IT2234 (p) Web Service and Server Technologies.
University of Vavuniya
Faculty of Applied science
Department of physical science
2021/ICT/24

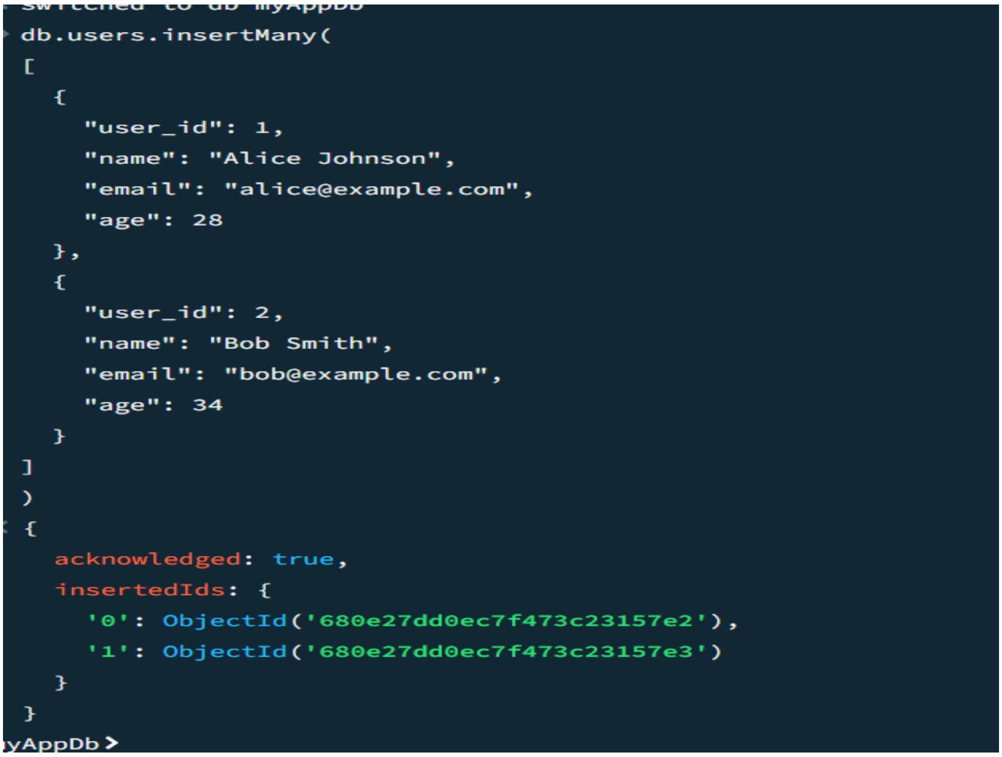
Date:24.04.2025

Practical : Introduction of MongoDB

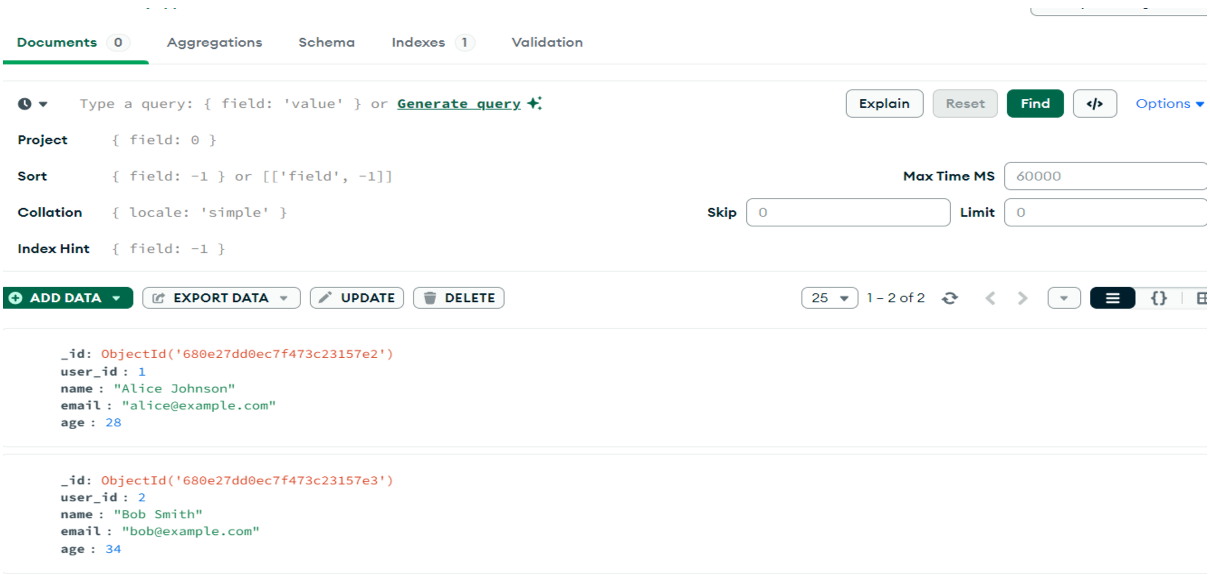
1. Create the Database myAppDb
2. Create collections users,orders and products. Insert documents

Users collection

```
db.users.insertMany(
[
 {
   "user_id": 1,
   "name": "Alice Johnson",
   "email": "alice@example.com",
   "age": 28
 },
 {
   "user_id": 2,
   "name": "Bob Smith",
   "email": "bob@example.com",
   "age": 34
 }
]
)
```



```
switched to db myAppDb
db.users.insertMany(
[
  {
    "user_id": 1,
    "name": "Alice Johnson",
    "email": "alice@example.com",
    "age": 28
  },
  {
    "user_id": 2,
    "name": "Bob Smith",
    "email": "bob@example.com",
    "age": 34
  }
]
)
{
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('680e27dd0ec7f473c23157e2'),
    '1': ObjectId('680e27dd0ec7f473c23157e3')
  }
}
yAppDb >
```

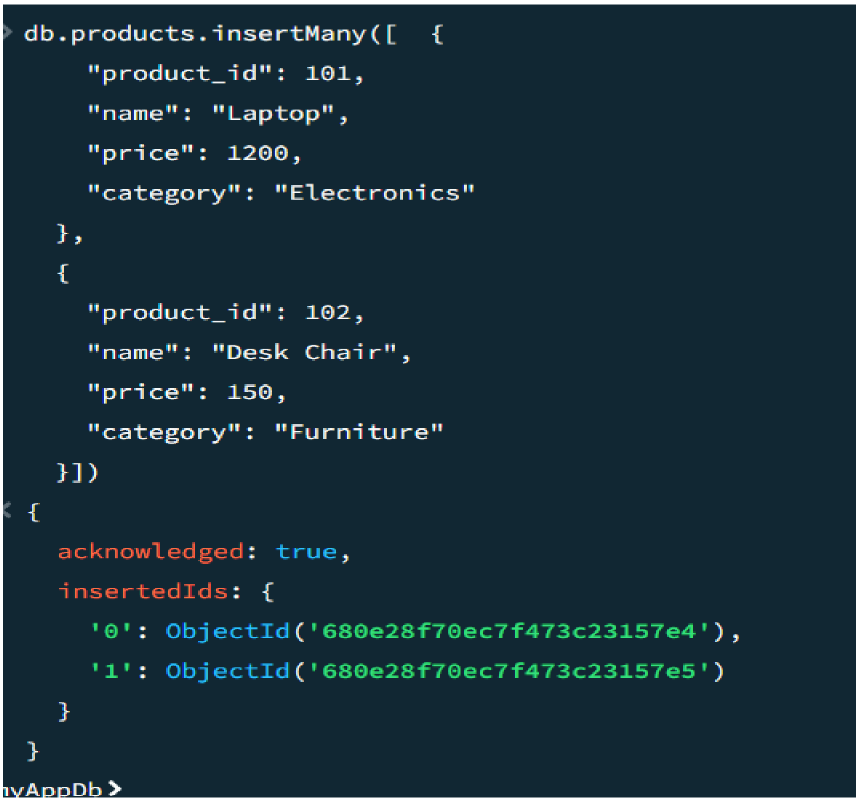


```
Project     { field: 0 }
Sort        { field: -1 } or [['field', -1]]        Max Time MS  60000
Collation   { locale: 'simple' }          Skip  0          Limit  0
Index Hint  { field: -1 }
```

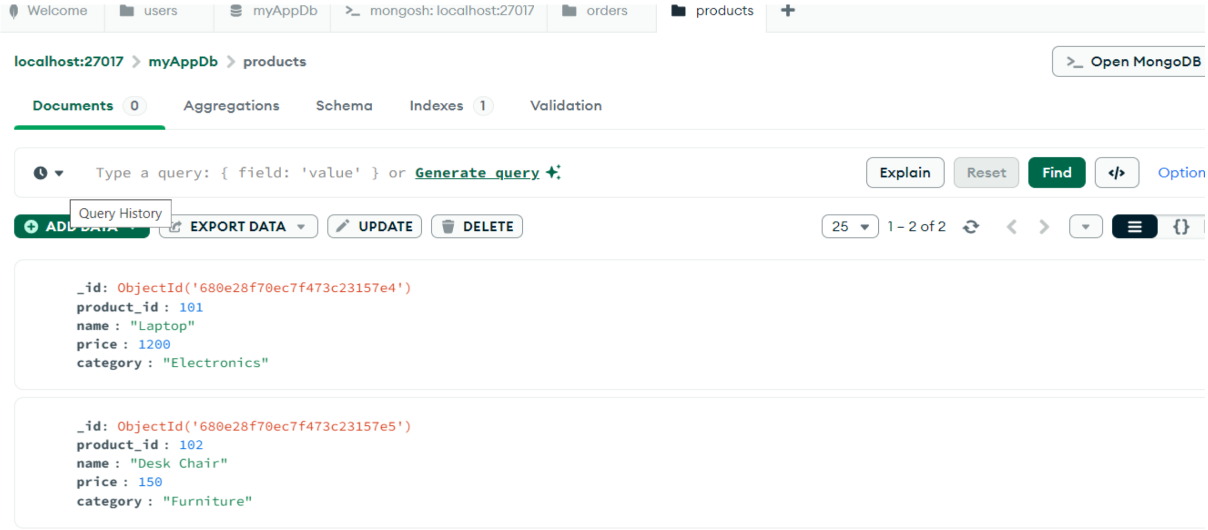
```
_id: ObjectId('680e27dd0ec7f473c23157e2')
user_id : 1
name : "Alice Johnson"
email : "alice@example.com"
age : 28

_id: ObjectId('680e27dd0ec7f473c23157e3')
user_id : 2
name : "Bob Smith"
email : "bob@example.com"
age : 34
```

Products collection

```
db.products.insertMany([  {

    "product_id": 101,

    "name": "Laptop",

    "price": 1200,

    "category": "Electronics"

  },

  {

    "product_id": 102,

    "name": "Desk Chair",

    "price": 150,

    "category": "Furniture"

  }])
```



```
> db.products.insertMany([  {
      "product_id": 101,
      "name": "Laptop",
      "price": 1200,
      "category": "Electronics"
    },
    {
      "product_id": 102,
      "name": "Desk Chair",
      "price": 150,
      "category": "Furniture"
    }])
< {
    acknowledged: true,
    insertedIds: {
      '0': ObjectId('680e28f70ec7f473c23157e4'),
      '1': ObjectId('680e28f70ec7f473c23157e5')
    }
  }
yAppDb >
```



```
_id: ObjectId('680e28f70ec7f473c23157e4')
product_id : 101
name : "Laptop"
price : 1200
category : "Electronics"

_id: ObjectId('680e28f70ec7f473c23157e5')
product_id : 102
name : "Desk Chair"
price : 150
category : "Furniture"
```

Orders collection

db.orders.insertMany([

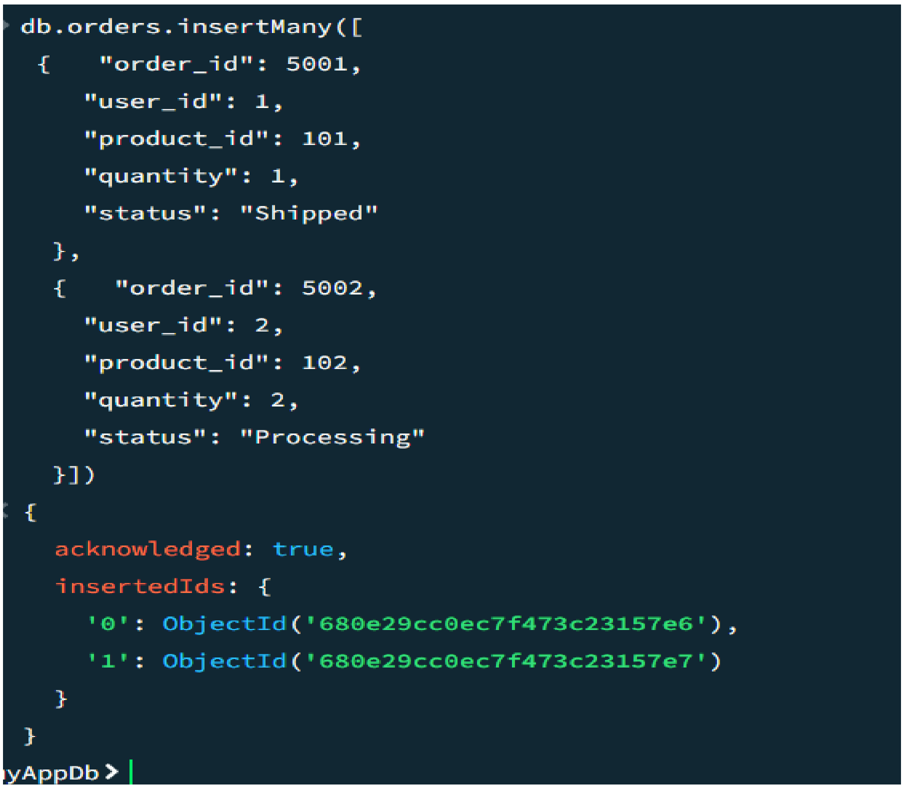
{   "order_id": 5001,

"user_id": 1,

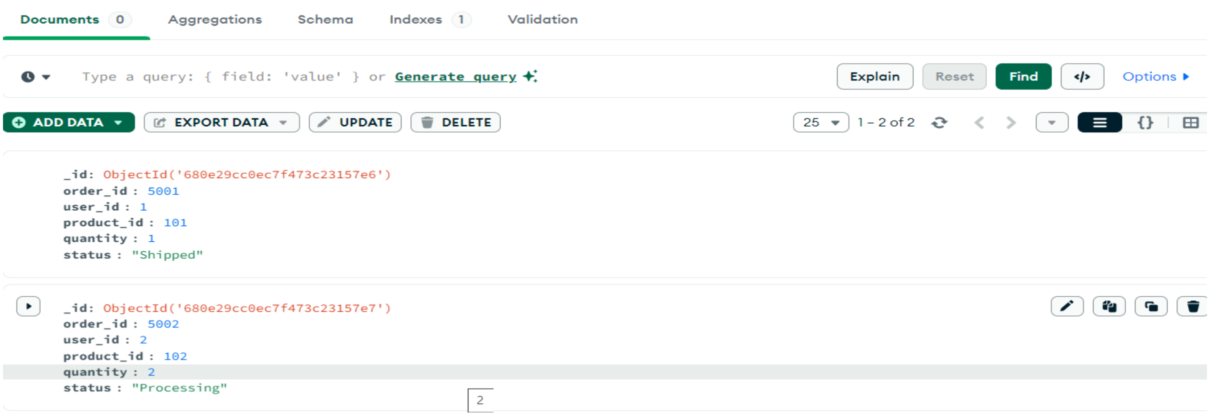
"product_id": 101,

"quantity": 1,

```
  "status": "Shipped"

 },

 {   "order_id": 5002,

  "user_id": 2,

  "product_id": 102,

  "quantity": 2,

  "status": "Processing"

 }])
```



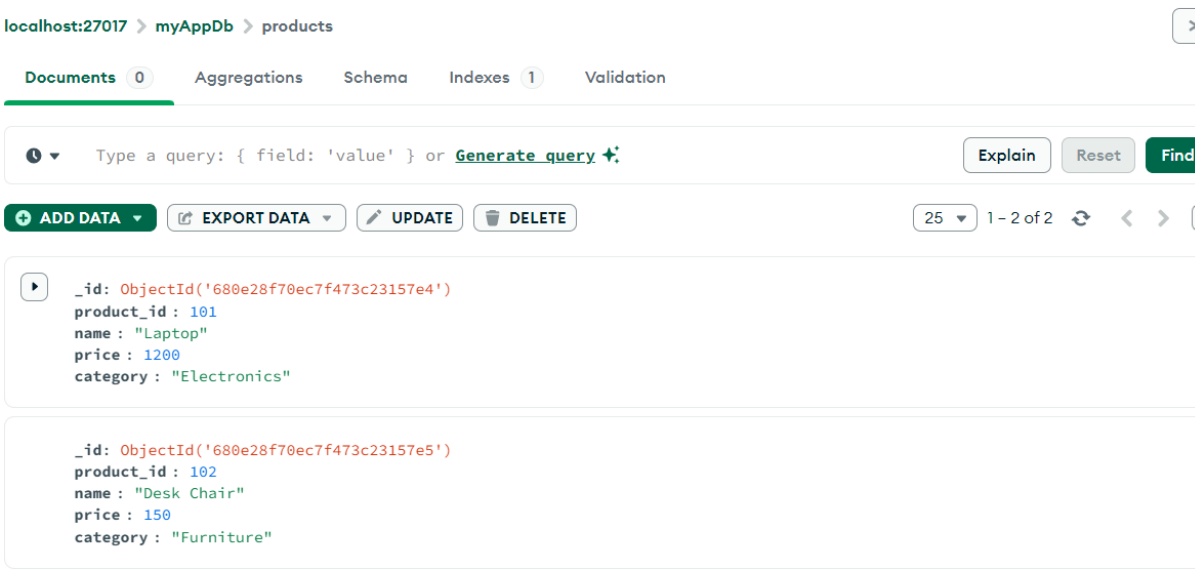
```
 db.orders.insertMany([
  {    "order_id": 5001,
     "user_id": 1,
     "product_id": 101,
     "quantity": 1,
     "status": "Shipped"
   },
   {    "order_id": 5002,
     "user_id": 2,
     "product_id": 102,
     "quantity": 2,
     "status": "Processing"
   }])
 {
   acknowledged: true,
   insertedIds: {
     '0': ObjectId('680e29cc0ec7f473c23157e6'),
     '1': ObjectId('680e29cc0ec7f473c23157e7')
   }
 }
yAppDb >
```



```
_id: ObjectId('680e29cc0ec7f473c23157e6')
order_id : 5001
user_id : 1
product_id : 101
quantity : 1
status : "Shipped"

_id: ObjectId('680e29cc0ec7f473c23157e7')
order_id : 5002
user_id : 2
product_id : 102
quantity : 2
status : "Processing"
```

Questions:

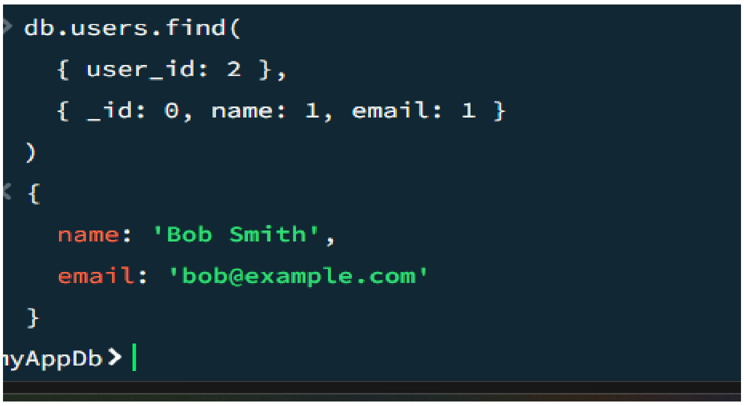
1. Show all Products



```
_id: ObjectId('680e28f70ec7f473c23157e4')
product_id : 101
name : "Laptop"
price : 1200
category : "Electronics"

_id: ObjectId('680e28f70ec7f473c23157e5')
product_id : 102
name : "Desk Chair"
price : 150
category : "Furniture"
```

2. Find the name and email of the user with user_id 2.

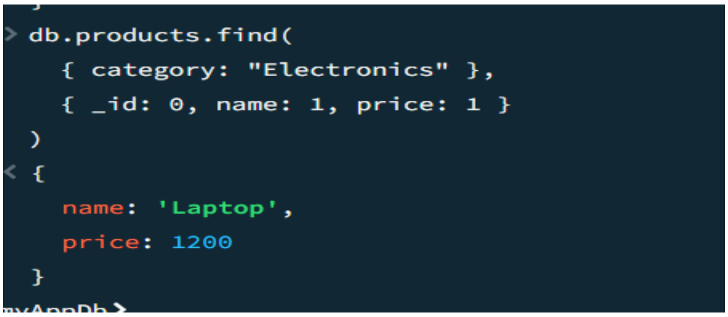
```
db.users.find(
  { user_id: 2 },
  { _id: 0, name: 1, email: 1 }
)
```



```
> db.users.find(
    { user_id: 2 },
    { _id: 0, name: 1, email: 1 }
  )
< {
    name: 'Bob Smith',
    email: 'bob@example.com'
  }
myAppDb>
```

3. List all products in the Electronics category.

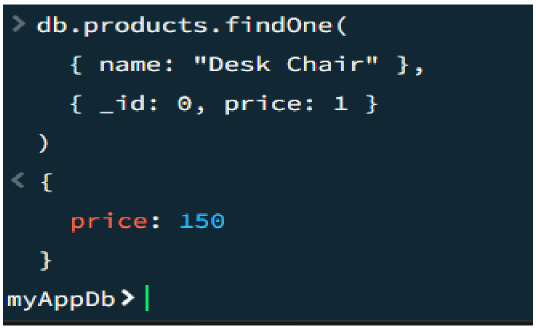
```
db.products.find(
  { category: "Electronics" },
  { _id: 0, name: 1, price: 1 }
)
```



```
}
> db.products.find(
    { category: "Electronics" },
    { _id: 0, name: 1, price: 1 }
  )
< {
    name: 'Laptop',
    price: 1200
  }
myAppDb>
```

4. What is the total price if Bob Smith ordered 2 Desk Chairs?

```
db.products.findOne(
  { name: "Desk Chair" },
  { _id: 0, price: 1 }
)
```



```
> db.products.findOne(
    { name: "Desk Chair" },
    { _id: 0, price: 1 }
  )
< {
    price: 150
  }
myAppDb>
```

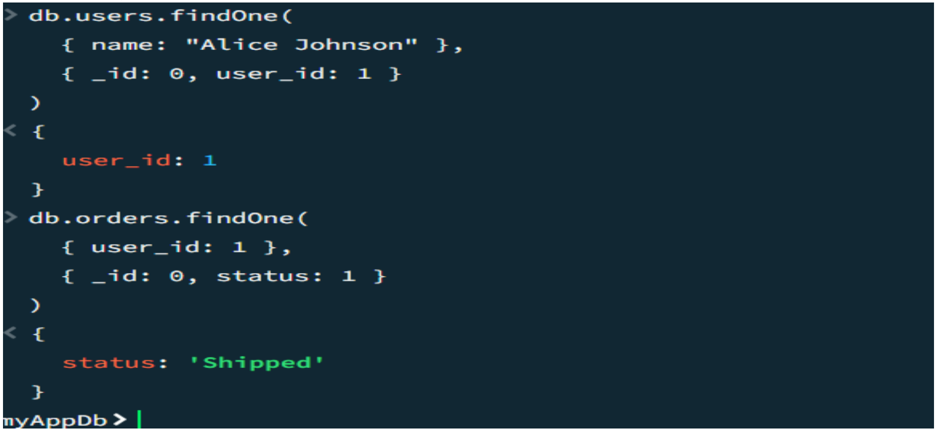
5. What is the status of Alice Johnson's order?

First, find user_id of Alice Johnson:

```
db.users.findOne(
  { name: "Alice Johnson" },
  { _id: 0, user_id: 1 }
)
```

Then find the order:

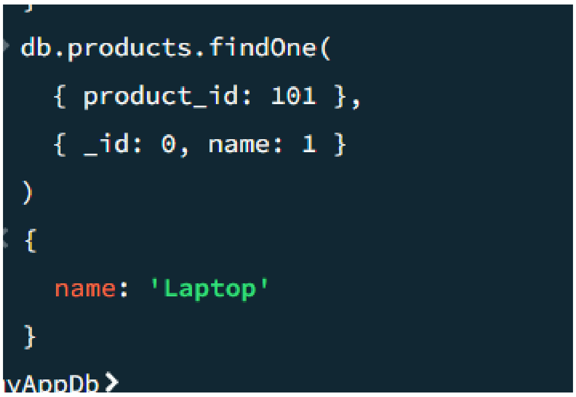
```
db.orders.findOne(
  { user_id: 1 },
  { _id: 0, status: 1 }
 )
```



```
> db.users.findOne(
    { name: "Alice Johnson" },
    { _id: 0, user_id: 1 }
  )
< {
    user_id: 1
  }
> db.orders.findOne(
    { user_id: 1 },
    { _id: 0, status: 1 }
  )
< {
    status: 'Shipped'
  }
myAppDb>
```

6. Find the name of the product that has product_id 101.

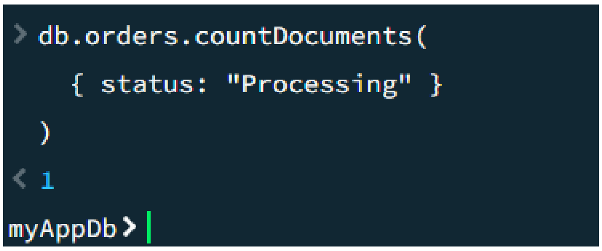
```
db.products.findOne(
 { product_id: 101 },
 { _id: 0, name: 1 }
)
```



```
db.products.findOne(
  { product_id: 101 },
  { _id: 0, name: 1 }
)
{
  name: 'Laptop'
}
yAppDb>
```

7. How many orders are currently "Processing"?

```
db.orders.countDocuments(
 { status: "Processing" }
)
```



```
> db.orders.countDocuments(
    { status: "Processing" }
  )
< 1
myAppDb>
```

Box	What to write
Filter	{status:”Processing”}

8. Find the user who ordered the "Desk Chair".

First, find product_id for "Desk Chair":

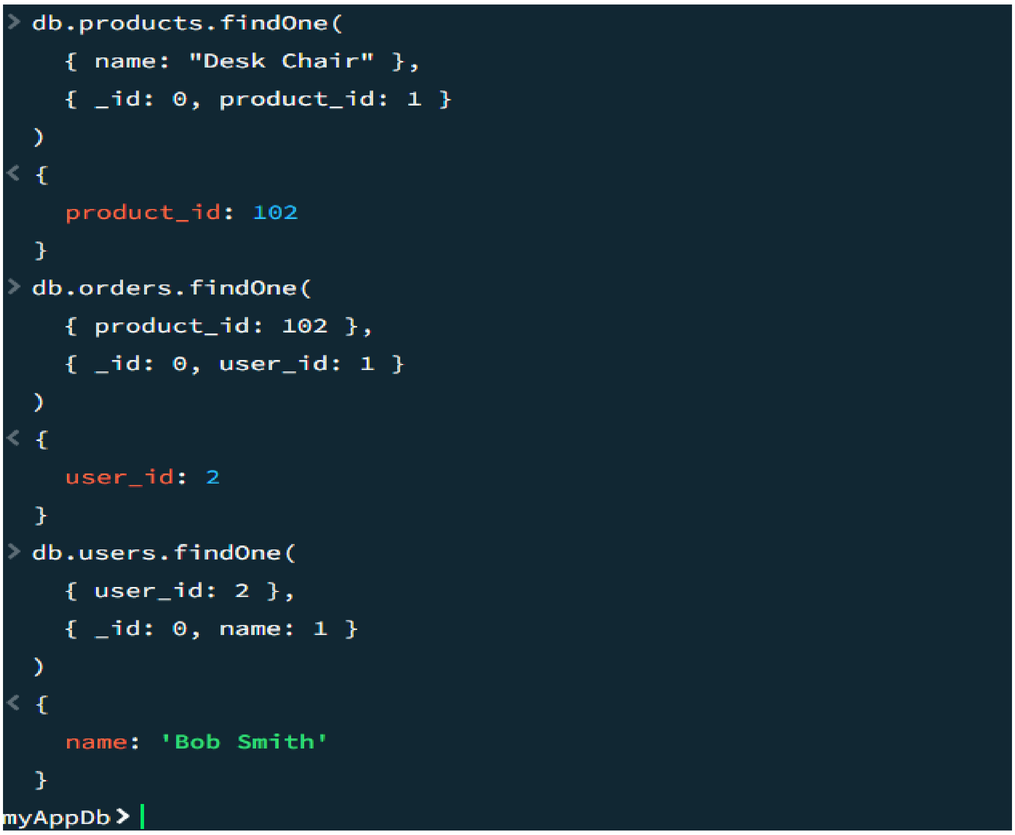
```
db.products.findOne(
 { name: "Desk Chair" },
 { _id: 0, product_id: 1 }
)
```

Then find order:

```
db.orders.findOne(
 { product_id: 102 },
 { _id: 0, user_id: 1 }
)
```

Finally, find user:

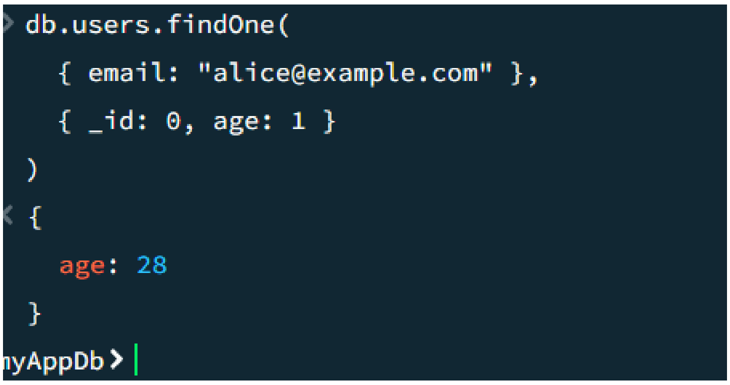
```
db.users.findOne(
 { user_id: 2 },
 { _id: 0, name: 1 }

)
```



```
> db.products.findOne(
    { name: "Desk Chair" },
    { _id: 0, product_id: 1 }
  )
< {
    product_id: 102
  }
> db.orders.findOne(
    { product_id: 102 },
    { _id: 0, user_id: 1 }
  )
< {
    user_id: 2
  }
> db.users.findOne(
    { user_id: 2 },
    { _id: 0, name: 1 }
  )
< {
    name: 'Bob Smith'
  }
myAppDb>
```

9. What is the age of the user with email alice@example.com?

```
db.users.findOne(
 { email: "alice@example.com" },
 { _id: 0, age: 1 }
)
```

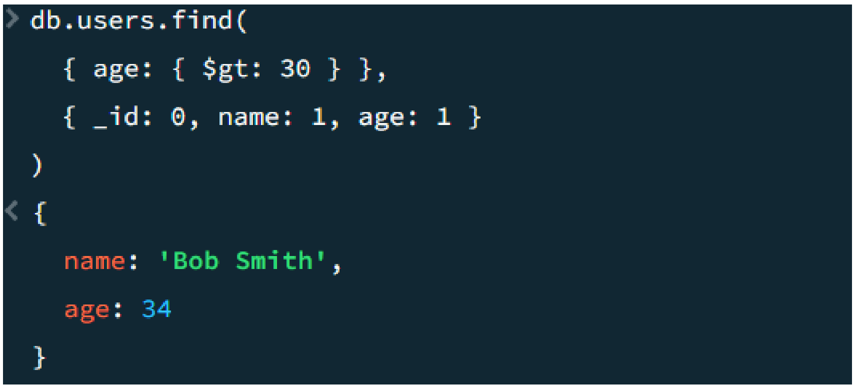


```
> db.users.findOne(
    { email: "alice@example.com" },
    { _id: 0, age: 1 }
  )
< {
    age: 28
  }
nyAppDb>
```

10. List all users who are older than 30 years.

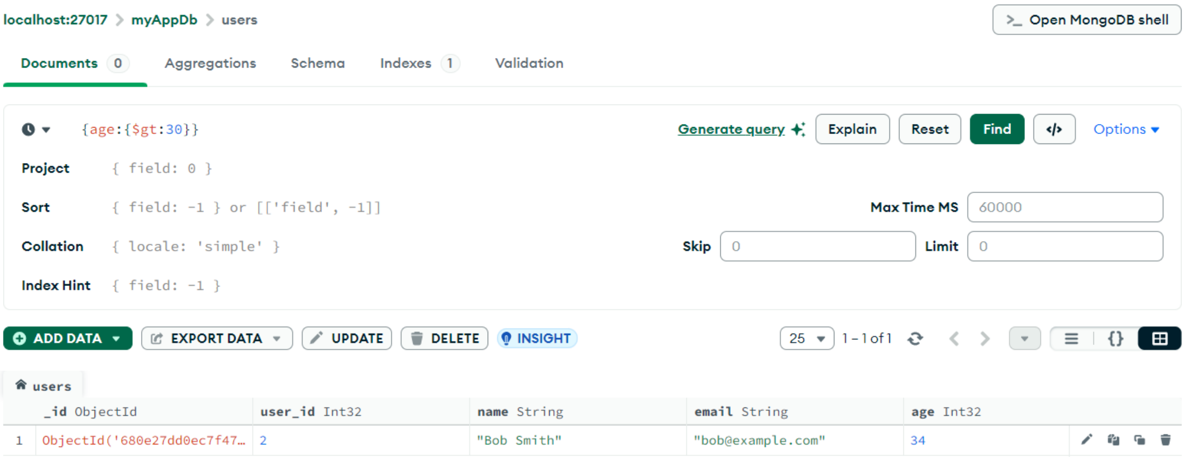
```
db.users.find(
 { age: { $gt: 30 } },
 { _id: 0, name: 1, age: 1 }
```

)



```
> db.users.find(
    { age: { $gt: 30 } },
    { _id: 0, name: 1, age: 1 }
  )
< {
    name: 'Bob Smith',
    age: 34
  }
```

Filter-{age:{$gt:30}}



{age:{$gt:30}}

Project { field: 0 }

Sort { field: -1 } or [['field', -1]]

Collation { locale: 'simple' }

Index Hint { field: -1 }

Max Time MS 60000

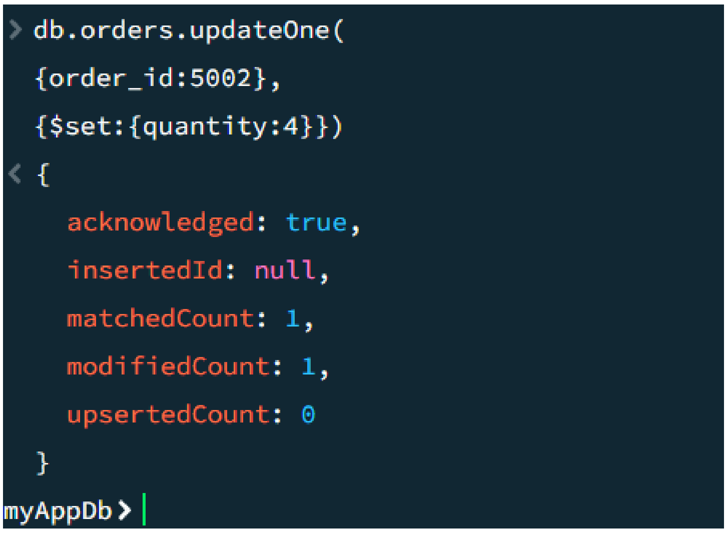
Skip 0

Limit 0

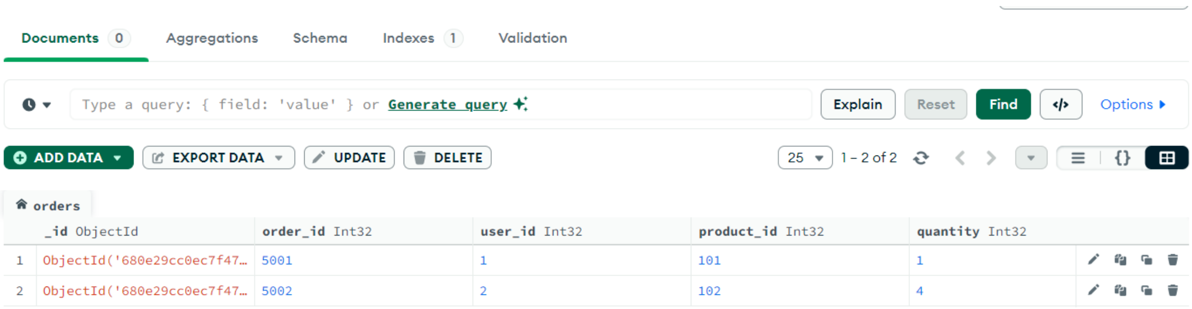
	_id ObjectId	user_id Int32	name String	email String	age Int32
1	ObjectId('680e27dd0ec7f47…	2	"Bob Smith"	"bob@example.com"	34

11. Update quantity 4 to ordered 5002

db.orders.updateOne(
{order_id:5002},
{$set:{quantity:4}})



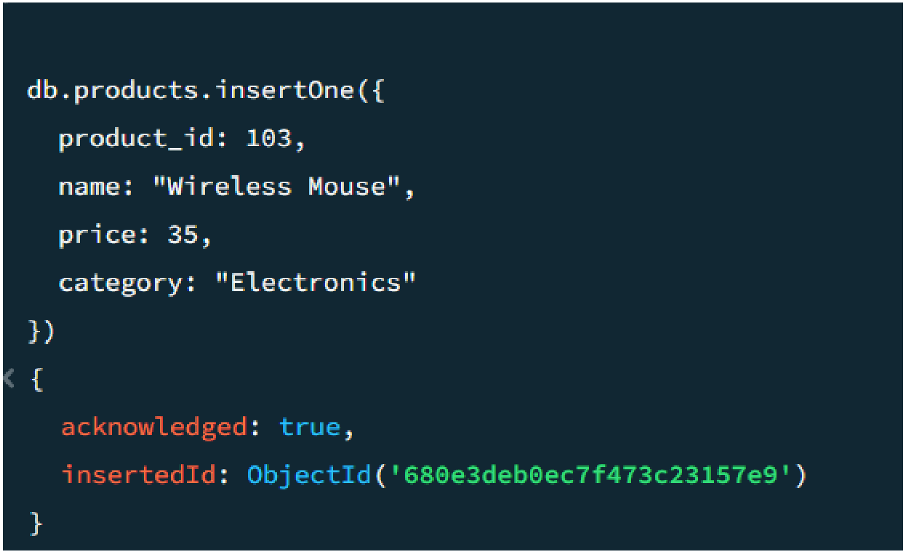
```
> db.orders.updateOne(
  {order_id:5002},
  {$set:{quantity:4}})
< {
    acknowledged: true,
    insertedId: null,
    matchedCount: 1,
    modifiedCount: 1,
    upsertedCount: 0
  }
myAppDb>
```



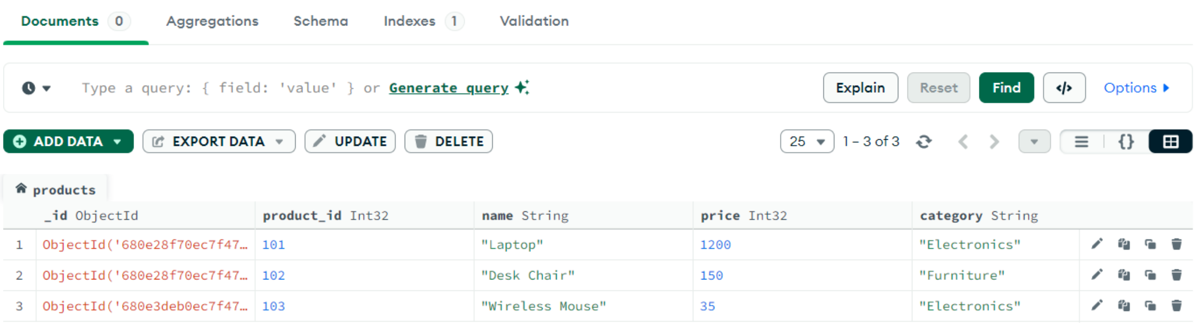
	_id ObjectId	order_id Int32	user_id Int32	product_id Int32	quantity Int32
1	ObjectId('680e29cc0ec7f47…	5001	1	101	1
2	ObjectId('680e29cc0ec7f47…	5002	2	102	4

12. Add a new product "Wireless mouse"

```
db.products.insertOne({
  product_id: 103,
  name: "Wireless Mouse",
  price: 35,
  category: "Electronics"
})
```



```
db.products.insertOne({
  product_id: 103,
  name: "Wireless Mouse",
  price: 35,
  category: "Electronics"
})
< {
    acknowledged: true,
    insertedId: ObjectId('680e3deb0ec7f473c23157e9')
  }
```



	_id ObjectId	product_id Int32	name String	price Int32	category String
1	ObjectId('680e28f70ec7f47…	101	"Laptop"	1200	"Electronics"
2	ObjectId('680e28f70ec7f47…	102	"Desk Chair"	150	"Furniture"
3	ObjectId('680e3deb0ec7f47…	103	"Wireless Mouse"	35	"Electronics"