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Batch: 49

Q1

Query

```
db.products.insertMany([
  { "product_id": 2021, "name": "Laptop", "brand": "Dell", "price": 802,
    "stock": 50 },
  { "product_id": 2012, "name": "Smartphone", "brand": "Samsung", "price":
    603, "stock": 200 },
  { "product_id": 2023, "name": "Headphones", "brand": "Sony", "price": 157,
    "stock": 2045 }
]);

db.products.insertOne({
  "product_id": 2042,
  "name": "Tablet",
  "brand": "Apple",
  "price": 9000000000000000,
  "stock": 01
});
```

Output

```
{
  "acknowledged" : true,
  "insertedIds" : [
    ObjectId("673de9fadb5605ecdb781aec"),
    ObjectId("673de9fadb5605ecdb781aed"),
    ObjectId("673de9fadb5605ecdb781aee")
  ]
}
{
  "acknowledged" : true,
  "insertedId" : ObjectId("673de9fadb5605ecdb781aef")
}
```

Q2

Query

```
// a Retrieve all documents:

db.products.find({});

// b Retrieve only `name` and `price` fields, excluding `_id`:

db.products.find({}, { name: 1, price: 1, _id: 0 });

// c Find products with a price greater than 500:

db.products.find({ price: { $gt: 500 } });

// d Retrieve products where the brand is "Sony":

db.products.find({ brand: "Sony" });

// e Retrieve products with a price less than 500 and stock greater than 200:

db.products.find({ price: { $lt: 500 }, stock: { $gt: 200 } });

// f Retrieve products where the name starts with "S":

db.products.find({ name: { $regex: /^S/ } });
```

Output

```
{ "_id" : ObjectId("673de93a6080430c5525858a"), "product_id" : 201, "name" :
"Laptop", "brand" : "Dell", "price" : 800, "stock" : 50 }
{ "_id" : ObjectId("673de93a6080430c5525858b"), "product_id" : 202, "name" :
"Smartphone", "brand" : "Samsung", "price" : 600, "stock" : 200 }
{ "_id" : ObjectId("673de93a6080430c5525858c"), "product_id" : 203, "name" :
"Headphones", "brand" : "Sony", "price" : 150, "stock" : 200 }
{ "_id" : ObjectId("673de93a6080430c5525858d"), "product_id" : 204, "name" :
"Tablet", "brand" : "Apple", "price" : 700, "stock" : 30 }
{ "name" : "Laptop", "price" : 800 }
{ "name" : "Smartphone", "price" : 600 }
{ "name" : "Headphones", "price" : 150 }
{ "name" : "Tablet", "price" : 700 }
{ "_id" : ObjectId("673de93a6080430c5525858a"), "product_id" : 201, "name" :
"Laptop", "brand" : "Dell", "price" : 800, "stock" : 50 }
{ "_id" : ObjectId("673de93a6080430c5525858b"), "product_id" : 202, "name" :
```

```
"Smartphone", "brand" : "Samsung", "price" : 600, "stock" : 200 }
{ "_id" : ObjectId("673de93a6080430c5525858d"), "product_id" : 204, "name" :
"Tablet", "brand" : "Apple", "price" : 700, "stock" : 30 }
{ "_id" : ObjectId("673de93a6080430c5525858c"), "product_id" : 203, "name" :
"Headphones", "brand" : "Sony", "price" : 150, "stock" : 200 }
{ "_id" : ObjectId("673de93a6080430c5525858c"), "product_id" : 203, "name" :
"Headphones", "brand" : "Sony", "price" : 150, "stock" : 200 }
{ "_id" : ObjectId("673de93a6080430c5525858b"), "product_id" : 202, "name" :
"Smartphone", "brand" : "Samsung", "price" : 600, "stock" : 200 }
```

Q3

Query

```
// a Increase the price of all products by 10%:
db.products.updateMany({}, { $mul: { price: 1.10 } });

// b Update the stock of the product with `product_id: 102` to 120:
db.products.updateOne({ product_id: 102 }, { $set: { stock: 120 } });

// c Change the brand of all products where the brand is "Samsung" to "Samsung
Electronics":
db.products.updateMany({ brand: "Samsung" }, { $set: { brand: "Samsung
Electronics" } });

// d Add a new field `category` with value "Electronics" to all products:
db.products.updateMany({}, { $set: { category: "Electronics" } });

// e Check if a product with `product_id: 104` exists; if not, insert a new
document:
db.products.updateOne(
  { product_id: 104 },
  {
    $setOnInsert: {
      product_id: 104,
      name: "Tablet",
      brand: "Apple",
      price: 700,
      stock: 30,
      category: "Electronics"
    }
  }
)
```

```
},  
{ upsert: true }  
);
```

Output

```
{ "acknowledged" : true, "matchedCount" : 4, "modifiedCount" : 4 }  
{ "acknowledged" : true, "matchedCount" : 0, "modifiedCount" : 0 }  
{ "acknowledged" : true, "matchedCount" : 1, "modifiedCount" : 1 }  
{ "acknowledged" : true, "matchedCount" : 4, "modifiedCount" : 4 }  
{  
  "acknowledged" : true,  
  "matchedCount" : 0,  
  "modifiedCount" : 0,  
  "upsertedId" : ObjectId("673dec44ee0093466552723f")  
}
```

Q4

Query

```
// a Delete the product with `product_id: 103`:  
db.products.deleteOne({ product_id: 103 });  
  
// b Delete all products with a price less than 200:  
db.products.deleteMany({ price: { $lt: 200 } });  
  
// c Clear the entire products collection:  
db.products.deleteMany({});
```

Output

```
{ "acknowledged" : true, "deletedCount" : 0 }  
{ "acknowledged" : true, "deletedCount" : 1 }  
{ "acknowledged" : true, "deletedCount" : 4 }
```

Q5

Query

```

// a Retrieve all products, sorted by price in descending order:
db.products.find({}).sort({ price: -1 });

// b Fetch the first 3 products from the sorted list:
db.products.find({}).sort({ price: -1 }).limit(3);

// c Calculate the average price of all products:
db.products.aggregate([{$group: { _id: null, avgPrice: { $avg: "$price" } }
}]);

// d Group products by brand and count the number of products for each brand:
db.products.aggregate([{$group: { _id: "$brand", count: { $sum: 1 } } }]);

// e Insert the document:
db.products.insertOne({
  "product_id": 105,
  "name": "Smartwatch",
  "brand": "Apple",
  "price": 300,
  "stock": 50,
  "specifications": { "color": "Black", "battery": "24 hours", "warranty": "1
year" }
});

// f Find all products where `specifications.color` is "Black":
db.products.find({ "specifications.color": "Black" });

```

Output

```

{ "_id" : ObjectId("673ded992199abcc44c729dd"), "product_id" : 2042, "name" :
"Tablet", "brand" : "Apple", "price" : 990000000000000.1, "stock" : 1,
"category" : "Electronics" }
{ "_id" : ObjectId("673ded992199abcc44c729da"), "product_id" : 2021, "name" :
"Laptop", "brand" : "Dell", "price" : 882.2, "stock" : 50, "category" :
"Electronics" }
{ "_id" : ObjectId("673ded993ed4f0cf03b8b929"), "product_id" : 104, "brand" :
"Apple", "category" : "Electronics", "name" : "Tablet", "price" : 700, "stock"
: 30 }
{ "_id" : ObjectId("673ded992199abcc44c729db"), "product_id" : 2012, "name" :
"Smartphone", "brand" : "Samsung Electronics", "price" : 663.3000000000001,

```

```
"stock" : 200, "category" : "Electronics" }
{ "_id" : ObjectId("673ded992199abcc44c729dc"), "product_id" : 2023, "name" :
"Headphones", "brand" : "Sony", "price" : 172.70000000000002, "stock" : 2045,
"category" : "Electronics" }
{ "_id" : ObjectId("673ded992199abcc44c729dd"), "product_id" : 2042, "name" :
"Tablet", "brand" : "Apple", "price" : 990000000000000.1, "stock" : 1,
"category" : "Electronics" }
{ "_id" : ObjectId("673ded992199abcc44c729da"), "product_id" : 2021, "name" :
"Laptop", "brand" : "Dell", "price" : 882.2, "stock" : 50, "category" :
"Electronics" }
{ "_id" : ObjectId("673ded993ed4f0cf03b8b929"), "product_id" : 104, "brand" :
"Apple", "category" : "Electronics", "name" : "Tablet", "price" : 700, "stock"
: 30 }
{ "_id" : null, "avgPrice" : 1980000000000483.7 }
{ "_id" : "Apple", "count" : 2 }
{ "_id" : "Samsung Electronics", "count" : 1 }
{ "_id" : "Sony", "count" : 1 }
{ "_id" : "Dell", "count" : 1 }
{
    "acknowledged" : true,
    "insertedId" : ObjectId("673ded992199abcc44c729de")
}
{ "_id" : ObjectId("673ded992199abcc44c729de"), "product_id" : 105, "name" :
"Smartwatch", "brand" : "Apple", "price" : 300, "stock" : 50, "specifications"
: { "color" : "Black", "battery" : "24 hours", "warranty" : "1 year" } }
```