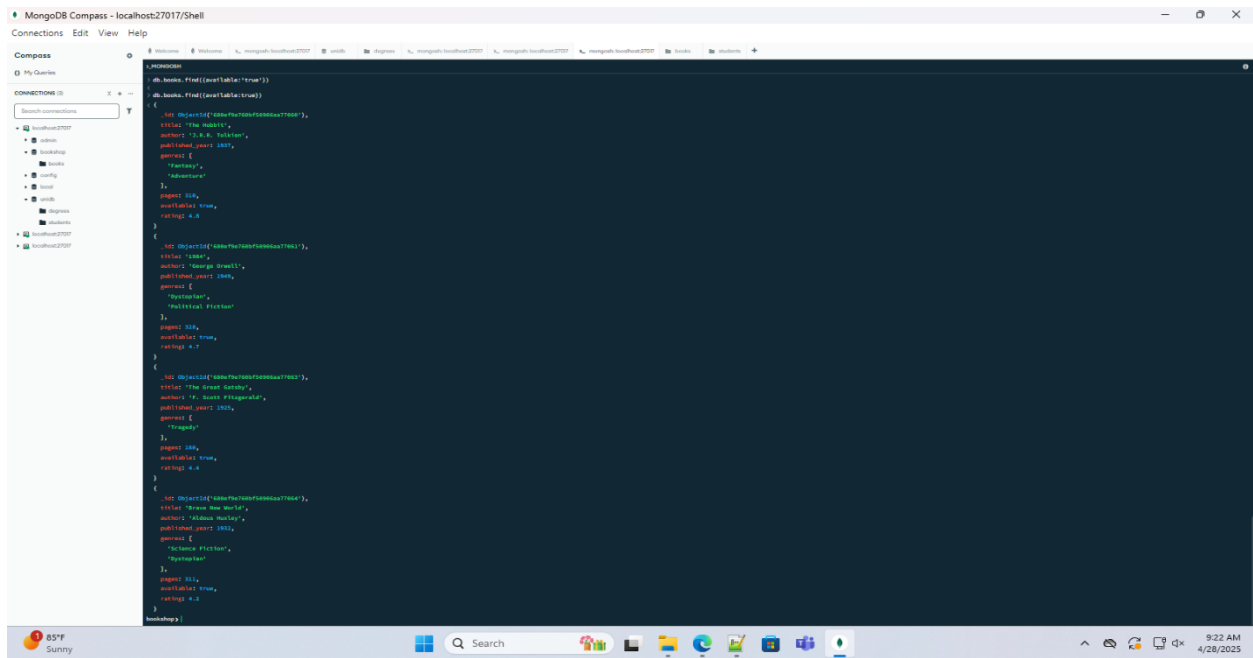
#### 4. Write the query to find all books.



#### 5. Write the query to find all books published after 1950.



6. Write the query to find the available books.



7. Write the query to find all books that belong to the "Dystopian" genre.

```
> db.books.find({'genres':{'$in':['Dystopian']}})
< {
  _id: ObjectId('680ef9e760bf50906aa77061'),
  title: '1984',
  author: 'George Orwell',
  published_year: 1949,
  genres: [
    'Dystopian',
    'Political Fiction'
  ],
  pages: 328,
  available: true,
  rating: 4.7
}
{
  _id: ObjectId('680ef9e760bf50906aa77064'),
  title: 'Brave New World',
  author: 'Aldous Huxley',
  published_year: 1932,
  genres: [
    'Science Fiction',
    'Dystopian'
  ],
  pages: 311,
  available: true,
  rating: 4.2
}
bookshop >
```

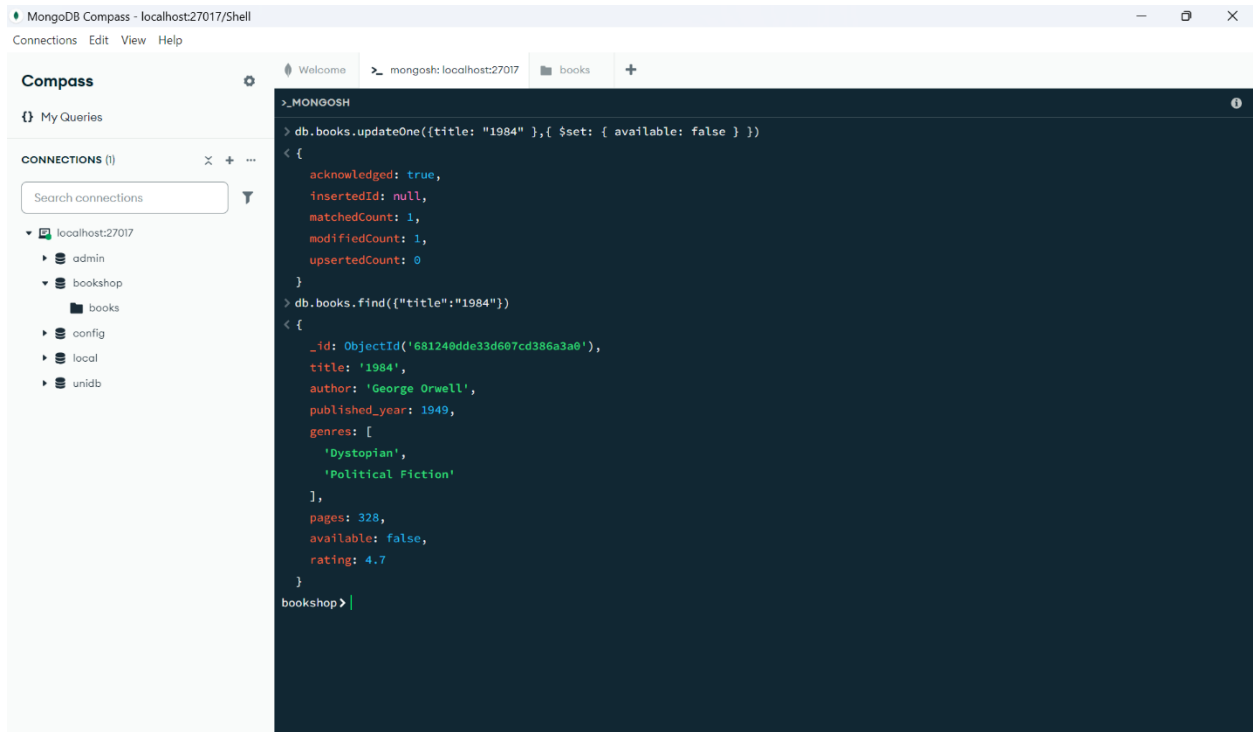
8. Write the query to find the books which published after 1960 and had rating more than 4.0.

```
> db.books.find({
  published_year: { $gt: 1960 },
  rating: { $gt: 4.0 }
})
<
bookshop >
```

9. Write the query to project only title and author fields.

```
> db.books.find().projection(['title','author'])
< {
  _id: ObjectId('680ef9e760bf50906aa77060'),
  title: 'The Hobbit',
  author: 'J.R.R. Tolkien'
}
{
  _id: ObjectId('680ef9e760bf50906aa77061'),
  title: '1984',
  author: 'George Orwell'
}
{
  _id: ObjectId('680ef9e760bf50906aa77062'),
  title: 'To Kill a Mockingbird',
  author: 'Harper Lee'
}
{
  _id: ObjectId('680ef9e760bf50906aa77063'),
  title: 'The Great Gatsby',
  author: 'F. Scott Fitzgerald'
}
{
  _id: ObjectId('680ef9e760bf50906aa77064'),
  title: 'Brave New World',
  author: 'Aldous Huxley'
}
bookshop >
```

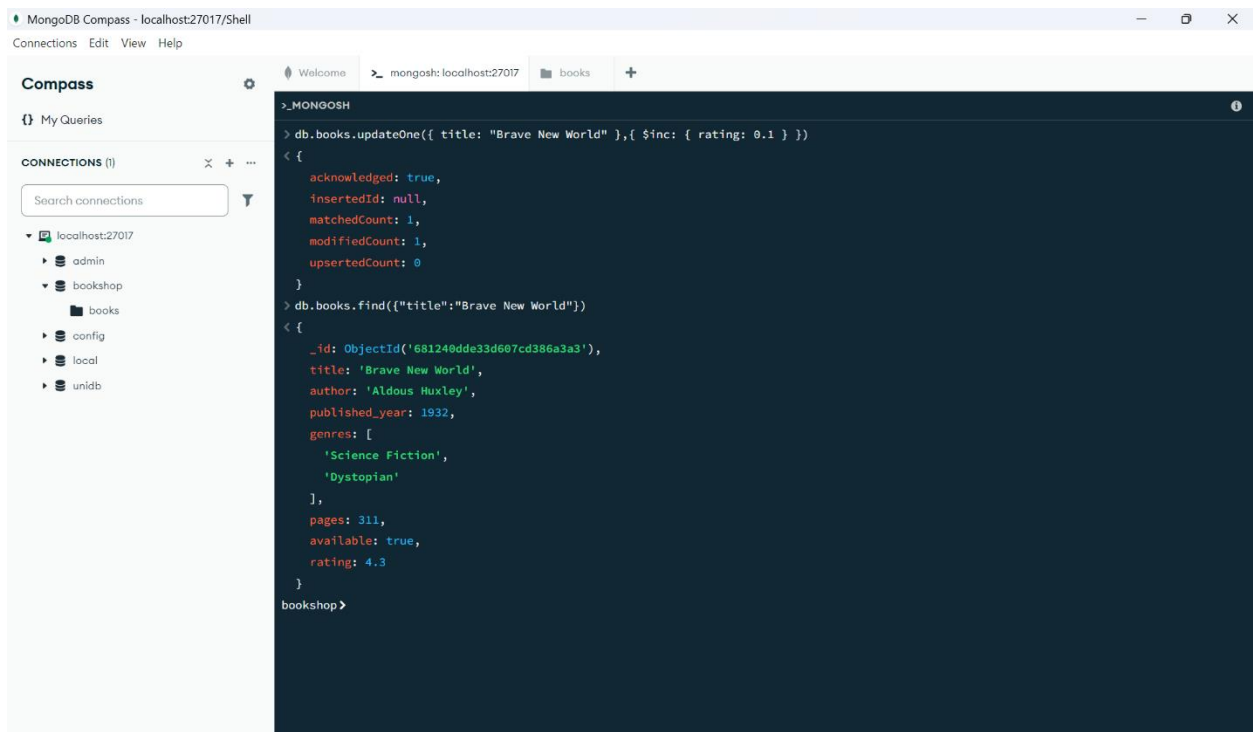
10. Write the query to update the book "1984" to set available: false.



The screenshot shows the MongoDB Compass interface. The left sidebar displays the 'Connections' list with 'localhost:27017' selected, showing a database structure with 'admin', 'bookshop', 'books', 'config', 'local', and 'unldb'. The main panel shows the 'bookshop' database selected. The 'MongoShell' tab is active, displaying the following commands and results:

```
> db.books.updateOne({title: "1984"}, { $set: { available: false } })
< {
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
> db.books.find({"title": "1984"})
< {
  _id: ObjectId('681248dde33d607cd386a3a0'),
  title: '1984',
  author: 'George Orwell',
  published_year: 1949,
  genres: [
    'Dystopian',
    'Political Fiction'
  ],
  pages: 328,
  available: false,
  rating: 4.7
}
```

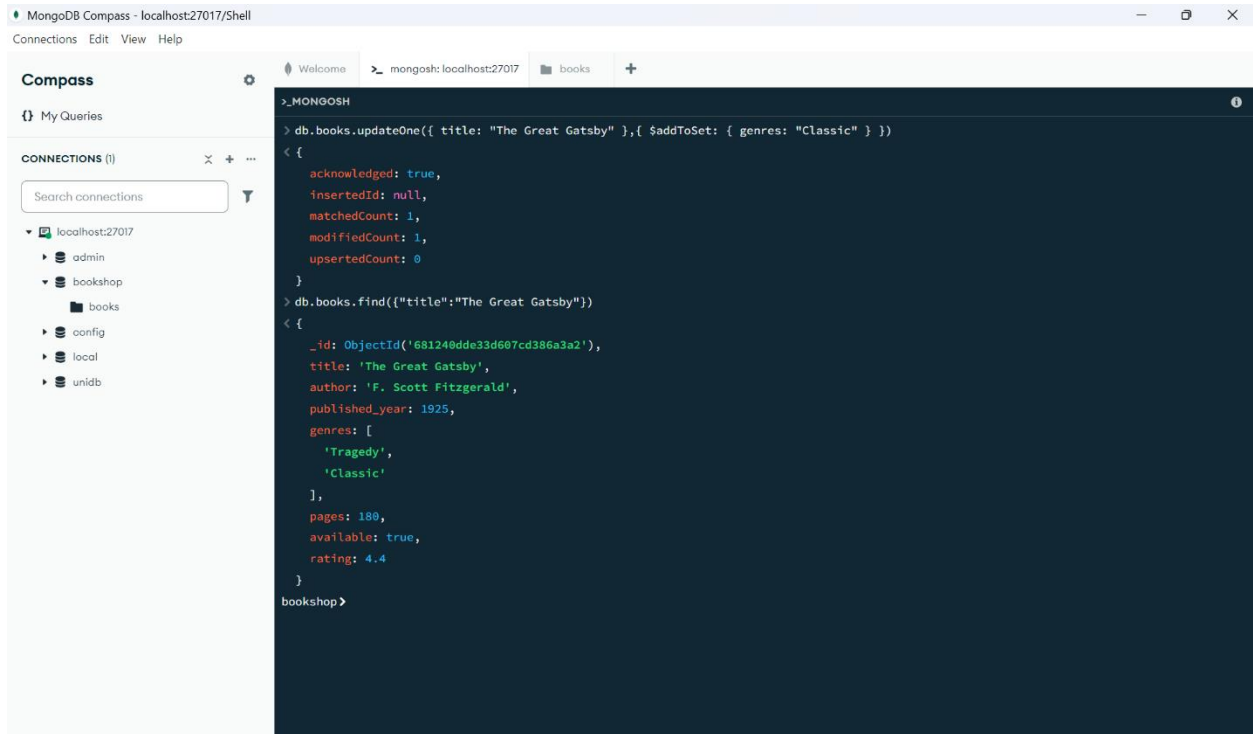
11. Write the query to increase the rating of "Brave New World" by +0.1.



The screenshot shows the MongoDB Compass interface. The left sidebar displays the 'Connections' list with 'localhost:27017' selected, showing a database structure with 'admin', 'bookshop', 'books', 'config', 'local', and 'unldb'. The main panel shows the 'bookshop' database selected. The 'MongoShell' tab is active, displaying the following commands and results:

```
> db.books.updateOne({ title: "Brave New World" }, { $inc: { rating: 0.1 } })
< {
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
> db.books.find({"title": "Brave New World"})
< {
  _id: ObjectId('681248dde33d607cd386a3a3'),
  title: 'Brave New World',
  author: 'Aldous Huxley',
  published_year: 1932,
  genres: [
    'Science Fiction',
    'Dystopian'
  ],
  pages: 311,
  available: true,
  rating: 4.3
}
```

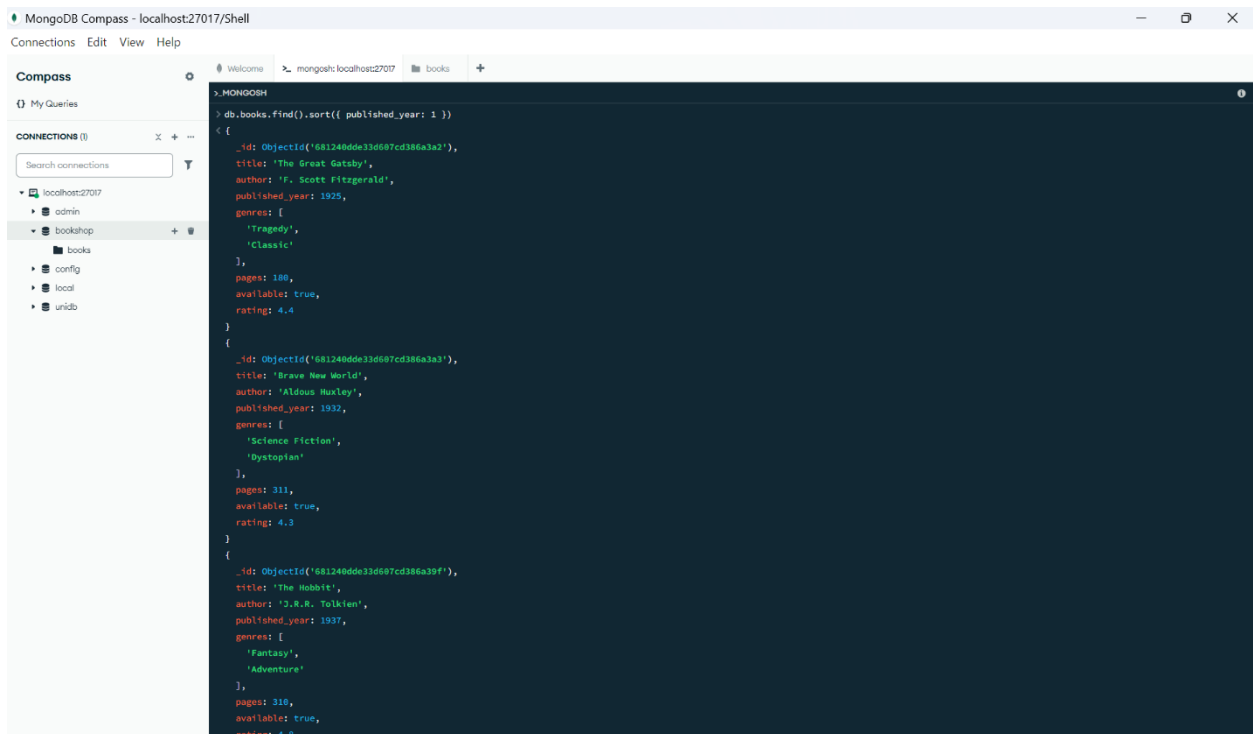
12. Write the query to add a new genre "Classic" to "The Great Gatsby".



The screenshot shows the MongoDB Compass interface. The left sidebar displays the database structure with 'books' selected under 'bookshop'. The main panel shows a MongoDB shell with the following commands and results:

```
> db.books.updateOne({ title: "The Great Gatsby" }, { $addToSet: { genres: "Classic" } })
< {
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
> db.books.find({"title": "The Great Gatsby"})
< {
  _id: ObjectId('681240dde33d607cd386a3a2'),
  title: 'The Great Gatsby',
  author: 'F. Scott Fitzgerald',
  published_year: 1925,
  genres: [
    'Tragedy',
    'Classic'
  ],
  pages: 180,
  available: true,
  rating: 4.4
}
```

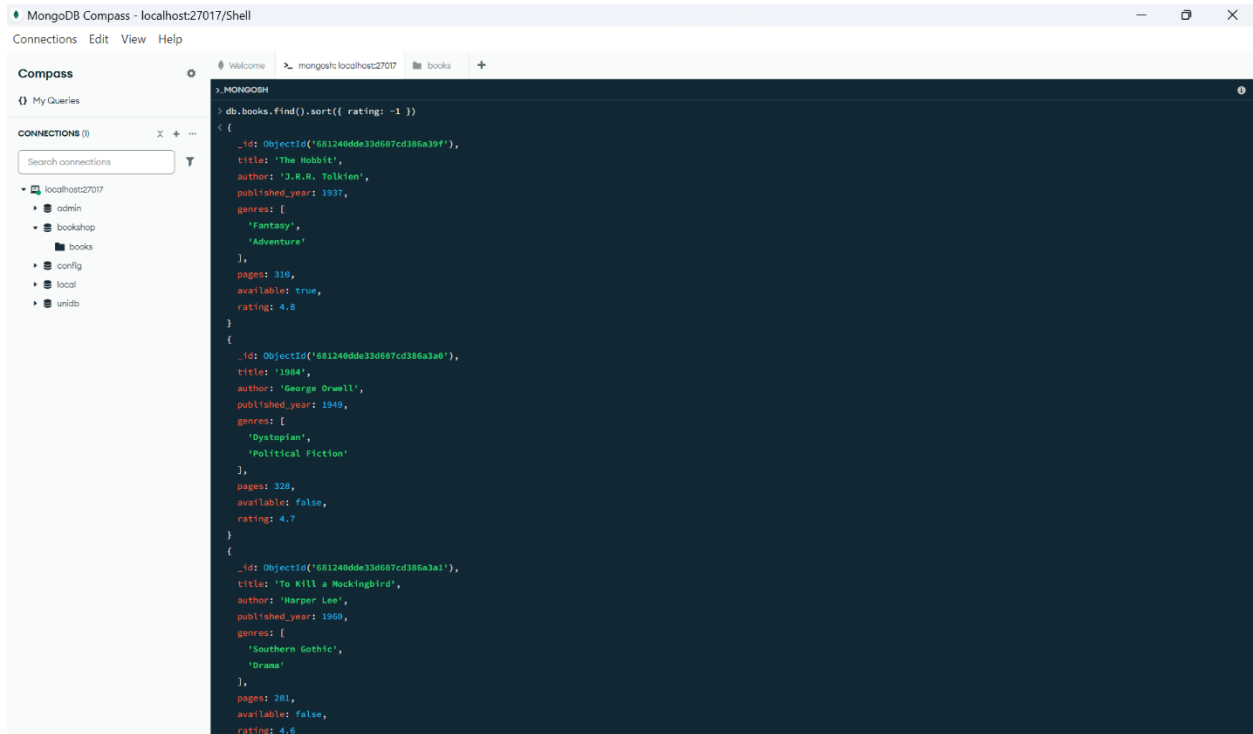
13. Write the query to sort books by published year in ascending order.



The screenshot shows the MongoDB Compass interface. The left sidebar displays the database structure with 'books' selected under 'bookshop'. The main panel shows a MongoDB shell with the following commands and results:

```
> db.books.find().sort({ published_year: 1 })
< {
  _id: ObjectId('681240dde33d607cd386a3a2'),
  title: 'The Great Gatsby',
  author: 'F. Scott Fitzgerald',
  published_year: 1925,
  genres: [
    'Tragedy',
    'Classic'
  ],
  pages: 180,
  available: true,
  rating: 4.4
}
{
  _id: ObjectId('681240dde33d607cd386a3a3'),
  title: 'Brave New World',
  author: 'Aldous Huxley',
  published_year: 1932,
  genres: [
    'Science Fiction',
    'Dystopian'
  ],
  pages: 311,
  available: true,
  rating: 4.3
}
{
  _id: ObjectId('681240dde33d607cd386a39f'),
  title: 'The Hobbit',
  author: 'J.R.R. Tolkien',
  published_year: 1937,
  genres: [
    'Fantasy',
    'Adventure'
  ],
  pages: 310,
  available: true,
  rating: 4.8
}
```

#### 14. Write the query to sort books by rating in descending order.



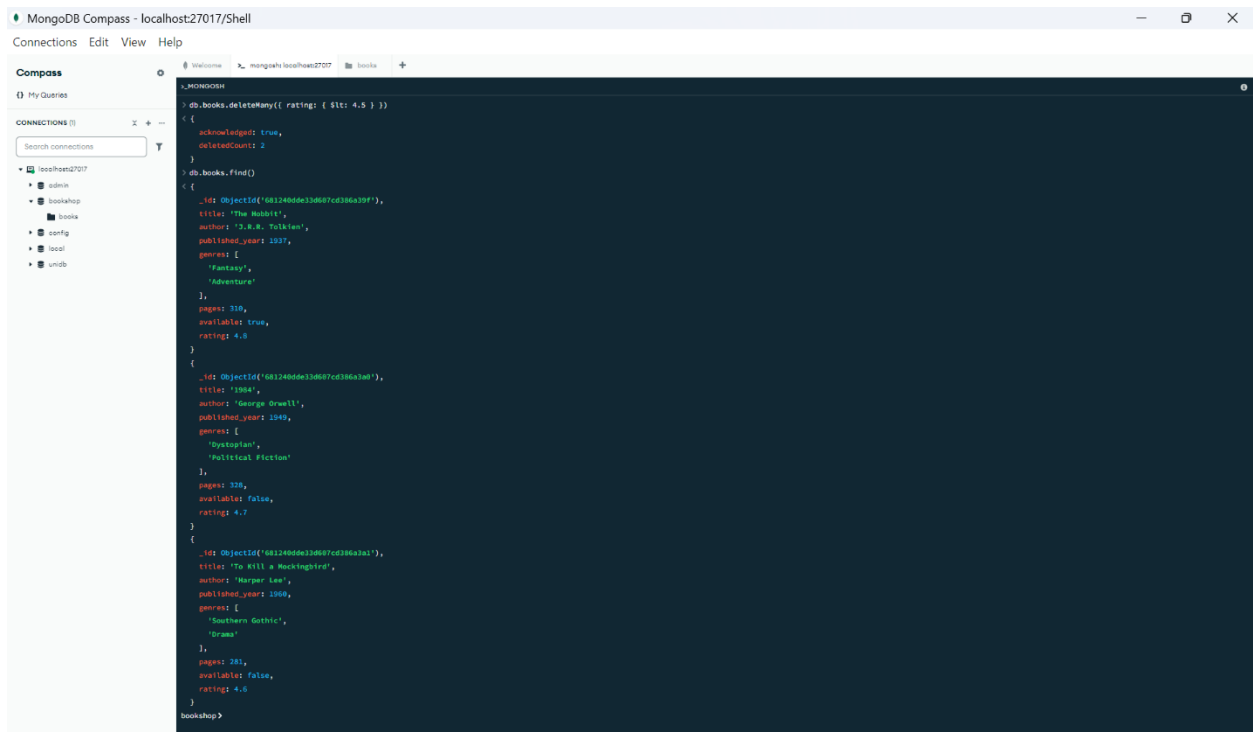
The screenshot shows the MongoDB Compass interface. The left sidebar displays the 'Connections' list with 'localhost:27017' selected. The 'Collections' list on the right shows 'books'. The main editor area contains the following query:

```
> db.books.find().sort({ rating: -1 })
```

The query result shows three books sorted by rating in descending order:

- Book 1:** `{ "_id": ObjectId("681248dde33d687cd386a39f"), "title": "The Hobbit", "author": "J.R.R. Tolkien", "published_year": 1937, "genres": ["Fantasy", "Adventure"], "pages": 310, "available": true, "rating": 4.8 }`
- Book 2:** `{ "_id": ObjectId("681248dde33d687cd386a3a0"), "title": "1984", "author": "George Orwell", "published_year": 1949, "genres": ["Dystopian", "Political Fiction"], "pages": 328, "available": false, "rating": 4.7 }`
- Book 3:** `{ "_id": ObjectId("681248dde33d687cd386a3a1"), "title": "To Kill a Mockingbird", "author": "Harper Lee", "published_year": 1960, "genres": ["Southern Gothic", "Drama"], "pages": 281, "available": false, "rating": 4.6 }`

#### 15. Write the query to delete all books with a rating lower than 4.5.



The screenshot shows the MongoDB Compass interface. The left sidebar displays the 'Connections' list with 'localhost:27017' selected. The 'Collections' list on the right shows 'books'. The main editor area contains the following query:

```
> db.books.deleteMany({ rating: { $lt: 4.5 } })
```

The query result shows the deletion of two books:

- Deleted Book 1:** `{ "acknowledged": true, "deletedCount": 2 }`
- Deleted Book 2:** `{ "_id": ObjectId("681248dde33d687cd386a39f"), "title": "The Hobbit", "author": "J.R.R. Tolkien", "published_year": 1937, "genres": ["Fantasy", "Adventure"], "pages": 310, "available": true, "rating": 4.8 }`

The remaining books in the collection are:

- Book 1:** `{ "_id": ObjectId("681248dde33d687cd386a3a0"), "title": "1984", "author": "George Orwell", "published_year": 1949, "genres": ["Dystopian", "Political Fiction"], "pages": 328, "available": false, "rating": 4.7 }`
- Book 2:** `{ "_id": ObjectId("681248dde33d687cd386a3a1"), "title": "To Kill a Mockingbird", "author": "Harper Lee", "published_year": 1960, "genres": ["Southern Gothic", "Drama"], "pages": 281, "available": false, "rating": 4.6 }`