

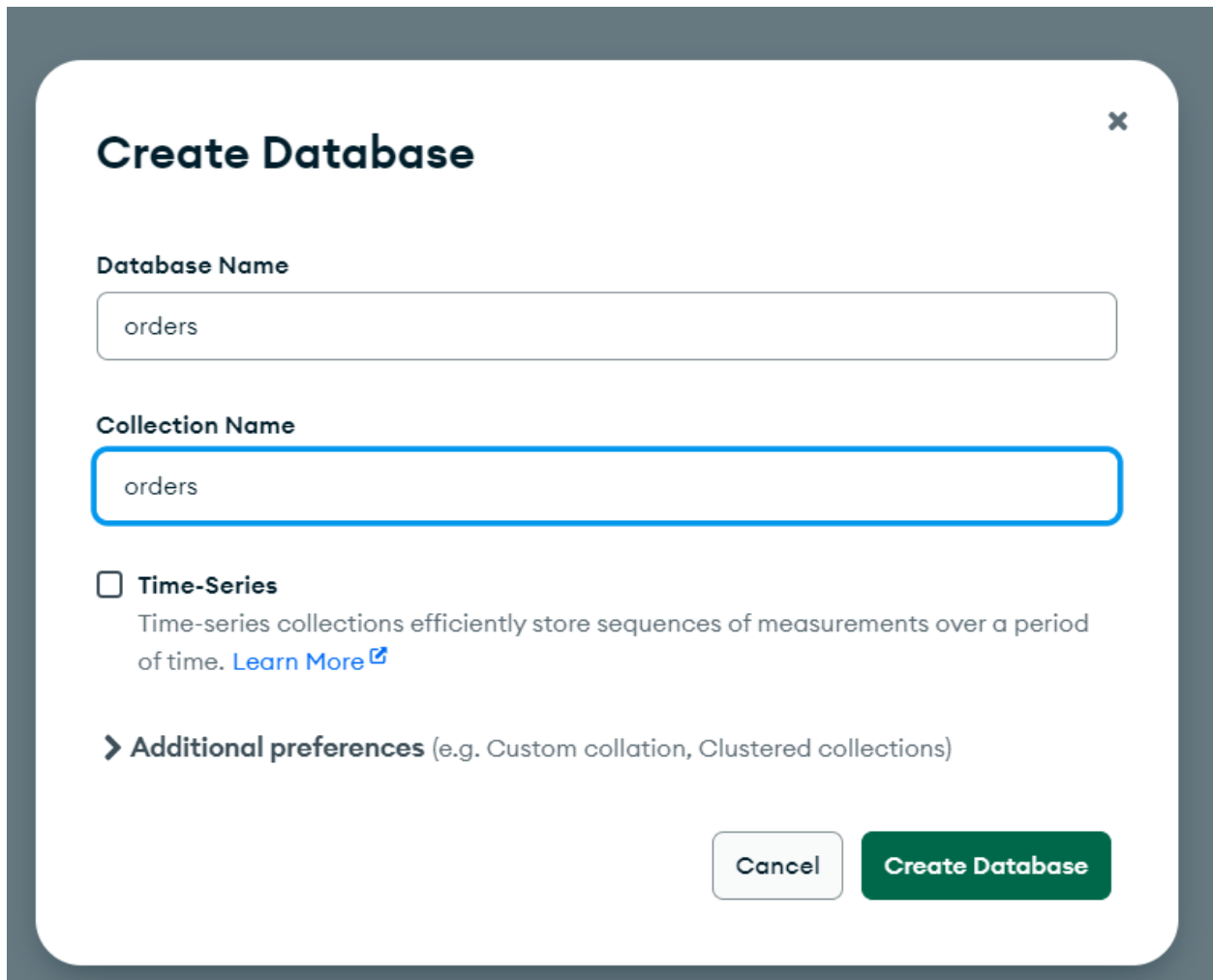
## 1. Mở file orders.txt và nhập các documents Chuyển đổi orders.txt về orders.json

```
[
  {
    "order": "o1",
    "year": 2020,
    "paid": "Y",
    "cost": {
      "price": 30,
      "currency": "NOK"
    },
    "items": [
      {
        "product": "p1",
        "colours": [
          "blue",
          "black"
        ],
        "quantity": 15
      }
    ],
    "delivery_days": 5
  },
  {
    "order": "o2",
    "year": 2020,
    "paid": "Y",
    "cost": {
      "price": 13,
      "currency": "EUR"
    },
    "items": [
      {
        "product": "p2",
        "colours": [
          "white"
        ],
        "quantity": 4
      },
      {
        "product": "p3",
        "colours": [
          "white",
          "black"
        ],
        "quantity": 1
      }
    ],
    "delivery_days": 4
  },
  {
    "order": "o3",
    "year": 2018,
    "paid": "N",
    "cost": {
      "price": 33,
      "currency": "EUR"
    },
    "items": [
      {
        "product": "p3",
        "colours": [
          "blue",
          "black"
        ],
        "quantity": 4
      }
    ],
    "delivery_days": 4
  },
  {
    "order": "o4",
    "year": 2017,
    "paid": "Y",
    "cost": {
      "price": 17,
      "currency": "NOK"
    },
    "items": [
      {
        "product": "p2",
        "colours": [
          "pink",
          "black"
        ],
        "quantity": 14
      },
      {
        "product": "p4",
        "colours": [
          "white"
        ],
        "quantity": 1
      }
    ],
    "delivery_days": 2
  },
  {
    "order": "o5",
    "year": 2020,
    "paid": "Y",
    "cost": {
      "price": 19,
      "currency": "NOK"
    },
    "items": [
      {
        "product": "p1",
        "quantity": 15
      }
    ],
    "delivery_days": 3
  }
]
```

The screenshot shows the MongoDB Compass interface for a database named 'orders' on 'localhost:27017'. The 'Documents' tab is active, displaying 5 documents. The interface includes a query bar at the top with a placeholder query '{ field: 'value' }' and buttons for 'Explain', 'Reset', 'Find', and a code icon. Below the query bar are buttons for 'ADD DATA', 'EXPORT DATA', 'UPDATE', and 'DELETE'. The document list shows the first four documents with their JSON structure, including fields like '\_id', 'order', 'year', 'paid', 'cost', 'items', and 'delivery\_days'. The fifth document is partially visible at the bottom.

Document
<pre>{   "_id": ObjectId('67aa019dd65c0aacab18a50e'),   "order": "o1",   "year": 2020,   "paid": "Y",   "cost": {     "price": 30,     "currency": "NOK"   },   "items": [     {       "product": "p1",       "colours": [         "blue",         "black"       ],       "quantity": 15     }   ],   "delivery_days": 5 }</pre>
<pre>{   "_id": ObjectId('67aa019dd65c0aacab18a50f'),   "order": "o2",   "year": 2020,   "paid": "Y",   "cost": {     "price": 13,     "currency": "EUR"   },   "items": [     {       "product": "p2",       "colours": [         "white"       ],       "quantity": 4     },     {       "product": "p3",       "colours": [         "white",         "black"       ],       "quantity": 1     }   ],   "delivery_days": 4 }</pre>
<pre>{   "_id": ObjectId('67aa019dd65c0aacab18a510'),   "order": "o3",   "year": 2018,   "paid": "N",   "cost": {     "price": 33,     "currency": "EUR"   },   "items": [     {       "product": "p3",       "colours": [         "blue",         "black"       ],       "quantity": 4     }   ],   "delivery_days": 4 }</pre>
<pre>{   "_id": ObjectId('67aa019dd65c0aacab18a511'),   "order": "o4",   "year": 2017,   "paid": "Y",   "cost": {     "price": 17,     "currency": "NOK"   },   "items": [     {       "product": "p2",       "colours": [         "pink",         "black"       ],       "quantity": 14     },     {       "product": "p4",       "colours": [         "white"       ],       "quantity": 1     }   ],   "delivery_days": 2 }</pre>
<pre>{   "_id": ObjectId('67aa019dd65c0aacab18a512'),   "order": "o5",   "year": 2020,   "paid": "Y",   "cost": {     "price": 19,     "currency": "NOK"   },   "items": [     {       "product": "p1",       "quantity": 15     }   ],   "delivery_days": 3 }</pre>

## 2. Lưu vào db tên orders



**Create Database** ✕

**Database Name**

orders

**Collection Name**

orders

☐ **Time-Series**  
Time-series collections efficiently store sequences of measurements over a period of time. [Learn More](#)

**> Additional preferences** (e.g. Custom collation, Clustered collections)

**Cancel** **Create Database**

**1. Cho biết tất cả documents trong collection orders**  
Sử dụng: `db.orders.find().pretty()`

```
> db.orders.find().pretty()
< {
  _id: ObjectId('67aa019dd65c0aacab18a50e'),
  order: 'o1',
  year: 2020,
  paid: 'Y',
  cost: {
    price: 30,
    currency: 'NOK'
  },
  items: [
    {
      product: 'p1',
      colours: [
        'blue',
        'black'
      ],
      quantity: 15
    }
  ],
  delivery_days: 5
}
{
  _id: ObjectId('67aa019dd65c0aacab18a50f'),
  order: 'o2',
  year: 2020,
  paid: 'Y',
  cost: {
    price: 30,
    currency: 'NOK'
  },
  items: [
    {
      product: 'p1',
      colours: [
        'blue',
        'black'
      ],
      quantity: 15
    }
  ],
  delivery_days: 5
}
```

**2. Cho biết các documents có “paid” là “Y”**  
Sử dụng: `db.orders.find({ paid: "Y" }).pretty()`

```
> db.orders.find({ paid: "Y" }).pretty()
< {
  _id: ObjectId('67aa019dd65c0aacab18a50e'),
  order: 'o1',
  year: 2020,
  paid: 'Y',
  cost: {
    price: 30,
    currency: 'NOK'
  },
  items: [
    {
      product: 'p1',
      colours: [
        'blue',
        'black'
      ],
      quantity: 15
    }
  ],
  delivery_days: 5
}
{
  _id: ObjectId('67aa019dd65c0aacab18a50f'),
```

```
  paid: 'Y',
  cost: {
    price: 13,
    currency: 'EUR'
  },
  items: [
    {
      product: 'p2',
      colours: [
        'white'
      ],
      quantity: 4
    },
    {
      product: 'p3',
      colours: [
        'white',
        'black'
      ],
      quantity: 1
    }
  ],
  delivery_days: 4
}
{
  _id: ObjectId('67aa019dd65c0aacab18a511'),
  order: 'o4',
  year: 2017,
```

3. Cho biết các documents có “paid” và orders trước 2019  
Sử dụng: `db.orders.find({ paid: "Y", year: { $lt: 2019 } }).pretty()`

```
> db.orders.find({ paid: "Y", year: { $lt: 2019 } }).pretty()
< {
  _id: ObjectId('67aa019dd65c0aacab18a511'),
  order: 'o4',
  year: 2017,
  paid: 'Y',
  cost: {
    price: 17,
    currency: 'NOK'
  },
  items: [
    {
      product: 'p2',
      colours: [
        'pink',
        'black'
      ],
      quantity: 14
    },
    {
      product: 'p4',
      colours: [
        'white'
      ],
      quantity: 1
    }
  ],
  delivery_days: 2
}
```

4 Cho biết các documents unpaid hoặc những orders trước 2019  
Sử dụng: db.orders.find({ \$or: [{ paid: "N" }, { year: { \$lt: 2019 } }] }).pretty()

```
>_MONGOSH
> db.orders.find({ $or: [{ paid: "N" }, { year: { $lt: 2019 } }] }).pretty()
< {
  _id: ObjectId('67aa019dd65c0aacab18a510'),
  order: 'o3',
  year: 2018,
  paid: 'N',
  cost: {
    price: 33,
    currency: 'EUR'
  },
  items: [
    {
      product: 'p3',
      colours: [
        'blue',
        'black'
      ],
      quantity: 4
    }
  ],
  delivery_days: 4
}
{
  _id: ObjectId('67aa019dd65c0aacab18a511'),
  order: 'o4',
  year: 2017,
  paid: 'Y',
  cost: {
    price: 17,
```

5. Cho biết các documents có price là NOK  
Sử dụng: db.orders.find({ "cost.currency": "NOK" }).pretty()

```
> db.orders.find({ "cost.currency": "NOK" }).pretty()
< {
  _id: ObjectId('67aa019dd65c0aacab18a50e'),
  order: 'o1',
  year: 2020,
  paid: 'Y',
  cost: {
    price: 30,
    currency: 'NOK'
  },
  items: [
    {
      product: 'p1',
      colours: [
        'blue',
        'black'
      ],
      quantity: 15
    }
  ],
  delivery_days: 5
}
{
  _id: ObjectId('67aa019dd65c0aacab18a511'),
  order: 'o4',
  year: 2017,
  paid: 'Y',
  cost: {
```

```
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cost: {
  price: 17,
  currency: 'NOK'
},
items: [
  {
    product: 'p2',
    colours: [
      'pink',
      'black'
    ],
    quantity: 14
  },
  {
    product: 'p4',
    colours: [
      'white'
    ],
    quantity: 1
  }
],
delivery_days: 2
}
{
  _id: ObjectId('67aa019dd65c0aacab18a512'),
  order: 'o5',
  year: 2020,
  paid: 'Y',
  cost: {
```



```
}  
{  
  _id: ObjectId('67aa019dd65c0aacab18a512'),  
  order: 'o5',  
  year: 2020,  
  paid: 'Y',  
  cost: {  
    price: 19,  
    currency: 'NOK'  
  },  
  items: [  
    {  
      product: 'p1',  
      quantity: 15  
    }  
  ],  
  delivery_days: 3  
}  
orders>
```

6. Cho biết các documents có price nhỏ hơn 18 NOK

Sử dụng: `db.orders.find({ "cost.price": { $lt: 18 }, "cost.currency": "NOK" }).pretty()`

```
}  
> db.orders.find({ "cost.price": { $lt: 18 }, "cost.currency": "NOK" }).pretty()  
< {  
  _id: ObjectId('67aa019dd65c0aacab18a511'),  
  order: 'o4',  
  year: 2017,  
  paid: 'Y',  
  cost: {  
    price: 17,  
    currency: 'NOK'  
  },  
  items: [  
    {  
      product: 'p2',  
      colours: [  
        'pink',  
        'black'  
      ],  
      quantity: 14  
    },  
    {  
      product: 'p4',  
      colours: [  
        'white'  
      ],  
      quantity: 1  
    }  
  ],  
  delivery_days: 2  
}
```

7. Cho biết các documents có sản phẩm "p2"  
Sử dụng: db.orders.find({ "items.product": "p2" }).pretty()

```
> db.orders.find({ "items.product": "p2" }).pretty()
< {
  _id: ObjectId('67aa019dd65c0aacab18a50f'),
  order: 'o2',
  year: 2020,
  paid: 'Y',
  cost: {
    price: 13,
    currency: 'EUR'
  },
  items: [
    {
      product: 'p2',
      colours: [
        'white'
      ],
      quantity: 4
    },
    {
      product: 'p3',
      colours: [
        'white',
        'black'
      ],
      quantity: 1
    }
  ],
}
```

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```
],  
  delivery_days: 4  
}  
{  
  _id: ObjectId('67aa019dd65c0aacab18a511'),  
  order: 'o4',  
  year: 2017,  
  paid: 'Y',  
  cost: {  
    price: 17,  
    currency: 'NOK'  
  },  
  items: [  
    {  
      product: 'p2',  
      colours: [  
        'pink',  
        'black'  
      ],  
      quantity: 14  
    },  
    {  
      product: 'p4',  
      colours: [  
        'white'  
      ],  
      quantity: 1  
    }  
  ],  
}
```

8. Cho biết các documents có số lượng sản phẩm lớn hơn 10 và nhỏ hơn 15  
Sử dụng: `db.orders.find({ "items.quantity": { $gt: 10, $lt: 15 } }).pretty()`

```
>_MONGOSH
> db.orders.find({ "items.quantity": { $gt: 10, $lt: 15 } }).pretty()
< {
  _id: ObjectId('67aa019dd65c0aacab18a511'),
  order: 'o4',
  year: 2017,
  paid: 'Y',
  cost: {
    price: 17,
    currency: 'NOK'
  },
  items: [
    {
      product: 'p2',
      colours: [
        'pink',
        'black'
      ],
      quantity: 14
    },
    {
      product: 'p4',
      colours: [
        'white'
      ],
      quantity: 1
    }
  ],
  delivery_days: 2
}
```

9. Cho biết các documents có số lượng sản phẩm nhỏ hơn 13

Sử dụng: `db.orders.find({ "items.quantity": { $lt: 13 } }).pretty()`

```
> _MONGOSH
>
> db.orders.find({ "items.quantity": { $lt: 13 } }).pretty()
< {
  _id: ObjectId('67aa019dd65c0aacab18a50f'),
  order: 'o2',
  year: 2020,
  paid: 'Y',
  cost: {
    price: 13,
    currency: 'EUR'
  },
  items: [
    {
      product: 'p2',
      colours: [
        'white'
      ],
      quantity: 4
    },
    {
      product: 'p3',
      colours: [
        'white',
        'black'
      ],
      quantity: 1
    }
  ],
  delivery_days: 4
}
```

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```
_id: ObjectId('67aa019dd65c0aacab18a510'),
order: 'o3',
year: 2018,
paid: 'N',
cost: {
  price: 33,
  currency: 'EUR'
},
items: [
  {
    product: 'p3',
    colours: [
      'blue',
      'black'
    ],
    quantity: 4
  }
],
delivery_days: 4
}
{
  _id: ObjectId('67aa019dd65c0aacab18a511'),
  order: 'o4',
  year: 2017,
  paid: 'Y',
  cost: {
    price: 17,
    currency: 'NOK'
  },
}
```

10. Cho biết các documents có màu blue  
Sử dụng: `db.orders.find({ "items.colours": "blue" }).pretty()`



```
}  
> db.orders.find({ "items.colours": "blue" }).pretty()  
< {  
  _id: ObjectId('67aa019dd65c0aacab18a50e'),  
  order: 'o1',  
  year: 2020,  
  paid: 'Y',  
  cost: {  
    price: 30,  
    currency: 'NOK'  
  },  
  items: [  
    {  
      product: 'p1',  
      colours: [  
        'blue',  
        'black'  
      ],  
      quantity: 15  
    }  
  ],  
  delivery_days: 5  
}  
{  
  _id: ObjectId('67aa019dd65c0aacab18a510'),  
  order: 'o3',  
  year: 2018,  
  paid: 'N',  
  cost: {
```

```
    price: 33,  
    currency: 'EUR'  
  },  
  items: [  
    {  
      product: 'p3',  
      colours: [  
        'blue',  
        'black'  
      ],  
      quantity: 4  
    }  
  ],  
  delivery_days: 4  
}
```

11. Cho biết màu đầu tiên của các documents

Sử dụng: `db.orders.find({}, {"items.colours": { $slice: 1 } }).pretty()`

```

> db.orders.find({}, { "items.colours": { $slice: 1 } }).pretty
< {
  _id: ObjectId('67aa019dd65c0aacab18a50e'),
  order: 'o1',
  year: 2020,
  paid: 'Y',
  cost: {
    price: 30,
    currency: 'NOK'
  },
  items: [
    {
      product: 'p1',
      colours: [
        'blue'
      ],
      quantity: 15
    }
  ],
  delivery_days: 5
}
{
  _id: ObjectId('67aa019dd65c0aacab18a50f'),
  order: 'o2',
  year: 2020,
  paid: 'Y',
  cost: {
```

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```
    cost: {
      price: 13,
      currency: 'EUR'
    },
    items: [
      {
        product: 'p2',
        colours: [
          'white'
        ],
        quantity: 4
      },
      {
        product: 'p3',
        colours: [
          'white'
        ],
        quantity: 1
      }
    ],
    delivery_days: 4
  }
{
  _id: ObjectId('67aa019dd65c0aacab18a510'),
  order: 'o3',
  year: 2018,
  paid: 'N',
  cost: {
    price: 33
```

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```
    price: 33,  
    currency: 'EUR'  
  },  
  items: [  
    {  
      product: 'p3',  
      colours: [  
        'blue'  
      ],  
      quantity: 4  
    }  
  ],  
  delivery_days: 4  
}  
{  
  _id: ObjectId('67aa019dd65c0aacab18a511'),  
  order: 'o4',  
  year: 2017,  
  paid: 'Y',  
  cost: {  
    price: 17,  
    currency: 'NOK'  
  },  
  items: [  
    {  
      product: 'p2',  
      colours: [  
        'pink'
```

12. Cho biết tổng số ngày giao hàng

Sử dụng: `db.orders.aggregate([{$group: {_id: null, total_delivery_days: {$sum: "$delivery_days" }}}])`

```
> db.orders.aggregate([{$group: {_id: null, total_delivery_days: {$sum: "$delivery_days" }}}])
< {
  _id: null,
  total_delivery_days: 18
}
```

13. Cho biết các documents nhóm theo year

Sử dụng: `db.orders.aggregate([{$group: {_id: "$year", count: {$sum: 1 }}}])`

```
> db.orders.aggregate([{$group: {_id: "$year", count: {$sum: 1 }}}])
< {
  _id: 2018,
  count: 1
}
{
  _id: 2020,
  count: 3
}
{
  _id: 2017,
  count: 1
}
```

14. Cho biết các documents không có màu

Sử dụng: `db.orders.find({ "items.colours": {$exists: false }}).pretty()`

```
> db.orders.find({ "items.colours": { $exists: false } }).pretty()
< {
  _id: ObjectId('67aa019dd65c0aacab18a512'),
  order: 'o5',
  year: 2020,
  paid: 'Y',
  cost: {
    price: 19,
    currency: 'NOK'
  },
  items: [
    {
      product: 'p1',
      quantity: 15
    }
  ],
  delivery_days: 3
}
```

15. Cho biết tổng số ngày giao hàng trước năm 2020

Sử dụng:

```
db.orders.aggregate([
  { $match: { year: { $lt: 2020 } } },
  { $group: { _id: null, total_delivery_days: { $sum: "$delivery_days" } } }
])
```

```
> db.orders.aggregate([
  { $match: { year: { $lt: 2020 } } },
  { $group: { _id: null, total_delivery_days: { $sum: "$delivery_days" } } }
])
< {
  _id: null,
  total_delivery_days: 6
}
orders>
```

16. Cho biết các documents ở vị trí chẵn

Sử dụng: db.orders.find().skip(1).limit(2).pretty()

```
> db.orders.find().skip(1).limit(2).pretty()
< {
  _id: ObjectId('67aa019dd65c0aacab18a50f'),
  order: 'o2',
  year: 2020,
  paid: 'Y',
  cost: {
    price: 13,
    currency: 'EUR'
  },
  items: [
    {
      product: 'p2',
      colours: [
        'white'
      ],
      quantity: 4
    },
    {
      product: 'p3',
      colours: [
        'white',
        'black'
      ]
    }
  ]
}
```



```
>_MONGOSH
    'black'
  ],
  quantity: 1
}
],
delivery_days: 4
}
{
  _id: ObjectId('67aa019dd65c0aacab18a510'),
  order: 'o3',
  year: 2018,
  paid: 'N',
  cost: {
    price: 33,
    currency: 'EUR'
  },
  items: [
    {
      product: 'p3',
      colours: [
        'blue',
        'black'
      ],
      quantity: 4
    }
  ],
  delivery_days: 4
}
orders>
```

17. Cho biết tổng số lượng bán những sản phẩm màu Blue  
Sử dụng:

```
db.orders.aggregate([
  { $unwind: "$items" },
  { $match: { "items.colours": "blue" } },
  { $group: { _id: null, total_quantity: { $sum: "$items.quantity" } } }
])
```

```
> db.orders.aggregate([
  { $unwind: "$items" },
  { $match: { "items.colours": "blue" } },
  { $group: { _id: null, total_quantity: { $sum: "$items.quantity" } } }
])
< {
  _id: null,
  total_quantity: 19
}
```

18. Cho biết những sản phẩm không có order vào năm 2020 và 2017  
Sử dụng: `db.orders.find({ year: { $nin: [2020, 2017] } }).pretty()`

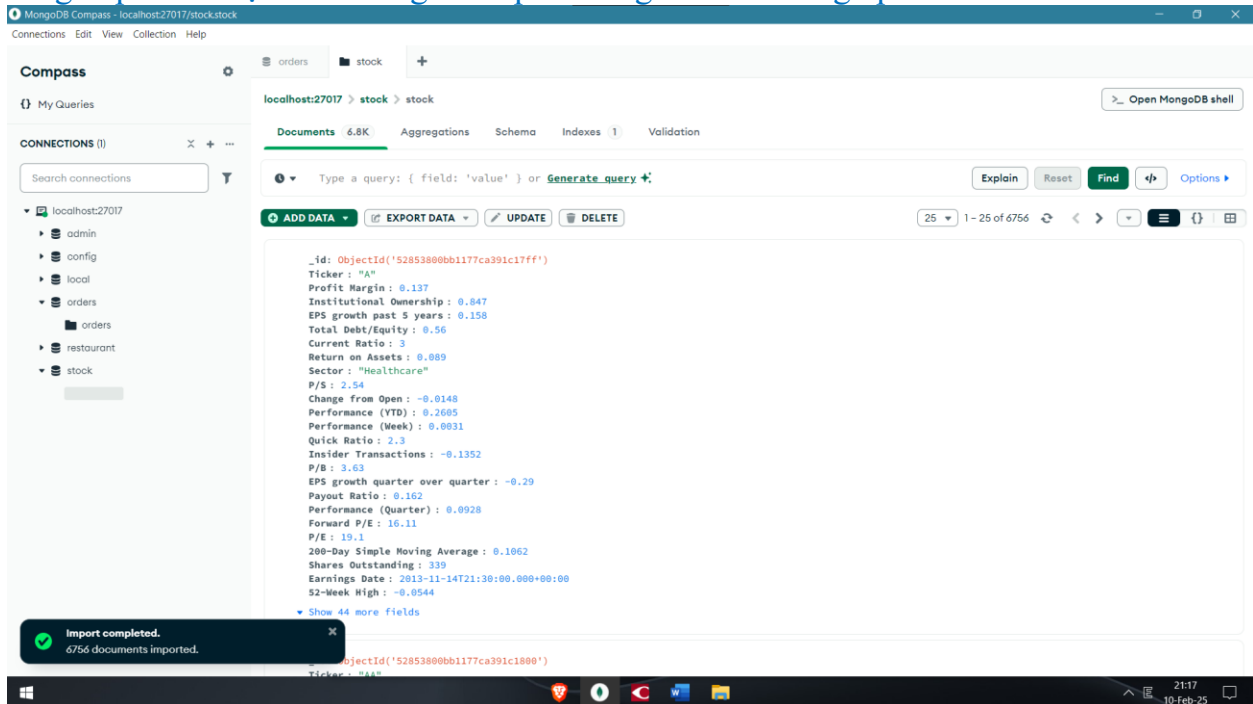
```
> db.orders.find({ year: { $nin: [2020, 2017] } }).pretty()
< {
  _id: ObjectId('67aa019dd65c0aacab18a510'),
  order: 'o3',
  year: 2018,
  paid: 'N',
  cost: {
    price: 33,
    currency: 'EUR'
  },
  items: [
    {
      product: 'p3',
      colours: [
        'blue',
        'black'
      ],
      quantity: 4
    }
  ],
  delivery_days: 4
}
```

## 2.2. Bài tập số 2

```
C:\Windows\system32>mongoimport --db stocks --collection stocks --file "C:\Users\KietDo\Desktop\stock.json"
Access is denied.

C:\Windows\system32>
```

Do máy em không có quyền truy cập admin nên không xài trên cmd được, em chuyển sang import dữ liệu trên mongo compass bằng cách sử dụng mongo powershell



1. Cho biết những stock có profit > 0.5  
Sử dụng: db.stock.find({ "Profit Margin": { \$gt: 0.5 } })

```
> db.stock.find({ "Profit Margin": { $gt: 0.5 } })
< {
  _id: ObjectId('52853800bb1177ca391c180f'),
  Ticker: 'AB',
  'Profit Margin': 0.896,
  'Institutional Ownership': 0.368,
  'EPS growth past 5 years': -0.348,
  'Total Debt/Equity': 0,
  'Return on Assets': 0.086,
  Sector: 'Financial',
  'P/S': 13.25,
  'Change from Open': 0.0047,
  'Performance (YTD)': 0.3227,
  'Performance (Week)': -0.0302,
  'Insider Transactions': 0.5973,
  'P/B': 1.4,
  'EPS growth quarter over quarter': 2.391,
  'Payout Ratio': 1.75,
  'Performance (Quarter)': 0.0929,
  'Forward P/E': 12.58,
  'P/E': 15.82,
  '200-Day Simple Moving Average': 0.0159,
  'Shares Outstanding': 92.26,
  'Earnings Date': 2013-10-24T12:30:00.000Z,
  '52-Week High': -0.1859,
```

2. Cho biết những stock có quốc gia là Mỹ  
Sử dụng: db.stock.find({ "Country": "USA" })

```
> db.stock.find({ "Country": "USA" })
< {
  _id: ObjectId('52853800bb1177ca391c17ff'),
  Ticker: 'A',
  'Profit Margin': 0.137,
  'Institutional Ownership': 0.847,
  'EPS growth past 5 years': 0.158,
  'Total Debt/Equity': 0.56,
  'Current Ratio': 3,
  'Return on Assets': 0.089,
  Sector: 'Healthcare',
  'P/S': 2.54,
  'Change from Open': -0.0148,
  'Performance (YTD)': 0.2605,
  'Performance (Week)': 0.0031,
  'Quick Ratio': 2.3,
  'Insider Transactions': -0.1352,
  'P/B': 3.63,
  'EPS growth quarter over quarter': -0.29,
  'Payout Ratio': 0.162,
  'Performance (Quarter)': 0.0928,
  'Forward P/E': 16.11,
  'P/E': 19.1,
  '200-Day Simple Moving Average': 0.1062,
  'Shares Outstanding': 339,
  'Earnings Date': 2013-11-14T21:30:00.000Z,
  '52-Week High': -0.0544,
  'P/Cash': 7.45,
  Change: -0.0148.
```

3. Cho biết những stock thuộc lĩnh vực “Healthcare” và có giá trên 50  
Sử dụng: `db.stock.find({ "Sector": "Healthcare", "Price": { $gt: 50 } })`

```
>_MONGOSH
> db.stock.find({ "Sector": "Healthcare", "Price": { $gt: 50 } })
< {
  _id: ObjectId('52853800bb1177ca391c17ff'),
  Ticker: 'A',
  'Profit Margin': 0.137,
  'Institutional Ownership': 0.847,
  'EPS growth past 5 years': 0.158,
  'Total Debt/Equity': 0.56,
  'Current Ratio': 3,
  'Return on Assets': 0.089,
  Sector: 'Healthcare',
  'P/S': 2.54,
  'Change from Open': -0.0148,
  'Performance (YTD)': 0.2605,
  'Performance (Week)': 0.0031,
  'Quick Ratio': 2.3,
  'Insider Transactions': -0.1352,
  'P/B': 3.63,
  'EPS growth quarter over quarter': -0.29,
  'Payout Ratio': 0.162,
  'Performance (Quarter)': 0.0928,
  'Forward P/E': 16.11,
  'P/E': 19.1,
  '200-Day Simple Moving Average': 0.1062,
  'Shares Outstanding': 339,
  'Earnings Date': 2013-11-14T21:30:00.000Z,
  '52-Week High': -0.0544,
  'P/Cash': 7.45,
  Change: -0.0148,
```

4. Cho biết những stock có ticker bắt đầu là “AA”  
Sử dụng: `db.stock.find({ "Ticker": /^AA/ })`

```
> db.stock.find({ "Ticker": /^AA/ })
< {
  _id: ObjectId('52853800bb1177ca391c1800'),
  Ticker: 'AA',
  'Profit Margin': 0.013,
  'Institutional Ownership': 0.599,
  'EPS growth past 5 years': -0.439,
  'Total Debt/Equity': 0.65,
  'Current Ratio': 1.2,
  'Return on Assets': 0.008,
  Sector: 'Basic Materials',
  'P/S': 0.41,
  'Change from Open': -0.0022,
  'Performance (YTD)': 0.0502,
  'Performance (Week)': -0.0694,
  'Quick Ratio': 0.7,
  'Insider Transactions': 0.1031,
  'P/B': 0.75,
  'EPS growth quarter over quarter': 1.143,
  'Payout Ratio': 0.429,
  'Performance (Quarter)': 0.1058,
  'Forward P/E': 21.35,
  'P/E': 35.96,
  '200-Day Simple Moving Average': 0.0823,
  'Shares Outstanding': 1070,
  'Earnings Date': 2013-10-08T20:30:00.000Z,
  '52-Week High': -0.0925,
  'P/Cash': 9.46,
  Change: 0.0022
```

```
}  
{  
  _id: ObjectId('52853800bb1177ca391c1801'),  
  Ticker: 'AADR',  
  Sector: 'Financial',  
  'Change from Open': 0.0055,  
  'Performance (YTD)': 0.1809,  
  'Performance (Week)': -0.0134,  
  'Performance (Quarter)': 0.061,  
  '200-Day Simple Moving Average': 0.0693,  
  '52-Week High': -0.0194,  
  Change: 0.0064,  
  'Volatility (Week)': 0.0072,  
  Country: 'USA',  
  '50-Day Low': 0.0792,  
  Price: 36.4,
```

5. Cho biết những stock của những công ty công nghệ  
Sử dụng: `db.stock.find({ "Sector": "Technology" })`



```
> db.stock.find({ "Sector": "Technology" })
< {
  _id: ObjectId('52853800bb1177ca391c1806'),
  Ticker: 'AAOI',
  'Profit Margin': -0.023,
  'Institutional Ownership': 0.114,
  'EPS growth past 5 years': 0,
  'Current Ratio': 1.5,
  'Return on Assets': -0.048,
  Sector: 'Technology',
  'P/S': 2.3,
  'Change from Open': -0.0215,
  'Performance (YTD)': 0.2671,
  'Performance (Week)': -0.0381,
  'Quick Ratio': 0.9,
  'EPS growth quarter over quarter': -1,
  'Forward P/E': 12.77,
  '200-Day Simple Moving Average': 0.0654,
  'Shares Outstanding': 12.6,
  '52-Week High': -0.0904,
  'P/Cash': 16.23,
  Change: -0.0269,
  'Analyst Recom': 1.8,
  'Volatility (Week)': 0.0377,
  Country: 'USA',
  'Return on Equity': 0.043,
  '50-Day Low': 0.3539,
  Price: 12.28
```

6. Cho biết tổng giá bán của những stock có Average volume  $\geq 2000$   
Sử dụng:

```
db.stock.aggregate([  
  { $match: { "Average Volume": { $gte: 2000 } } },  
  { $group: { _id: null, totalPrice: { $sum: "$Price" } } }  
])
```

```
> db.stock.aggregate([  
  { $match: { "Average Volume": { $gte: 2000 } } },  
  { $group: { _id: null, totalPrice: { $sum: "$Price" } } }  
])  
< {  
  _id: null,  
  totalPrice: 24118.44  
}  
stock>
```

7. Cho biết những stock không phải nước Mỹ  
Sử dụng: db.stock.find({ "Country": { \$ne: "USA" } })

```
> _MONGOSH
> db.stock.find({ "Country": { $ne: "USA" } })
< {
  _id: ObjectId('52853800bb1177ca391c180b'),
  Ticker: 'AAU',
  'Institutional Ownership': 0.059,
  'EPS growth past 5 years': -0.232,
  'Total Debt/Equity': 0,
  'Current Ratio': 44.8,
  'Return on Assets': -0.207,
  Sector: 'Basic Materials',
  'P/S': 250.21,
  'Change from Open': -0.0159,
  'Performance (YTD)': -0.6057,
  'Performance (Week)': -0.0385,
  'Quick Ratio': 44,
  'P/B': 1.58,
  'EPS growth quarter over quarter': 0.333,
  'Performance (Quarter)': -0.399,
  '200-Day Simple Moving Average': -0.2745,
  'Shares Outstanding': 60.05,
  '52-Week High': -0.6242,
  'P/Cash': 4.78,
  Change: -0.008,
  'Volatility (Week)': 0.0617,
  Country: 'Canada',
  'Return on Equity': -0.209,
  '50-Day Low': 0.0333,
  Price: 1.24,
  '50-Day High': -0.2994,
```

8. Cho biết những stock ở vị trí chẵn  
Sử dụng: `db.stock.find().skip(1).limit(1)`

```
> db.stock.find().skip(1).limit(1)
< {
  _id: ObjectId('52853800bb1177ca391c1800'),
  Ticker: 'AA',
  'Profit Margin': 0.013,
  'Institutional Ownership': 0.599,
  'EPS growth past 5 years': -0.439,
  'Total Debt/Equity': 0.65,
  'Current Ratio': 1.2,
  'Return on Assets': 0.008,
  Sector: 'Basic Materials',
  'P/S': 0.41,
  'Change from Open': -0.0022,
  'Performance (YTD)': 0.0502,
  'Performance (Week)': -0.0694,
  'Quick Ratio': 0.7,
  'Insider Transactions': 0.1031,
  'P/B': 0.75,
  'EPS growth quarter over quarter': 1.143,
  'Payout Ratio': 0.429,
  'Performance (Quarter)': 0.1058,
  'Forward P/E': 21.35,
  'P/E': 35.96,
  '200-Day Simple Moving Average': 0.0823,
  'Shares Outstanding': 1070,
  'Earnings Date': 2013-10-08T20:30:00.000Z,
  '52-Week High': -0.0925,
```

## 9. Nhóm stock theo quốc gia và tính tổng giá

Sử dụng:

```
db.stock.aggregate([
  { $group: { _id: "$Country", totalPrice: { $sum: "$Price" } } }
])
```

```
> db.stock.aggregate([
  { $group: { _id: "$Country", totalPrice: { $sum: "$Price" } } }
])
< {
  _id: 'USA',
  totalPrice: 374650.43
}
{
  _id: 'South Korea',
  totalPrice: 270.12
}
{
  _id: 'Japan',
  totalPrice: 938.06
}
{
  _id: 'British Virgin Islands',
  totalPrice: 49.13
}
{
  _id: 'Philippines',
  totalPrice: 64.18
}
```

10. Cho biết những stock không có nợ và là công ty trách nhiệm hữu hạn  
Sử dụng: `db.stock.find({ "Total Debt/Equity": 0, "Company": "/LLC/" })`

```
> db.stock.find({ "Total Debt/Equity": 0, "Company": /LLC/ })
< {
  _id: ObjectId('52853803bb1177ca391c1f04'),
  Ticker: 'EEQ',
  'Institutional Ownership': 0.592,
  'EPS growth past 5 years': -0.026,
  'Total Debt/Equity': 0,
  'Return on Assets': -0.009,
  Sector: 'Basic Materials',
  'Change from Open': 0.0123,
  'Performance (YTD)': 0.0308,
  'Performance (Week)': -0.0156,
  'P/B': 1.37,
  'EPS growth quarter over quarter': -1.171,
  'Performance (Quarter)': -0.0378,
  'Forward P/E': 17.96,
  '200-Day Simple Moving Average': -0.0189,
  'Shares Outstanding': 55.3,
  'Earnings Date': 2013-10-28T04:00:00.000Z,
  '52-Week High': -0.1152,
  'P/Cash': 1705.08,
  Change: 0.0115,
  'Analyst Recom': 2.2,
  'Volatility (Week)': 0.0189,
  Country: 'USA',
  'Return on Equity': -0.01,
  '50-Day Low': 0.0377,
  Price: 28.07.
```