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CS 306 Project Phase- 4 Overview

This project is designed to create a review management system using MongoDB Atlas. The system allows users to perform CRUD (Create, Read, Update, Delete) operations on two collections: DoctorReviews and HospitalReviews. The collections are designed to store reviews related to doctors and hospitals, respectively. The functionality is implemented using Python and the PyMongo library.

System Functionality

The application provides the following functionalities:

1. Create a collection.
2. Read all data in a collection.
3. Read data with filters.
4. Insert data.
5. Delete data.
6. Update data.

Collections

- **DoctorReviews**: Stores reviews related to doctors, including the doctor's name, appointment time, and the review message.
- **HospitalReviews**: Stores reviews related to hospitals, including the review date, review message, and rating.
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Code Implementation

Database Connection

The connection to the MongoDB Atlas cluster is established using the MongoClient from the PyMongo library. The connection string includes authentication credentials and the cluster address.

1-Creating a Collection

A collection is created if it does not already exist in the database.

For DoctorReviews and Hospital Reviews:

```
suleymanberber@Suleymans-MacBook-Air ~ % /usr/local/bin/python3 "/Users/suleymanberber/Desktop/Phase 4/phase4.py"
Connection established to your db
Welcome to Review Portal!
Please enter your patient id:123
Please pick the option that you want to proceed.

1 - Create a collection.
2 - Read all data in a collection.
3 - Read some part of the data while filtering.
4 - Insert data.
5 - Delete data.
6 - Update data.
7 - Exit.
Selected option: 1
Enter the collection name: DoctorReviews
Collection 'DoctorReviews' created.

1 - Create a collection.
2 - Read all data in a collection.
3 - Read some part of the data while filtering.
4 - Insert data.
5 - Delete data.
6 - Update data.
7 - Exit.
Selected option: 1
Enter the collection name: HospitalReviews
Collection 'HospitalReviews' created.

1 - Create a collection.
2 - Read all data in a collection.
3 - Read some part of the data while filtering.
4 - Insert data.
5 - Delete data.
6 - Update data.
7 - Exit.
Selected option: 2
Please enter the collection name to read: DoctorReviews
```

2-Insert Data

For Hospital Reviews:

```
1 - Create a collection.
2 - Read all data in a collection.
3 - Read some part of the data while filtering.
4 - Insert data.
5 - Delete data.
6 - Update data.
7 - Exit.
Selected option: 4
Please select the collection you want to insert data:
1 -  DoctorReviews
2 -  HospitalReviews

Selected option: 2
Please enter the data fields:

rate:6
visit_date:10.03.2023
review:Staff are courteous and knowledgeable.

{'patient_reviews': [{'rate': '6', 'review_date': '10.03.2023', 'review': 'Staff are courteous and knowledgeable. '}]}
Insertion successfully completed
Inserted document ID: 6650b8c91b89a05393930714

1 - Create a collection.
2 - Read all data in a collection.
3 - Read some part of the data while filtering.
4 - Insert data.
5 - Delete data.
6 - Update data.
7 - Exit.
Selected option: 2
Please enter the collection name to read: HospitalReviews
{'_id': ObjectId('6650b8c91b89a05393930714'), 'p_id': '123', 'reviews': [{'patient_reviews': [{'rate': '6', 'review_date': '10.03.2023', 'review': 'Staff are courteous and knowledgeable. '}]}]}
```

For Doctor Reviews:

```
1 - Create a collection.
2 - Read all data in a collection.
3 - Read some part of the data while filtering.
4 - Insert data.
5 - Delete data.
6 - Update data.
7 - Exit.
Selected option: 4
Please select the collection you want to insert data:
1 -  DoctorReviews
2 -  HospitalReviews

Selected option: 1
Please enter the data fields:

doctor_name:Dr.Lee
appointment_time:23.06.2024
review:It was good.

{'patient_reviews': [{'doctor_name': 'Dr.Lee', 'appointment_time': '23.06.2024', 'review': 'It was good.'}]}
Insertion successfully completed
Inserted document ID: 6650b5fd1b89a05393930713

1 - Create a collection.
2 - Read all data in a collection.
3 - Read some part of the data while filtering.
4 - Insert data.
5 - Delete data.
6 - Update data.
7 - Exit.
Selected option: 4
Please select the collection you want to insert data:
1 -  DoctorReviews
2 -  HospitalReviews

Selected option: 1
Please enter the data fields:

doctor_name:Dr.Garcia
appointment_time:13.05.2023
review:Highly skilled and experienced.

{'patient_reviews': [{'doctor_name': 'Dr.Garcia', 'appointment_time': '13.05.2023', 'review': 'Highly skilled and experienced. '}]}
Update successfully completed
```

3-Read All Data in a Collection

For Doctor Reviews:

```
1 - Create a collection.
2 - Read all data in a collection.
3 - Read some part of the data while filtering.
4 - Insert data.
5 - Delete data.
6 - Update data.
7 - Exit.
Selected option: 2
Please enter the collection name to read: DoctorReviews
{'_id': ObjectId('6650b5fd1b89a05393930713'), 'p_id': '123', 'reviews': [{'patient_reviews': [{'doctor_name': 'Dr.Lee', 'appointment_time': '23.06.2024', 'review': 'It was good.'}]}, {'patient_revi
ews': [{'doctor_name': 'Dr.Garcia', 'appointment_time': '13.05.2023', 'review': 'Highly knowledgeable and attentive. '}]}]}
```

For Hospital Reviews:

```
1 - Create a collection.
2 - Read all data in a collection.
3 - Read some part of the data while filtering.
4 - Insert data.
5 - Delete data.
6 - Update data.
7 - Exit.
Selected option: 4
Please select the collection you want to insert data:
1 -  DoctorReviews
2 -  HospitalReviews

Selected option: 2
Please enter the data fields:

rate:1
visit_date:11.05.2024
review:Efficient and organized.

{'patient_reviews': [{'rate': '1', 'review_date': '11.05.2024', 'review': 'Efficient and organized. '}]}
Update successfully completed

1 - Create a collection.
2 - Read all data in a collection.
3 - Read some part of the data while filtering.
4 - Insert data.
5 - Delete data.
6 - Update data.
7 - Exit.
Selected option: 2
Please enter the collection name to read: HospitalReviews
{'_id': ObjectId('6650b8c91b89a05393930714'), 'p_id': '123', 'reviews': [{'patient_reviews': []}, {'patient_reviews': [{'rate': '2', 'review_date': '05.12.2023', 'review': 'Cutting-edge medical tec
hnology and expertise. '}]}, {'patient_reviews': [{'rate': '1', 'review_date': '11.05.2024', 'review': 'Efficient and organized. '}]}]}
```

4-Update Data

For Doctor Reviews:

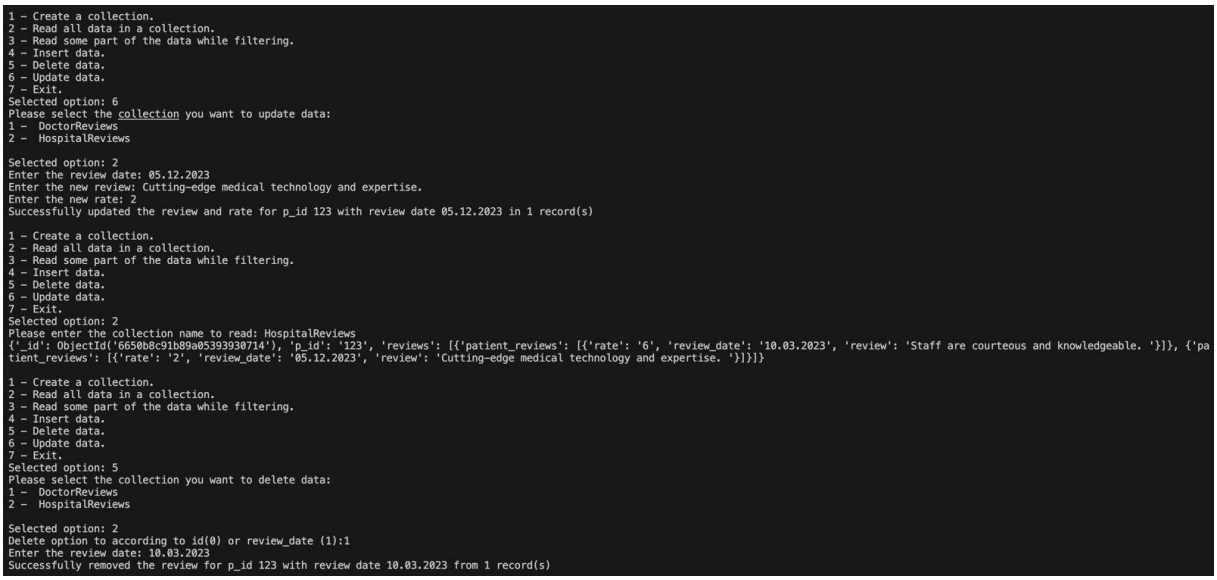
```
1 - Create a collection.
2 - Read all data in a collection.
3 - Read some part of the data while filtering.
4 - Insert data.
5 - Delete data.
6 - Update data.
7 - Exit.
Selected option: 2
Please enter the collection name to read: DoctorReviews
{'_id': ObjectId('6650b5fd1b89a05393930713'), 'p_id': '123', 'reviews': [{'patient_reviews': [{'doctor_name': 'Dr.Lee', 'appointment_time': '23.06.2024', 'review': 'It was good.'}]}, {'patient_revi
ews': [{'doctor_name': 'Dr.Garcia', 'appointment_time': '13.05.2023', 'review': 'Highly skilled and experienced. '}]}]}

1 - Create a collection.
2 - Read all data in a collection.
3 - Read some part of the data while filtering.
4 - Insert data.
5 - Delete data.
6 - Update data.
7 - Exit.
Selected option: 6
Please select the collection you want to update data:
1 -  DoctorReviews
2 -  HospitalReviews

Selected option: 1
Enter the Doctor name: Dr.Garcia
Enter the appointment time: 13.05.2023
Enter the new review: Highly knowledgeable and attentive.
Successfully updated the review for doctor Dr.Garcia with appointment time 13.05.2023 in 1 record(s)

1 - Create a collection.
2 - Read all data in a collection.
3 - Read some part of the data while filtering.
4 - Insert data.
5 - Delete data.
6 - Update data.
7 - Exit.
Selected option: 2
Please enter the collection name to read: DoctorReviews
{'_id': ObjectId('6650b5fd1b89a05393930713'), 'p_id': '123', 'reviews': [{'patient_reviews': [{'doctor_name': 'Dr.Lee', 'appointment_time': '23.06.2024', 'review': 'It was good.'}]}, {'patient_revi
ews': [{'doctor_name': 'Dr.Garcia', 'appointment_time': '13.05.2023', 'review': 'Highly knowledgeable and attentive. '}]}]}
```

For Hospital Reviews:



5-Filtering Data

For Doctor Reviews:

For Hospital Reviews:

```
1 - Create a collection.
2 - Read all data in a collection.
3 - Read some part of the data while filtering.
4 - Insert data.
5 - Delete data.
6 - Update data.
7 - Exit.
Selected option: 2
Please enter the collection name to read: HospitalReviews
{'_id': ObjectId('6650e06fe5249f60907bba3e'), 'p_id': '4321', 'reviews': [{'patient_reviews': [{'rate': '5', 'review_date': '13.12.2023', 'review': 'Fantastic doctor who truly cares about his patie
nts.'}]}]}
{'_id': ObjectId('6650e471e4f97d90169e4047'), 'p_id': '3223', 'reviews': [{'patient_reviews': [{'rate': '3', 'review_date': '23.12.2014', 'review': 'Provides comprehensive care with modern faciliti
es.'}]}]}

1 - Create a collection.
2 - Read all data in a collection.
3 - Read some part of the data while filtering.
4 - Insert data.
5 - Delete data.
6 - Update data.
7 - Exit.
Selected option: 3
Enter the collection name: HospitalReviews
Available top-level fields:
['_id', 'p_id', 'reviews']
Enter the field to filter: reviews.patient_reviews.rate
Enter the criteria value to read: 5
{'_id': ObjectId('6650e06fe5249f60907bba3e'), 'p_id': '4321', 'reviews': [{'patient_reviews': [{'rate': '5', 'review_date': '13.12.2023', 'review': 'Fantastic doctor who truly cares about his patie
nts.'}]}]}

1 - Create a collection.
2 - Read all data in a collection.
3 - Read some part of the data while filtering.
4 - Insert data.
5 - Delete data.
6 - Update data.
7 - Exit.
Selected option: 3
Enter the collection name: HospitalReviews
Available top-level fields:
['_id', 'p_id', 'reviews']
Enter the field to filter: p_id
Enter the criteria value to read: 3223
{'_id': ObjectId('6650e471e4f97d90169e4047'), 'p_id': '3223', 'reviews': [{'patient_reviews': [{'rate': '3', 'review_date': '23.12.2014', 'review': 'Provides comprehensive care with modern faciliti
es.'}]}]}
```

6-Delete Data

For Doctor Reviews:

```
1 - Create a collection.
2 - Read all data in a collection.
3 - Read some part of the data while filtering.
4 - Insert data.
5 - Delete data.
6 - Update data.
7 - Exit.
Selected option: 5
Please select the collection you want to delete data:
1 -  DoctorReviews
2 -  HospitalReviews

Selected option: 1
Delete option to according to id(0) or doctor name (1):1
Enter doctor name to delete:Dr.Garcia
Successfully removed reviews by Dr.Garcia from 1 record(s)

1 - Create a collection.
2 - Read all data in a collection.
3 - Read some part of the data while filtering.
4 - Insert data.
5 - Delete data.
6 - Update data.
7 - Exit.
Selected option: 2
Please enter the collection name to read: DoctorReviews
{'_id': ObjectId('6650b5fd1b89a05393930713'), 'p_id': '123', 'reviews': [{'patient_reviews': [{'doctor_name': 'Dr.Lee', 'appointment_time': '23.06.2024', 'review': 'It was good.'}]}, {'patient_revi
ews': []}]}
```

For Hospital Reviews:

```
1 - Create a collection.
2 - Read all data in a collection.
3 - Read some part of the data while filtering.
4 - Insert data.
5 - Delete data.
6 - Update data.
7 - Exit.
Selected option: 5
Please select the collection you want to delete data:
1 -  DoctorReviews
2 -  HospitalReviews

Selected option: 2
Delete option to according to id(0) or review_date (1):0
Enter p_id to delete:123
Successfully deleted record with ID 123

1 - Create a collection.
2 - Read all data in a collection.
3 - Read some part of the data while filtering.
4 - Insert data.
5 - Delete data.
6 - Update data.
7 - Exit.
Selected option: 2
Please enter the collection name to read: HospitalReviews
```

Conclusion

This project demonstrates the creation of a review management system using MongoDB Atlas. The system supports CRUD operations on reviews related to doctors and hospitals, providing a flexible and efficient way to manage review data. The use of PyMongo enables seamless interaction with the MongoDB database, allowing for robust data management and retrieval.

Future enhancements could include adding a web interface for better user interaction and integrating additional features such as authentication and authorization for added security.