MongoDB Exercise Guide

1. Create Operation

- Create a new database named "library" and switch to it.

- Create a collection named "books" with fields: title, author, and published_year.

- Insert a document into the "books" collection with the details of your favorite book.

2. Read Operation:

- Retrieve all documents from the "books" collection.

- Find and display only the documents where the author is "J.K. Rowling".

- Fetch and display the document with the earliest published year.

3. Update Operation:

- Update the published year of the book with the title "The Catcher in the Rye" to the current year.

- Add a new field "genre" with the value "Mystery" to all documents in the "books" collection.

4. Delete Operation:

- Remove the document with the title "1984" from the "books" collection.

- Delete all documents from the "books" collection where the published year is before 2000.

5. Advanced Query:

- Find and display the top 3 recently published books from the "books" collection.

- Retrieve documents from the "books" collection where the title contains the word "MongoDB" or "NoSQL".

Remember to use the appropriate MongoDB shell commands (e.g., `use`, `db.collection.insert`, `db.collection.find`, `db.collection.update`, `db.collection.remove`, etc.) to perform these operations. This will help you become more familiar with MongoDB's CRUD capabilities.

Solution:

1. Create

// Create a new database and switch to it

```
use library
```

// Create a collection named "books"

```
db.createCollection("books")
```

// Insert a document into the "books" collection

```
db.books.insert({
title: "The Great Gatsby",
author: "F. Scott Fitzgerald",
published_year: 1925
})
```

2. Read

// Retrieve all documents from the "books" collection

```
db.books.find()
```

// Find and display only the documents where the author is "J.K. Rowling"

```
db.books.find({ author: "J.K. Rowling" })
```

// Fetch and display the document with the earliest published year

```
db.books.find().sort({ published_year: 1 }).limit(1)
```

3. Update

// Update the published year of the book with the title "The Catcher in the Rye"

```
db.books.update({ title: "The Catcher in the Rye" }, { $set: { published_year: 2024 } })
```

// Add a new field "genre" with the value "Mystery" to all documents

```
db.books.update({}, { $set: { genre: "Mystery" } }, { multi: true })
```

4. Delete

// Remove the document with the title "1984"

```
db.books.remove({ title: "1984" })
```

// Delete all documents where the published year is before 2000

```
db.books.remove({ published_year: { $lt: 2000 } })
```

5. Advanced Query

1. Find and display the top 3 recently published books from the 'books' collection:
   ```
   db.books.find().sort({ published_year: -1 }).limit(3)
   ```
2. Retrieve documents from the 'books' collection where the title contains the words 'MongoDB' or 'NoSQL':
   ```
   db.books.find({ title: { $regex: /(MongoDB|NoSQL)/i } })
   ```