

Collections and Their Purposes

To demonstrate the functionality, we created two collections: UserComments and MarketNews. These collections serve different purposes from the tables in our relational database.

- **UserComments:** This collection stores user comments about various stocks. It includes fields like user_id, comment, and timestamp. This allows users to share their thoughts and feedback on stock performances.
- **MarketNews:** This collection stores news articles related to the stock market. It includes fields like title, content, and date. This helps users stay informed about market trends and events that could impact stock prices.

CRUD Operations

We implemented CRUD operations (Create, Read, Update, Delete) to interact with the collections. Users can select options to perform these operations through a simple Python script interface.

Functionalities Demonstrated

UserComments Collection

1. **Create Collection:**
 - We created the UserComments collection and inserted a dummy document to ensure its creation.
2. **Insert Data:**
 - We added a comment from a user about a stock, capturing the user ID, comment, and timestamp.
3. **Read All Data:**
 - We retrieved all comments stored in the UserComments collection to view the collective feedback from users.
4. **Read Filtered Data:**
 - We retrieved comments based on a specific user ID to view feedback from individual users.
5. **Update Data:**
 - We updated an existing comment, allowing users to modify their feedback as needed.
6. **Delete Data:**
 - We deleted a specific comment based on the user ID and comment content, demonstrating data removal capabilities.

MarketNews Collection

1. **Create Collection:**
 - We created the MarketNews collection and inserted a dummy document to ensure its creation.
2. **Insert Data:**
 - We added a news article about a stock's performance, including the title, content, and date.
3. **Read All Data:**
 - We retrieved all news articles stored in the MarketNews collection to view the latest market news.
4. **Read Filtered Data:**
 - We retrieved news articles based on a specific title to find relevant information quickly.
5. **Update Data:**
 - We updated the content of an existing news article, demonstrating the ability to keep information current and accurate.
6. **Delete Data:**
 - We deleted a specific news article based on the title, showcasing the capability to remove outdated or incorrect information.

For UserComments Collection:

Create and display UserComments collection, which will have a dummy document already inserted by default

```
Please pick an option:
1 - Create a collection
2 - Read all data in a collection
3 - Read filtered data in a collection
4 - Insert data
5 - Delete data
6 - Update data
Selected option: 1
Enter collection name: UserComments
Collection 'UserComments' created and dummy document inserted.
Please pick an option:
1 - Create a collection
2 - Read all data in a collection
3 - Read filtered data in a collection
4 - Insert data
5 - Delete data
6 - Update data
Selected option: 2
1 - UserComments
Please select the collection number: 1
{'_id': ObjectId('665a0138d4610e66578f150f'), 'dummy_key': 'dummy_value'}
```

Insert Data:

```
Selected option: 2
1 - UserComments
Please select the collection number: 1
{'_id': ObjectId('665a0138d4610e66578f150f'), 'dummy_key': 'dummy_value'}
Please pick an option:
1 - Create a collection
2 - Read all data in a collection
3 - Read filtered data in a collection
4 - Insert data
5 - Delete data
6 - Update data
Selected option: 4
1 - UserComments
Please select the collection number: 1
Enter data as a dictionary: {"user_id": "user123", "comment": "Great performance by AAPL today!"}
Data inserted successfully.
Please pick an option:
1 - Create a collection
2 - Read all data in a collection
3 - Read filtered data in a collection
4 - Insert data
5 - Delete data
6 - Update data
Selected option: 2
1 - UserComments
Please select the collection number: 1
{'_id': ObjectId('665a0138d4610e66578f150f'), 'dummy_key': 'dummy_value'}
{'_id': ObjectId('665a01ded4610e66578f1510'), 'user_id': 'user123', 'comment': 'Great performance by AAPL today!'}
```

Read Filtered Data in a Collection:

```
Please pick an option:
1 - Create a collection
2 - Read all data in a collection
3 - Read filtered data in a collection
4 - Insert data
5 - Delete data
6 - Update data
Selected option: 3
1 - UserComments
Please select the collection number: 1
Enter query as a dictionary: {"user_id": "user123"}
{'_id': ObjectId('665a01ded4610e66578f1510'), 'user_id': 'user123', 'comment': 'Great performance by AAPL today!'}
```

Update Data:

```
Please pick an option:
1 - Create a collection
2 - Read all data in a collection
3 - Read filtered data in a collection
4 - Insert data
5 - Delete data
6 - Update data
Selected option: 6
1 - UserComments
Please select the collection number: 1
Enter query as a dictionary: {"user_id": "user123", "comment": "Great performance by AAPL today!"}
Enter new values as a dictionary: {"comment": "Updated comment about AAPL"}
Data updated successfully.
Please pick an option:
1 - Create a collection
2 - Read all data in a collection
3 - Read filtered data in a collection
4 - Insert data
5 - Delete data
6 - Update data
Selected option: 2
1 - UserComments
Please select the collection number: 1
{'_id': ObjectId('665a0138d4610e66578f150f'), 'dummy_key': 'dummy_value'}
{'_id': ObjectId('665a01ded4610e66578f1510'), 'user_id': 'user123', 'comment': 'Updated comment about AAPL'}
```

Delete Data:

```
Please pick an option:
1 - Create a collection
2 - Read all data in a collection
3 - Read filtered data in a collection
4 - Insert data
5 - Delete data
6 - Update data
Selected option: 5
1 - UserComments
Please select the collection number: 1
Enter query as a dictionary: {"dummy_key": "dummy_value"}
Data deleted successfully.
Please pick an option:
1 - Create a collection
2 - Read all data in a collection
3 - Read filtered data in a collection
4 - Insert data
5 - Delete data
6 - Update data
Selected option: 2
1 - UserComments
Please select the collection number: 1
{'_id': ObjectId('665a01ded4610e66578f1510'), 'user_id': 'user123', 'comment': 'Updated comment about AAPL'}
```

For MarketNews Collection

Create and display MarketNews collection, which will have a dummy document already inserted by default

```
Please pick an option:
1 - Create a collection
2 - Read all data in a collection
3 - Read filtered data in a collection
4 - Insert data
5 - Delete data
6 - Update data
Selected option: 1
Enter collection name: MarketNews
Collection 'MarketNews' created and dummy document inserted.
Please pick an option:
1 - Create a collection
2 - Read all data in a collection
3 - Read filtered data in a collection
4 - Insert data
5 - Delete data
6 - Update data
Selected option: 2
1 - UserComments
2 - MarketNews
Please select the collection number: 2
{'_id': ObjectId('665a044fd4610e66578f1511'), 'dummy_key': 'dummy_value'}
```

Insert Data:

```
Please pick an option:
1 - Create a collection
2 - Read all data in a collection
3 - Read filtered data in a collection
4 - Insert data
5 - Delete data
6 - Update data
Selected option: 4
1 - UserComments
2 - MarketNews
Please select the collection number: 2
Enter data as a dictionary: {"title": "AAPL Surges in Q1", "content": "Apple Inc. saw a significant increase in stock price..."}
Data inserted successfully.
Please pick an option:
1 - Create a collection
2 - Read all data in a collection
3 - Read filtered data in a collection
4 - Insert data
5 - Delete data
6 - Update data
Selected option: 2
1 - UserComments
2 - MarketNews
Please select the collection number: 2
{'_id': ObjectId('665a044fd4610e66578f1511'), 'dummy_key': 'dummy_value'}
{'_id': ObjectId('665a053dd4610e66578f1512'), 'title': 'AAPL Surges in Q1', 'content': 'Apple Inc. saw a significant increase in stock price...'}
```

Read Filtered Data in a Collection:

```
Please pick an option:
1 - Create a collection
2 - Read all data in a collection
3 - Read filtered data in a collection
4 - Insert data
5 - Delete data
6 - Update data
Selected option: 3
1 - UserComments
2 - MarketNews
Please select the collection number: 2
Enter query as a dictionary: {"title": "AAPL Surges in Q1"}
{'_id': ObjectId('665a053dd4610e66578f1512'), 'title': 'AAPL Surges in Q1', 'content': 'Apple Inc. saw a significant increase in stock price...'}
```

Update Data:

```
Please pick an option:
1 - Create a collection
2 - Read all data in a collection
3 - Read filtered data in a collection
4 - Insert data
5 - Delete data
6 - Update data
Selected option: 6
1 - UserComments
2 - MarketNews
Please select the collection number: 2
Enter query as a dictionary: {"title": "AAPL Surges in Q1"}
Enter new values as a dictionary: {"content": "Updated content about AAPL's performance.", "date": "2024-06-01"}
Data updated successfully.
Please pick an option:
1 - Create a collection
2 - Read all data in a collection
3 - Read filtered data in a collection
4 - Insert data
5 - Delete data
6 - Update data
Selected option: 2
1 - UserComments
2 - MarketNews
Please select the collection number: 2
{'_id': ObjectId('665a044fd4610e66578f1511'), 'dummy_key': 'dummy_value'}
{'_id': ObjectId('665a053dd4610e66578f1512'), 'title': 'AAPL Surges in Q1', 'content': 'Updated content about AAPL's performance.', 'date': '2024-06-01'}
```

Delete Data:

```
Please pick an option:
1 - Create a collection
2 - Read all data in a collection
3 - Read filtered data in a collection
4 - Insert data
5 - Delete data
6 - Update data
Selected option: 5
1 - UserComments
2 - MarketNews
Please select the collection number: 2
Enter query as a dictionary: {"title": "AAPL Surges in Q1"}
Data deleted successfully.
Please pick an option:
1 - Create a collection
2 - Read all data in a collection
3 - Read filtered data in a collection
4 - Insert data
5 - Delete data
6 - Update data
Selected option: 2
1 - UserComments
2 - MarketNews
Please select the collection number: 2
{'_id': ObjectId('665a044fd4610e66578f1511'), 'dummy_key': 'dummy_value'}
```