

P06.2

Base de Datos para Computo en la Nube | Unidad 3



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Desarrollo de software multiplataforma, 5° A

INTRODUCCIÓN

Se desarrollaron las siguientes actividades en MongoDB:

1. \$group: agrupar los productos por categoría y calcular el precio promedio y la cantidad total de stock de cada categoría.
2. \$match: buscar los productos con precio menor o igual a 100.
3. \$sample: obtener una muestra aleatoria de 2 documentos de la colección.
4. \$project: mostrar solo los campos name, category y stock de los documentos.
5. \$addFields: agregar un campo discountedPrice a cada documento con un valor igual al 10% de descuento sobre el precio
6. \$sort: ordenar los productos por precio de manera ascendente.

Desarrollo y Pruebas

Agregar objetos en la colección 'productos'.

```
db.products.insertMany([
  { "name": "iPhone 12", "price": 999, "category": "Electronics", "stock": 100 },
  { "name": "Samsung Galaxy S21", "price": 899, "category": "Electronics", "stock": 50 },
  { "name": "Macbook Pro", "price": 1999, "category": "Electronics", "stock": 20 },
  { "name": "iPad Air", "price": 599, "category": "Electronics", "stock": 75 },
  { "name": "Nike Air Max 270", "price": 150, "category": "Shoes", "stock": 200 },
  { "name": "Adidas Superstar", "price": 80, "category": "Shoes", "stock": 300 }
]);
```

```
3  "insertedIds": {
4    "0": {
5      "$oid": "63ff6fb8c527f6457362d375"
6    },
7    "1": {
8      "$oid": "63ff6fb8c527f6457362d376"
9    },
10   "2": {
11     "$oid": "63ff6fb8c527f6457362d377"
12   },
13   "3": {
14     "$oid": "63ff6fb8c527f6457362d378"
15   },
16   "4": {
17     "$oid": "63ff6fb8c527f6457362d379"
18   },
19   "5": {
20     "$oid": "63ff6fb8c527f6457362d37a"
21   }
22 }
23 }
```

1.

```
> 5 > BD para Cómputo en la Nube > db.mongod
db.products.aggregate([
  {
    $group: {
      _id: "$category",
      avgPrice: {$avg: "$price"},
      totalStock: {$sum: "$stock"}
    }
  }
]);
```

```
1  [
2  {
3    "_id": "Electronics",
4    "avgPrice": 1124,
5    "totalStock": 245
6  },
7  {
8    "_id": "Shoes",
9    "avgPrice": 115,
10   "totalStock": 500
11  }
12 ]
```

2.

```
> 5 > BD para Cómputo en la Nube > db.mongod
db.products.aggregate([
  {
    $match: {
      price: {$lte: 100}
    }
  }
]);
```

```
1  [
2  {
3    "_id": {
4      "$oid": "63ff6fb8c527f6457362d37a"
5    },
6    "name": "Adidas Superstar",
7    "price": 80,
8    "category": "Shoes",
9    "stock": 300
10  }
11 ]
```

3.

```
> 5 > BD para Cómputo en la Nube > db.mongod
db.products.aggregate([
  {
    $sample: {size: 2}
  }
]);
```

```
1  [
2  {
3    "_id": {
4      "$oid": "63ff6fb8c527f6457362d37a"
5    },
6    "name": "Adidas Superstar",
7    "price": 80,
8    "category": "Shoes",
9    "stock": 300
10  },
11  {
12    "_id": {
13      "$oid": "63ff6fb8c527f6457362d378"
14    },
15    "name": "iPad Air",
16    "price": 500,
17    "category": "Electronics",
18    "stock": 75
19  }
20 ]
```

4.

```
> 5 > BD para Cómputo en la Nube > db.mongod
db.products.aggregate([
  {
    $project: {
      _id: 0,
      name: 1,
      category: 1,
      stock: 1
    }
  }
]);
```

```
1 {
2 {
3   "name": "iPhone 12",
4   "category": "Electronics",
5   "stock": 100
6 },
7 {
8   "name": "Samsung Galaxy S21",
9   "category": "Electronics",
10  "stock": 50
11 },
12 {
13   "name": "Macbook Pro",
14   "category": "Electronics",
15   "stock": 20
16 },
17 {
18   "name": "iPad Air",
19   "category": "Electronics",
20   "stock": 75
21 },
22 {
23   "name": "Nike Air Max 270",
24   "category": "Shoes",
25   "stock": 200
26 },
27 {
28   "name": "Adidas Superstar",
29   "category": "Shoes",
30   "stock": 300
31 }
32 }
```

5.

```
> 5 > BD para Cómputo en la Nube > db.mongod
db.products.aggregate([
  {
    $addFields: {
      discountedPrice: {$multiply: ['$price', 0.9]}
    }
  }
]);
```

```
1 {
2 {
3   "_id": {
4     "$oid": "63ff6fb8c527f6457362d375"
5   },
6   "name": "iPhone 12",
7   "price": 999,
8   "category": "Electronics",
9   "stock": 100,
10  "discountedPrice": 899.1
11 },
12 {
13   "_id": {
14     "$oid": "63ff6fb8c527f6457362d376"
15   },
16   "name": "Samsung Galaxy S21",
17   "price": 899,
18   "category": "Electronics",
19   "stock": 50,
20   "discountedPrice": 809.1
21 },
22 {
23   "_id": {
24     "$oid": "63ff6fb8c527f6457362d377"
25   },
26   "name": "Macbook Pro",
27   "price": 1999,
28   "category": "Electronics",
29   "stock": 20,
30   "discountedPrice": 1799.1000000000001
31 },
32 {
33   "_id": {
34     "$oid": "63ff6fb8c527f6457362d378"
35   },
36   "name": "iPad Air",
37   "price": 599,
38   "category": "Electronics",
39   "stock": 75,
40   "discountedPrice": 539.1
41 },
42 {
43   "_id": {
44     "$oid": "63ff6fb8c527f6457362d379"
45   },
46   "name": "Nike Air Max 270",
47   "price": 150,
48   "category": "Shoes",
49   "stock": 200,
50   "discountedPrice": 135
51 }
```

3

6.

```
> 5 > BD para Cómputo en la Nube > db.mongod
db.products.aggregate([
  {
    $sort: {
      price: 1
    }
  }
]);
```

```
1
2
3 {
4   "_id": {
5     "$oid": "63ff6fb8c527f6457362d37a"
6   },
7   "name": "Adidas Superstar",
8   "price": 80,
9   "category": "Shoes",
10  "stock": 300
11 },
12 {
13   "_id": {
14     "$oid": "63ff6fb8c527f6457362d379"
15   },
16   "name": "Nike Air Max 270",
17   "price": 150,
18   "category": "Shoes",
19   "stock": 200
20 },
21 {
22   "_id": {
23     "$oid": "63ff6fb8c527f6457362d378"
24   },
25   "name": "iPad Air",
26   "price": 599,
27   "category": "Electronics",
28   "stock": 75
29 },
30 {
31   "_id": {
32     "$oid": "63ff6fb8c527f6457362d376"
33   },
34   "name": "Samsung Galaxy S21",
35   "price": 899,
36   "category": "Electronics",
37   "stock": 50
38 },
39 {
40   "_id": {
41     "$oid": "63ff6fb8c527f6457362d375"
42   },
43   "name": "iPhone 12",
44   "price": 999,
45   "category": "Electronics",
46   "stock": 100
47 },
```