Q1-Write a MongoDB query to find all students excluding _id and LastName Field

```python
for i in collection.find({},{"_id": 0, "LastName": 0}):
    print(i)
```
[22] ✓ 0.0s   Python

```
{'RollNum': 43, 'FirstName': 'John', 'Age': 21, 'Department': 'Computer Science', 'Mark': 83}
{'RollNum': 67, 'FirstName': 'Alice', 'Age': 27, 'Department': 'Physical Science', 'Mark': 59}
{'RollNum': 23, 'FirstName': 'Bob', 'Age': 22, 'Department': 'Computer Science', 'Mark': 86}
{'RollNum': 18, 'FirstName': 'Eve', 'Age': 20, 'Department': 'Mathematics', 'Mark': 56}
{'RollNum': 84, 'FirstName': 'Mike', 'Age': 24, 'Department': 'Physical Science', 'Mark': 92}
{'RollNum': 43, 'FirstName': 'John', 'Age': 21, 'Department': 'Computer Science', 'Mark': 83}
{'RollNum': 67, 'FirstName': 'Alice', 'Age': 23, 'Department': 'Physical Science', 'Mark': 59}
{'RollNum': 23, 'FirstName': 'Bob', 'Age': 22, 'Department': 'Computer Science', 'Mark': 86}
{'RollNum': 18, 'FirstName': 'Eve', 'Age': 20, 'Department': 'Mathematics', 'Mark': 56}
{'RollNum': 84, 'FirstName': 'Mike', 'Age': 24, 'Department': 'Physical Science', 'Mark': 92}
```

Q2-Update the student's age with Rollnum 67 to 26 years

```python
collection.update_one({"RollNum": 67}, {"$set": {"Age": 26}})
db.Student.find_one({"RollNum": 67})
```
[23] ✓ 0.0s   Python

```
{'_id': ObjectId('6554879cb9b9bd1b857c5fcf'),
 'RollNum': 67,
 'FirstName': 'Alice',
 'LastName': 'Smith',
 'Age': 26,
 'Department': 'Physical Science',
 'Mark': 59}
```

Q3-Increase the Age of all students by 1

```python
collection.update_many({}, {"$inc": {"Age": 1}})
for i in collection.find():
    print(i)
```
[24] ✓ 0.0s   Python

```
{'_id': ObjectId('6554879cb9b9bd1b857c5fce'), 'RollNum': 43, 'FirstName': 'John', 'LastName': 'Doe', 'Age': 22, 'Department': 'Computer Science', 'Mark':
{'_id': ObjectId('6554879cb9b9bd1b857c5fcf'), 'RollNum': 67, 'FirstName': 'Alice', 'LastName': 'Smith', 'Age': 27, 'Department': 'Physical Science', 'Mar
{'_id': ObjectId('6554879cb9b9bd1b857c5fd0'), 'RollNum': 23, 'FirstName': 'Bob', 'LastName': 'Johnson', 'Age': 23, 'Department': 'Computer Science', 'Mar
{'_id': ObjectId('6554879cb9b9bd1b857c5fd1'), 'RollNum': 18, 'FirstName': 'Eve', 'LastName': 'Adams', 'Age': 21, 'Department': 'Mathematics', 'Mark': 56
{'_id': ObjectId('6554879cb9b9bd1b857c5fd2'), 'RollNum': 84, 'FirstName': 'Mike', 'LastName': 'Brown', 'Age': 25, 'Department': 'Physical Science', 'Mar
{'_id': ObjectId('6559b026d4126227e5bf6200'), 'RollNum': 43, 'FirstName': 'John', 'LastName': 'Doe', 'Age': 22, 'Department': 'Computer Science', 'Mark':
{'_id': ObjectId('6559b026d4126227e5bf6201'), 'RollNum': 67, 'FirstName': 'Alice', 'LastName': 'Smith', 'Age': 24, 'Department': 'Physical Science', 'Mar
{'_id': ObjectId('6559b026d4126227e5bf6202'), 'RollNum': 23, 'FirstName': 'Bob', 'LastName': 'Johnson', 'Age': 23, 'Department': 'Computer Science', 'Mar
{'_id': ObjectId('6559b026d4126227e5bf6203'), 'RollNum': 18, 'FirstName': 'Eve', 'LastName': 'Adams', 'Age': 21, 'Department': 'Mathematics', 'Mark': 56
{'_id': ObjectId('6559b026d4126227e5bf6204'), 'RollNum': 84, 'FirstName': 'Mike', 'LastName': 'Brown', 'Age': 25, 'Department': 'Physical Science', 'Mar
```

Q4-Increment 5 Mark for all students in the "Computer Science" department

```python
collection.update_many({"Department": "Computer Science"}, {"$inc": { "Mark": 5}})
for i in collection.find():
    print(i)
```
[25] ✓ 0.0s   Python

```
{'_id': ObjectId('6554879cb9b9bd1b857c5fce'), 'RollNum': 43, 'FirstName': 'John', 'LastName': 'Doe', 'Age': 22, 'Department': 'Computer Science', 'Mark
{'_id': ObjectId('6554879cb9b9bd1b857c5fcf'), 'RollNum': 67, 'FirstName': 'Alice', 'LastName': 'Smith', 'Age': 27, 'Department': 'Physical Science', 'M
{'_id': ObjectId('6554879cb9b9bd1b857c5fd0'), 'RollNum': 23, 'FirstName': 'Bob', 'LastName': 'Johnson', 'Age': 23, 'Department': 'Computer Science', 'M
{'_id': ObjectId('6554879cb9b9bd1b857c5fd1'), 'RollNum': 18, 'FirstName': 'Eve', 'LastName': 'Adams', 'Age': 21, 'Department': 'Mathematics', 'Mark': 5
{'_id': ObjectId('6554879cb9b9bd1b857c5fd2'), 'RollNum': 84, 'FirstName': 'Mike', 'LastName': 'Brown', 'Age': 25, 'Department': 'Physical Science', 'Ma
{'_id': ObjectId('6559b026d4126227e5bf6200'), 'RollNum': 43, 'FirstName': 'John', 'LastName': 'Doe', 'Age': 22, 'Department': 'Computer Science', 'Mark
{'_id': ObjectId('6559b026d4126227e5bf6201'), 'RollNum': 67, 'FirstName': 'Alice', 'LastName': 'Smith', 'Age': 24, 'Department': 'Physical Science', 'M
{'_id': ObjectId('6559b026d4126227e5bf6202'), 'RollNum': 23, 'FirstName': 'Bob', 'LastName': 'Johnson', 'Age': 23, 'Department': 'Computer Science', 'M
{'_id': ObjectId('6559b026d4126227e5bf6203'), 'RollNum': 18, 'FirstName': 'Eve', 'LastName': 'Adams', 'Age': 21, 'Department': 'Mathematics', 'Mark': 5
{'_id': ObjectId('6559b026d4126227e5bf6204'), 'RollNum': 84, 'FirstName': 'Mike', 'LastName': 'Brown', 'Age': 25, 'Department': 'Physical Science', 'Ma
```

Q5-Reduce 10 Marks for students in the "Mathematics" department.

```python
collection.update_many({"Department": "Mathematic"}, {"$inc": {"Mark":-10}})
for i in collection.find():
    print(i)
```

```
[26]  ✓ 0.0s                                                                    Python
...  {'_id': ObjectId('6554879cb9b9bd1b857c5fce'), 'RollNum': 43, 'FirstName': 'John', 'LastName': 'Doe', 'Age': 22, 'Department': 'Computer Science', 'Mark
     {'_id': ObjectId('6554879cb9b9bd1b857c5fcf'), 'RollNum': 67, 'FirstName': 'Alice', 'LastName': 'Smith', 'Age': 27, 'Department': 'Physical Science', 'M
     {'_id': ObjectId('6554879cb9b9bd1b857c5fd0'), 'RollNum': 23, 'FirstName': 'Bob', 'LastName': 'Johnson', 'Age': 23, 'Department': 'Computer Science', 'M
     {'_id': ObjectId('6554879cb9b9bd1b857c5fd1'), 'RollNum': 18, 'FirstName': 'Eve', 'LastName': 'Adams', 'Age': 21, 'Department': 'Mathematics', 'Mark': 5
     {'_id': ObjectId('6554879cb9b9bd1b857c5fd2'), 'RollNum': 84, 'FirstName': 'Mike', 'LastName': 'Brown', 'Age': 25, 'Department': 'Physical Science', 'Ma
     {'_id': ObjectId('6559b026d4126227e5bf6200'), 'RollNum': 43, 'FirstName': 'John', 'LastName': 'Doe', 'Age': 22, 'Department': 'Computer Science', 'Mark
     {'_id': ObjectId('6559b026d4126227e5bf6201'), 'RollNum': 67, 'FirstName': 'Alice', 'LastName': 'Smith', 'Age': 24, 'Department': 'Physical Science', 'M
     {'_id': ObjectId('6559b026d4126227e5bf6202'), 'RollNum': 23, 'FirstName': 'Bob', 'LastName': 'Johnson', 'Age': 23, 'Department': 'Computer Science', 'M
     {'_id': ObjectId('6559b026d4126227e5bf6203'), 'RollNum': 18, 'FirstName': 'Eve', 'LastName': 'Adams', 'Age': 21, 'Department': 'Mathematics', 'Mark': 5
     {'_id': ObjectId('6559b026d4126227e5bf6204'), 'RollNum': 84, 'FirstName': 'Mike', 'LastName': 'Brown', 'Age': 25, 'Department': 'Physical Science', 'Ma
```

Q6-Update the Department name of all student in the "Physics" department to "Physics Science".

```python
collection.update_many({"Department":"Physics"}, {"$set":{"Department": "Physical science"}})
for i in collection.find():
    print(i)
```

```
[27]  ✓ 0.0s                                                                    Python
...  ObjectId('6554879cb9b9bd1b857c5fce'), 'RollNum': 43, 'FirstName': 'John', 'LastName': 'Doe', 'Age': 22, 'Department': 'Computer Science', 'Mark': 88}
     ObjectId('6554879cb9b9bd1b857c5fcf'), 'RollNum': 67, 'FirstName': 'Alice', 'LastName': 'Smith', 'Age': 27, 'Department': 'Physical Science', 'Mark': 59}
     ObjectId('6554879cb9b9bd1b857c5fd0'), 'RollNum': 23, 'FirstName': 'Bob', 'LastName': 'Johnson', 'Age': 23, 'Department': 'Computer Science', 'Mark': 91}
     ObjectId('6554879cb9b9bd1b857c5fd1'), 'RollNum': 18, 'FirstName': 'Eve', 'LastName': 'Adams', 'Age': 21, 'Department': 'Mathematics', 'Mark': 56}
     ObjectId('6554879cb9b9bd1b857c5fd2'), 'RollNum': 84, 'FirstName': 'Mike', 'LastName': 'Brown', 'Age': 25, 'Department': 'Physical Science', 'Mark': 92}
     ObjectId('6559b026d4126227e5bf6200'), 'RollNum': 43, 'FirstName': 'John', 'LastName': 'Doe', 'Age': 22, 'Department': 'Computer Science', 'Mark': 88}
     ObjectId('6559b026d4126227e5bf6201'), 'RollNum': 67, 'FirstName': 'Alice', 'LastName': 'Smith', 'Age': 24, 'Department': 'Physical Science', 'Mark': 59}
     ObjectId('6559b026d4126227e5bf6202'), 'RollNum': 23, 'FirstName': 'Bob', 'LastName': 'Johnson', 'Age': 23, 'Department': 'Computer Science', 'Mark': 91}
     ObjectId('6559b026d4126227e5bf6203'), 'RollNum': 18, 'FirstName': 'Eve', 'LastName': 'Adams', 'Age': 21, 'Department': 'Mathematics', 'Mark': 56}
     ObjectId('6559b026d4126227e5bf6204'), 'RollNum': 84, 'FirstName': 'Mike', 'LastName': 'Brown', 'Age': 25, 'Department': 'Physical Science', 'Mark': 92}
```

Q7-Calculate the average age of all students

```python
pipeline = [{"$group": {"_id":"null", "averageAge": {"$avg": "$Age"}}}]
result = list(collection.aggregate(pipeline))
print(result)
```

```
[31]  ✓ 0.0s                                                                    Python
...  [{'_id': 'null', 'averageAge': 23.3}]
```

Q8-Calculate the average Mark of all students in the "Physics Science" department.

```python
pipeline = [
    {"$match": {"Department": "Physical Science"}},
    {"$group": {"_id": "null", "averageMark": {"$avg": "$Mark"}}}
    ]
result = list(collection.aggregate(pipeline))
print(result)
```

```
[29]  ✓ 0.0s                                                                    Python
...  [{'_id': 'null', 'averageMark': 75.5}]
```

Q9-Remove all the students of the "Mathematics" department.

```python
collection.delete_many({"Department": "Mathematics"})
for i in collection.find():
    print(i)
```

```
[32]  ✓ 0.0s                                                                    Python
...  {'_id': ObjectId('6554879cb9b9bd1b857c5fce'), 'RollNum': 43, 'FirstName': 'John', 'LastName': 'Doe', 'Age': 22, 'Department': 'Computer Science', 'Mark
     {'_id': ObjectId('6554879cb9b9bd1b857c5fcf'), 'RollNum': 67, 'FirstName': 'Alice', 'LastName': 'Smith', 'Age': 27, 'Department': 'Physical Science', 'M
     {'_id': ObjectId('6554879cb9b9bd1b857c5fd0'), 'RollNum': 23, 'FirstName': 'Bob', 'LastName': 'Johnson', 'Age': 23, 'Department': 'Computer Science', 'M
     {'_id': ObjectId('6554879cb9b9bd1b857c5fd2'), 'RollNum': 84, 'FirstName': 'Mike', 'LastName': 'Brown', 'Age': 25, 'Department': 'Physical Science', 'Ma
     {'_id': ObjectId('6559b026d4126227e5bf6200'), 'RollNum': 43, 'FirstName': 'John', 'LastName': 'Doe', 'Age': 22, 'Department': 'Computer Science', 'Mark
     {'_id': ObjectId('6559b026d4126227e5bf6201'), 'RollNum': 67, 'FirstName': 'Alice', 'LastName': 'Smith', 'Age': 24, 'Department': 'Physical Science', 'M
     {'_id': ObjectId('6559b026d4126227e5bf6202'), 'RollNum': 23, 'FirstName': 'Bob', 'LastName': 'Johnson', 'Age': 23, 'Department': 'Computer Science', 'M
     {'_id': ObjectId('6559b026d4126227e5bf6204'), 'RollNum': 84, 'FirstName': 'Mike', 'LastName': 'Brown', 'Age': 25, 'Department': 'Physical Science', 'Ma
```

Q10-Remove all the students whose mark is less than 60.

```python
collection.delete_many({"Mark": {"$lt": 60}})
for i in collection.find():
    print(i)
```

[34] ✓ 0.0s   Python

```
{'_id': ObjectId('6554879cb9b9bd1b857c5fce'), 'RollNum': 43, 'FirstName': 'John', 'LastName': 'Doe', 'Age': 22, 'Department': 'Computer Science', 'Mark
{'_id': ObjectId('6554879cb9b9bd1b857c5fd0'), 'RollNum': 23, 'FirstName': 'Bob', 'LastName': 'Johnson', 'Age': 23, 'Department': 'Computer Science', 'M
{'_id': ObjectId('6554879cb9b9bd1b857c5fd2'), 'RollNum': 84, 'FirstName': 'Mike', 'LastName': 'Brown', 'Age': 25, 'Department': 'Physical Science', 'Ma
{'_id': ObjectId('6559b026d4126227e5bf6200'), 'RollNum': 43, 'FirstName': 'John', 'LastName': 'Doe', 'Age': 22, 'Department': 'Computer Science', 'Mark
{'_id': ObjectId('6559b026d4126227e5bf6202'), 'RollNum': 23, 'FirstName': 'Bob', 'LastName': 'Johnson', 'Age': 23, 'Department': 'Computer Science', 'M
{'_id': ObjectId('6559b026d4126227e5bf6204'), 'RollNum': 84, 'FirstName': 'Mike', 'LastName': 'Brown', 'Age': 25, 'Department': 'Physical Science', 'Ma
```