

National Institute of Technology Meghalaya



Assignment No: 08

Student Name: Subhasish Dutta

Roll Number: T23CS001

Programme: Master of Technology

Department: Computer Science & Engineering

Semester: 1

Course Name: ADVANCED DBMS LAB

Course Code: CS553

```
import pymongo

client=pymongo.MongoClient("mongodb+srv://subhasishduttashuvo2018:shuvo634@cluster0.uwil4if.mongodb.net/?retryWrites=true&w=majority")

# Assignment 08
# Answer of the question 01

{
  "EmployeeID": 1,
  "FirstName": "John",
  "LastName": "Doe",
  "Age": 30,
  "Department": "IT",
  "Salary": 60000
}

{
  'EmployeeID': 1,
  'FirstName': 'John',
  'LastName': 'Doe',
  'Age': 30,
  'Department': 'IT',
  'Salary': 60000}

# Assignment 08
# Answer of the question 02

from pymongo import MongoClient

# Replace the connection string with your actual connection string
connection_string = "mongodb+srv://subhasishduttashuvo2018:shuvo634@cluster0.uwil4if.mongodb.net/?retryWrites=true&w=majority"

# Connect to the MongoDB server
client = MongoClient(connection_string)

# Replace 'Assignment_8' with your actual database name
db = client['Assignment_8']

# Replace 'Employee' with your actual collection name
collection = db['Employee']

# Employee data to insert
employee_data = [
    {
        "EmployeeID": 121,
        "FirstName": "Emma",
        "LastName": "Johnson",
        "Age": 30,
        "Department": "Human Resources",
        "Salary": 50000
    },
    {
        "EmployeeID": 134,
        "FirstName": "David",
        "LastName": "Smith",
        "Age": 34,
        "Department": "Marketing",
        "Salary": 55000
    },
    {
        "EmployeeID": 145,
        "FirstName": "Mia",
        "LastName": "Davis",
        "Age": 28,
        "Department": "Information Tech",
        "Salary": 62000
    },
    {
        "EmployeeID": 167,
        "FirstName": "Lucas",
        "LastName": "Brown",
        "Age": 40,
        "Department": "Sales",
        "Salary": 48000
    },
    {
        "EmployeeID": 153,
        "FirstName": "Sophia",
        "LastName": "Wilson",
        "Age": 33,
        "Department": "Research",
        "Salary": 53000
    }
]

# Insert the documents into the collection
result = collection.insert_many(employee_data)

# Print the inserted document IDs
print("Inserted document IDs:", result.inserted_ids)

# Print the inserted documents
inserted_documents = collection.find({"_id": {"$in": result.inserted_ids}})
print("Inserted Documents:")
for document in inserted_documents:
    print(document)

Inserted document IDs: [ObjectId('6563917c30cda43f78c967cd'), ObjectId('6563917c30cda43f78c967ce'), ObjectId('6563917c30cda43f78c967cf'), ObjectId('6563917c30cda43f78c967d0'), ObjectId('6563917c30cda43f78c967d1')]
Inserted Documents:
{'_id': ObjectId('6563917c30cda43f78c967cd'), 'EmployeeID': 121, 'FirstName': 'Emma', 'LastName': 'Johnson', 'Age': 30, 'Department': 'Human Resources', 'Salary': 50000}
{'_id': ObjectId('6563917c30cda43f78c967ce'), 'EmployeeID': 134, 'FirstName': 'David', 'LastName': 'Smith', 'Age': 34, 'Department': 'Marketing', 'Salary': 55000}
{'_id': ObjectId('6563917c30cda43f78c967cf'), 'EmployeeID': 145, 'FirstName': 'Mia', 'LastName': 'Davis', 'Age': 28, 'Department': 'Information Tech', 'Salary': 62000}
{'_id': ObjectId('6563917c30cda43f78c967d0'), 'EmployeeID': 167, 'FirstName': 'Lucas', 'LastName': 'Brown', 'Age': 40, 'Department': 'Sales', 'Salary': 48000}
{'_id': ObjectId('6563917c30cda43f78c967d1'), 'EmployeeID': 153, 'FirstName': 'Sophia', 'LastName': 'Wilson', 'Age': 33, 'Department': 'Research', 'Salary': 53000}
```

```
# Assignment 08
# Answer of the question 03

from pymongo import MongoClient

# Replace the connection string with your actual connection string
connection_string = "mongodb+srv://subhasishduttashuvo2018:shuvo634@cluster0.uwil4if.mongodb.net/?retryWrites=true&w=majority"

# Connect to the MongoDB server
client = MongoClient(connection_string)

# Replace 'Assignment_8' with your actual database name
db = client['Assignment_8']

# Replace 'Employee' with your actual collection name
collection = db['Employee']

# Find all employees
all_employees = collection.find()

# Print the result
print("All Employees:")
for employee in all_employees:
    print(employee)
```

```
All Employees:
{'_id': ObjectId('65638bd1ec9bc8e96c966258')}
{'_id': ObjectId('6563917c30cda43f78c967cd'), 'EmployeeID': 121, 'FirstName': 'Emma', 'LastName': 'Johnson', 'Age': 30, 'Department': 'Human Resources', 'Salary': 50000}
{'_id': ObjectId('6563917c30cda43f78c967ce'), 'EmployeeID': 134, 'FirstName': 'David', 'LastName': 'Smith', 'Age': 34, 'Department': 'Marketing', 'Salary': 55000}
{'_id': ObjectId('6563917c30cda43f78c967cf'), 'EmployeeID': 145, 'FirstName': 'Mia', 'LastName': 'Davis', 'Age': 28, 'Department': 'Information Tech', 'Salary': 62000}
{'_id': ObjectId('6563917c30cda43f78c967d0'), 'EmployeeID': 167, 'FirstName': 'Lucas', 'LastName': 'Brown', 'Age': 40, 'Department': 'Sales', 'Salary': 48000}
{'_id': ObjectId('6563917c30cda43f78c967d1'), 'EmployeeID': 153, 'FirstName': 'Sophia', 'LastName': 'Wilson', 'Age': 33, 'Department': 'Research', 'Salary': 53000}

# Assignment 08
# Answer of the question 04
```

```
from pymongo import MongoClient

# Replace the connection string with your actual connection string
connection_string = "mongodb+srv://subhasishduttashuvo2018:shuvo634@cluster0.uwil4if.mongodb.net/?retryWrites=true&w=majority"

# Connect to the MongoDB server
client = MongoClient(connection_string)

# Replace 'Assignment_8' with your actual database name
db = client['Assignment_8']

# Replace 'Employee' with your actual collection name
collection = db['Employee']

# Find all employees in the "Marketing" department
marketing_employees = collection.find({"Department": "Marketing"})

# Print the result
print("Marketing Employees:")
for employee in marketing_employees:
    print(employee)
```

```
Marketing Employees:
{'_id': ObjectId('6563917c30cda43f78c967ce'), 'EmployeeID': 134, 'FirstName': 'David', 'LastName': 'Smith', 'Age': 34, 'Department': 'Marketing', 'Salary': 55000}

# Assignment 08
# Answer of the question 05
```

```
from pymongo import MongoClient

# Replace the connection string with your actual connection string
connection_string = "mongodb+srv://subhasishduttashuvo2018:shuvo634@cluster0.uwil4if.mongodb.net/?retryWrites=true&w=majority"

# Connect to the MongoDB server
client = MongoClient(connection_string)

# Replace 'Assignment_8' with your actual database name
db = client['Assignment_8']

# Replace 'Employee' with your actual collection name
collection = db['Employee']

# Find all employees whose age is greater than or equal to 30
employees_above_30 = collection.find({"Age": {"$gte": 30}})

# Print the result
print("Employees Above 30:")
for employee in employees_above_30:
    print(employee)

Employees Above 30:
{'_id': ObjectId('6563917c30cda43f78c967cd'), 'EmployeeID': 121, 'FirstName': 'Emma', 'LastName': 'Johnson', 'Age': 30, 'Department': 'Human Resources', 'Salary': 50000}
{'_id': ObjectId('6563917c30cda43f78c967ce'), 'EmployeeID': 134, 'FirstName': 'David', 'LastName': 'Smith', 'Age': 34, 'Department': 'Marketing', 'Salary': 55000}
{'_id': ObjectId('6563917c30cda43f78c967d0'), 'EmployeeID': 167, 'FirstName': 'Lucas', 'LastName': 'Brown', 'Age': 40, 'Department': 'Sales', 'Salary': 48000}
{'_id': ObjectId('6563917c30cda43f78c967d1'), 'EmployeeID': 153, 'FirstName': 'Sophia', 'LastName': 'Wilson', 'Age': 33, 'Department': 'Research', 'Salary': 53000}
```

```
# Assignment 08
# Answer of the question 06
```

```
from pymongo import MongoClient

# Replace the connection string with your actual connection string
connection_string = "mongodb+srv://subhasishduttashuvo2018:shuvo634@cluster0.uwil4if.mongodb.net/?retryWrites=true&w=majority"

# Connect to the MongoDB server
client = MongoClient(connection_string)

# Replace 'Assignment_8' with your actual database name
db = client['Assignment_8']

# Replace 'Employee' with your actual collection name
collection = db['Employee']

# Find all employees whose salary is less than 50000
employees_below_50000 = collection.find({"Salary": {"$lt": 50000}})

# Print the result
print("Employees Below 50000 Salary:")
for employee in employees_below_50000:
    print(employee)

Employees Below 50000 Salary:
{'_id': ObjectId('6563917c30cda43f78c967d0'), 'EmployeeID': 167, 'FirstName': 'Lucas', 'LastName': 'Brown', 'Age': 40, 'Department': 'Sales', 'Salary': 48000}
```

```
# Assignment 08
# Answer of the question 07
```

```
from pymongo import MongoClient

# Replace the connection string with your actual connection string
connection_string = "mongodb+srv://subhasishduttashuvo2018:shuvo634@cluster0.uwil4if.mongodb.net/?retryWrites=true&w=majority"

# Connect to the MongoDB server
client = MongoClient(connection_string)

# Replace 'Assignment_8' with your actual database name
db = client['Assignment_8']

# Replace 'Employee' with your actual collection name
collection = db['Employee']

# Find first name and salary of all employees in the "Information Tech" department
it_employees_info = collection.find(
    {"Department": "Information Tech"},
    {"FirstName": 1, "Salary": 1, "_id": 0} # Projection to include only FirstName and Salary
)

# Print the result
print("Information Tech Employees:")
for employee_info in it_employees_info:
    print(employee_info)

Information Tech Employees:
{'FirstName': 'Mia', 'Salary': 62000}
```

```
# Assignment 08
# Answer of the question 08
```

```
from pymongo import MongoClient

# Replace the connection string with your actual connection string
connection_string = "mongodb+srv://subhasishduttashuvo2018:shuvo634@cluster0.uwil4if.mongodb.net/?retryWrites=true&w=majority"

# Connect to the MongoDB server
client = MongoClient(connection_string)

# Replace 'Assignment_8' with your actual database name
db = client['Assignment_8']

# Replace 'Employee' with your actual collection name
collection = db['Employee']

# Find all employees in descending order of salary
employees_sorted_by_salary = collection.find().sort("Salary", -1)

# Print the result
print("Employees in Descending Order of Salary:")
for employee in employees_sorted_by_salary:
    print(employee)

Employees in Descending Order of Salary:
{'_id': ObjectId('6563917c30cda43f78c967cf'), 'EmployeeID': 145, 'FirstName': 'Mia', 'LastName': 'Davis', 'Age': 28, 'Department': 'Information Tech', 'Salary': 62000}
{'_id': ObjectId('6563917c30cda43f78c967ce'), 'EmployeeID': 134, 'FirstName': 'David', 'LastName': 'Smith', 'Age': 34, 'Department': 'Marketing', 'Salary': 55000}
{'_id': ObjectId('6563917c30cda43f78c967d1'), 'EmployeeID': 153, 'FirstName': 'Sophia', 'LastName': 'Wilson', 'Age': 33, 'Department': 'Research', 'Salary': 53000}
{'_id': ObjectId('6563917c30cda43f78c967cd'), 'EmployeeID': 121, 'FirstName': 'Emma', 'LastName': 'Johnson', 'Age': 30, 'Department': 'Human Resources', 'Salary': 50000}
{'_id': ObjectId('6563917c30cda43f78c967d0'), 'EmployeeID': 167, 'FirstName': 'Lucas', 'LastName': 'Brown', 'Age': 40, 'Department': 'Sales', 'Salary': 48000}
{'_id': ObjectId('65638bd1ec9bc8e96c966258')}
```

```
# Assignment 08
# Answer of the question 09

from pymongo import MongoClient

# Replace the connection string with your actual connection string
connection_string = "mongodb+srv://subhasishduttashuvo2018:shuvo634@cluster0.uwil4if.mongodb.net/?retryWrites=true&w=majority"

# Connect to the MongoDB server
client = MongoClient(connection_string)

# Replace 'Assignment_8' with your actual database name
db = client['Assignment_8']

# Replace 'Employee' with your actual collection name
collection = db['Employee']

# Find the oldest employee
oldest_employee = collection.find().sort("Age", -1).limit(1)

# Print the result
print("Oldest Employee:")
for employee in oldest_employee:
    print(employee)

Oldest Employee:
{'_id': ObjectId('6563917c30cda43f78c967d0'), 'EmployeeID': 167, 'FirstName': 'Lucas', 'LastName': 'Brown', 'Age': 40, 'Department': 'Sales', 'Salary': 48000}
```