db.students.insertMany([

{ "\_id": 1, "name": "John", "age": 22, "course": "Mathematics", "marks": 85 },

{ "\_id": 2, "name": "Alice", "age": 23, "course": "Physics", "marks": 90 },

{ "\_id": 3, "name": "Bob", "age": 24, "course": "Chemistry", "marks": 75 },

{ "\_id": 4, "name": "Charlie", "age": 22, "course": "Biology", "marks": 88 },

{ "\_id": 5, "name": "David", "age": 25, "course": "Mathematics", "marks": 95 }

])

**1. Find all students whose age is greater than 23.**

2. Find students who are enrolled in "Mathematics".

3. Find students who scored above 80 marks.

4. Find the student with the name "Alice".

5. Update the marks of the student named "Bob" to 80.

6. Find students who are enrolled in either "Mathematics" or "Physics".

**7. Delete the student named "Charlie".**

8. Find the student with the highest marks in the "Mathematics" course.

9. Update the course of the student named "David" to "Physics"

10. Find students who have marks between 75 and 90 and are enrolled in either "Mathematics" or "Physics".

**Scenario: E-commerce Product Database**

We are building a database to manage products in an e-commerce platform. We need to store and manipulate product data such as:

* **Product Name**: Name of the product.
* **Category**: The category the product belongs to (e.g., Electronics, Clothing, Home Appliances).
* **Price**: Price of the product.
* **Stock**: The available stock quantity of the product.

**Insert Query**

First, let’s insert some products into the products collection:

db.products.insertMany([

{ "\_id": 1, "name": "Laptop", "category": "Electronics", "price": 1000, "stock": 50 },

{ "\_id": 2, "name": "Smartphone", "category": "Electronics", "price": 700, "stock": 100 },

{ "\_id": 3, "name": "T-shirt", "category": "Clothing", "price": 20, "stock": 200 },

{ "\_id": 4, "name": "Washing Machine", "category": "Home Appliances", "price": 500, "stock": 30 },

{ "\_id": 5, "name": "Headphones", "category": "Electronics", "price": 150, "stock": 150 },

{ "\_id": 6, "name": "Blender", "category": "Home Appliances", "price": 80, "stock": 80 },

{ "\_id": 7, "name": "Jeans", "category": "Clothing", "price": 40, "stock": 150 },

{ "\_id": 8, "name": "Microwave Oven", "category": "Home Appliances", "price": 120, "stock": 60 }

])

Questions:

1. Update the price of all products in the "Electronics" category by 10% if their stock is greater than 100
2. Find the total number of products in the "Home Appliances" category that are in stock (stock > 0).
3. Find the most expensive product in the "Clothing" category and update its stock to 100.
4. Find all products that have a price between $50 and $500, and reduce their price by 5%.
5. Find all products with a stock of less than 50, and delete them.
6. Find all products in the "Electronics" category and sort them by price in descending order, then limit the result to the top 3 most expensive products.
7. Find all products that have "Microwave" in their name and are either in the "Home Appliances" category or have stock greater than 50.
8. Find all products in the "Clothing" category that have stock less than 100 and price greater than $30, and update their price by increasing it by 15%.