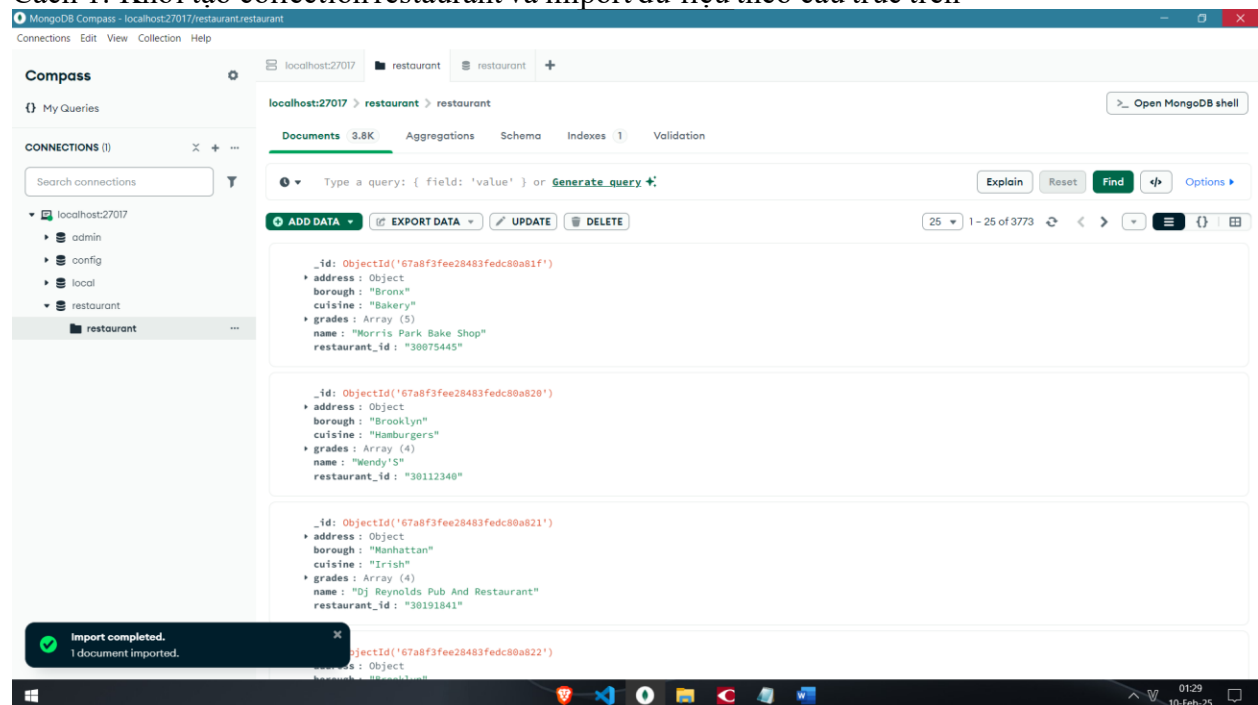Bài 1: Mở tập tin restaurant_documents.txt và nhập dữ liệu theo cấu trúc

```
{
    "address": {
        "building": "1007",
        "coord": [ -73.856077, 40.848447 ],
        "street": "Morris Park Ave",
        "zipcode": "10462"
    },
    "borough": "Bronx",
    "cuisine": "Bakery",
    "grades": [
        { "date": { "$date": 1393804800000 }, "grade": "A", "score": 2 },
        { "date": { "$date": 1378857600000 }, "grade": "A", "score": 6 },
        { "date": { "$date": 1358985600000 }, "grade": "A", "score": 10 },
        { "date": { "$date": 1322006400000 }, "grade": "A", "score": 9 },
        { "date": { "$date": 1299715200000 }, "grade": "B", "score": 14 }
    ],
    "name": "Morris Park Bake Shop",
    "restaurant_id": "30075445"
}
```

Cách 1: Khởi tạo collection restaurant và import dữ liệu theo cấu trúc trên

Cách 2: Hoặc import từ terminal

mongoimport --db restaurant --collection restaurant --file "C:\Users\KietDo\Desktop\restaurant_documents.txt" --jsonArray

2. Hiển thị tất cả document có trong restaurant
Sử dụng: db.restaurant.find().pretty()

```
> db.restaurant.find().pretty()
< {
    _id: ObjectId('67a9f62bd65c0aacab18964a'),
    address: {
      building: '1007',
      coord: [
        -73.856077,
        40.848447
      ],
      street: 'Morris Park Ave',
      zipcode: '10462'
    },
    borough: 'Bronx',
    cuisine: 'Bakery',
    grades: [
      {
        date: 2014-03-03T00:00:00.000Z,
        grade: 'A',
        score: 2
      },
      {
        date: 2013-09-11T00:00:00.000Z,
        grade: 'A',
        score: 6
```

3. Hiển thị các key restaurant_id, name, borough, cuisine

Sử dụng: db.restaurant.find({}, {restaurant_id: 1, name: 1, borough: 1, cuisine: 1, _id: 0}).pretty()

```
>_MONGOSH
> db.restaurant.find({}, {restaurant_id: 1, name: 1, borough: 1, cuisine: 1, _id: 0}).pretty()
< {
    borough: 'Bronx',
    cuisine: 'Bakery',
    name: 'Morris Park Bake Shop',
    restaurant_id: '30075445'
  }
  {
    borough: 'Brooklyn',
    cuisine: 'Hamburgers',
    name: "Wendy'S",
    restaurant_id: '30112340'
  }
  {
    borough: 'Manhattan',
    cuisine: 'Irish',
    name: 'Dj Reynolds Pub And Restaurant',
    restaurant_id: '30191841'
  }
  {
    borough: 'Brooklyn',
    cuisine: 'American ',
    name: 'Riviera Caterer',
    restaurant_id: '40356018'
  }
  {
    borough: 'Queens',
    cuisine: 'Jewish/Kosher',
    name: 'Tov Kosher Kitchen',
```

4. Hiển thị các key restaurant_id, name, borough, cuisine nhưng không hiển thị _id

Sử dụng: db.restaurant.find({}, {restaurant_id: 1, name: 1, borough: 1, cuisine: 1, _id: 0}).pretty()

```
> db.restaurant.find({}, {restaurant_id: 1, name: 1, borough: 1, cuisine: 1, _id: 0}).pretty()
< {
    borough: 'Bronx',
    cuisine: 'Bakery',
    name: 'Morris Park Bake Shop',
    restaurant_id: '30075445'
  }
  {
    borough: 'Brooklyn',
    cuisine: 'Hamburgers',
    name: "Wendy'S",
    restaurant_id: '30112340'
  }
  {
    borough: 'Manhattan',
    cuisine: 'Irish',
    name: 'Dj Reynolds Pub And Restaurant',
    restaurant_id: '30191841'
  }
  {
    borough: 'Brooklyn',
    cuisine: 'American ',
    name: 'Riviera Caterer',
    restaurant_id: '40356018'
  }
  {
```

5. Hiển thị tất cả restaurant có borough là Bronx
Sử dụng: db.restaurant.find({borough: "Bronx"}).pretty()

```
> db.restaurant.find({borough: "Bronx"}).pretty()
< {
    _id: ObjectId('67a9f62bd65c0aacab18964a'),
    address: {
      building: '1007',
      coord: [
        -73.856077,
        40.848447
      ],
      street: 'Morris Park Ave',
      zipcode: '10462'
    },
    borough: 'Bronx',
    cuisine: 'Bakery',
    grades: [
      {
```

```
    ],
    street: 'Southern Boulevard',
    zipcode: '10460'
  },
  borough: 'Bronx',
  cuisine: 'American ',
  grades: [
    {
      date: 2014-05-28T00:00:00.000Z,
      grade: 'A',
      score: 11
    },
    {
      date: 2013-06-19T00:00:00.000Z,
      grade: 'A',
      score: 4
    },
    {
      date: 2012-06-15T00:00:00.000Z,
      grade: 'A',
      score: 3
    }
  ],
  name: 'Wild Asia',
  restaurant_id: '40357217'
}
```

6. Hiển thị 5 restaurant đầu tiên có borough là Bronx
Sử dụng: db.restaurant.find({borough: "Bronx"}).limit(5).pretty()

```
> db.restaurant.find({borough: "Bronx"}).limit(5).pretty()
< {
    _id: ObjectId('67a9f62bd65c0aacab18964a'),
    address: {
      building: '1007',
      coord: [
        -73.856077,
        40.848447
      ],
      street: 'Morris Park Ave',
      zipcode: '10462'
    },
    borough: 'Bronx',
    cuisine: 'Bakery',
```

```
    ],
    name: 'Morris Park Bake Shop',
    restaurant_id: '30075445'
  }
  {
    _id: ObjectId('67a9f62bd65c0aacab189654'),
    address: {
      building: '2300',
      coord: [
        -73.8786113,
        40.8502883
      ],
      street: 'Southern Boulevard',
      zipcode: '10460'
    },
    borough: 'Bronx',
    cuisine: 'American ',
    grades: [
      {
        date: 2014-05-28T00:00:00.000Z,
        grade: 'A',
        score: 11
      },
      {
```

```
    ],
    name: 'Wild Asia',
    restaurant_id: '40357217'
  }
  {
    _id: ObjectId('67a9f62bd65c0aacab189669'),
    address: {
      building: '1006',
      coord: [
        -73.84856870000002,
        40.8903781
      ],
      street: 'East 233 Street',
      zipcode: '10466'
    },
    borough: 'Bronx',
    cuisine: 'Ice Cream, Gelato, Yogurt, Ices',
    grades: [
      {
        date: 2014-04-24T00:00:00.000Z,
        grade: 'A',
        score: 10
      },
      {
        date: 2013-09-05T00:00:00.000Z,
        grade: 'A',
```

```
    _id: ObjectId('67a9f62bd65c0aacab18966d'),
    address: {
      building: '1236',
      coord: [
        -73.8893654,
        40.81376179999999
      ],
      street: '238 Spofford Ave',
      zipcode: '10474'
    },
    borough: 'Bronx',
    cuisine: 'Chinese',
    grades: [
      {
        date: 2013-12-30T00:00:00.000Z,
        grade: 'A',
        score: 8
      },
      {
        date: 2013-01-08T00:00:00.000Z,
        grade: 'A',
        score: 10
      },
```

```
  ],
  street: 'East Kingsbridge Road',
  zipcode: '10458'
},
borough: 'Bronx',
cuisine: 'Chinese',
grades: [
  {
    date: 2014-03-03T00:00:00.000Z,
    grade: 'A',
    score: 10
  },
  {
    date: 2013-09-26T00:00:00.000Z,
    grade: 'A',
    score: 10
  },
  {
    date: 2013-03-19T00:00:00.000Z,
    grade: 'A',
    score: 10
  },
  {
```

7. Hiển thị 5 restaurant tiếp theo sau khi đã bỏ qua 5 restaurant đầu có borough là Bronx
Sử dụng: db.restaurant.find({borough: "Bronx"}).skip(5).limit(5).pretty()

```
>_MONGOSH

> db.restaurant.find({borough: "Bronx"}).skip(5).limit(5).pretty()
< {
    _id: ObjectId('67a9f62bd65c0aacab189687'),
    address: {
      building: '658',
      coord: [
        -73.81363999999999,
        40.82941100000001
      ],
      street: 'Clarence Ave',
      zipcode: '10465'
    },
    borough: 'Bronx',
    cuisine: 'American ',
    grades: [
      {
        date: 2014-06-21T00:00:00.000Z,
        grade: 'A',
        score: 5
      },
      {
        date: 2012-07-11T00:00:00.000Z,
        grade: 'A',
        score: 10
      }
    ],
    name: 'Manhem Club',
    restaurant_id: '40364363'
  }
```

```
  {
    _id: ObjectId('67a9f62bd65c0aacab18969f'),
    address: {
      building: '2222',
      coord: [
        -73.84971759999999,
        40.8304811
      ],
      street: 'Haviland Avenue',
      zipcode: '10462'
    },
    borough: 'Bronx',
    cuisine: 'American ',
    grades: [
      {
        date: 2014-12-18T00:00:00.000Z,
        grade: 'A',
        score: 7
      },
      {
        date: 2014-05-01T00:00:00.000Z,
        grade: 'B',
        score: 17
      },
      {
        date: 2013-03-14T00:00:00.000Z,
```

```
  ],
  name: 'The New Starling Athletic Club Of The Bronx',
  restaurant_id: '40364956'
}
{
  _id: ObjectId('67a9f62bd65c0aacab1896b7'),
  address: {
    building: '72',
    coord: [
      -73.92506,
      40.8275556
    ],
    street: 'East  161 Street',
    zipcode: '10451'
  },
  borough: 'Bronx',
  cuisine: 'American ',
  grades: [
    {
      date: 2014-04-15T00:00:00.000Z
```

```
  ],
  name: 'Yankee Tavern',
  restaurant_id: '40365499'
}
{
  _id: ObjectId('67a9f62bd65c0aacab1896ca'),
  address: {
    building: '331',
    coord: [
      -73.87786539999999,
      40.8724377
    ],
    street: 'East  204 Street',
    zipcode: '10467'
  },
  borough: 'Bronx',
  cuisine: 'Irish',
  grades: [
    {
      date: 2014-08-26T00:00:00.000Z,
      grade: 'A',
      score: 10
    },
    {
```

```
    ],
    name: 'Mcdwyers Pub',
    restaurant_id: '40365893'
  }
  {
    _id: ObjectId('67a9f62bd65c0aacab1896e3'),
    address: {
      building: '5820',
      coord: [
        -73.9002615,
        40.885186
      ],
      street: 'Broadway',
      zipcode: '10463'
    },
    borough: 'Bronx',
    cuisine: 'American ',
    grades: [
      {
        date: 2014-02-26T00:00:00.000Z,
        grade: 'A',
        score: 5
      },
```

```
        score: 35
      }
    ],
    name: 'The Punch Bowl',
    restaurant_id: '40366497'
  }
```

8. Cho biết những restaurant có điểm số > 90
Sử dụng: db.restaurant.find({"grades.score": {$gt: 90}}).pretty()

```
> db.restaurant.find({"grades.score": {$gt: 90}}).pretty()
< {
    _id: ObjectId('67a9f62bd65c0aacab1897a8'),
    address: {
      building: '65',
      coord: [
        -73.9782725,
        40.7624022
      ],
      street: 'West   54 Street',
      zipcode: '10019'
    },
    borough: 'Manhattan',
    cuisine: 'American ',
    grades: [
      {
        date: 2014-08-22T00:00:00.000Z,
        grade: 'A',
        score: 11
      },
      {
        date: 2014-03-28T00:00:00.000Z,
        grade: 'C',
        score: 131
      },
      {
        date: 2013-09-25T00:00:00.000Z,
        grade: 'A',
```

```
  ],
  name: "Murals On 54/Randolphs'S",
  restaurant_id: '40372466'
}
{
  _id: ObjectId('67a9f62bd65c0aacab189849'),
  address: {
    building: '345',
    coord: [
      -73.9864626,
      40.7266739
    ],
    street: 'East 6 Street',
    zipcode: '10003'
  },
  borough: 'Manhattan',
  cuisine: 'Indian',
  grades: [
    {
      date: 2014-09-15T00:00:00.000Z,
      grade: 'A',
      score: 5
    },
    {
      date: 2014-01-14T00:00:00.000Z
```

```
      {
        date: 2012-04-06T00:00:00.000Z,
        grade: 'C',
        score: 92
      },
      {
        date: 2011-11-03T00:00:00.000Z,
        grade: 'C',
        score: 41
      }
    }
```

```
  name: 'Gandhi',
  restaurant_id: '40381295'
}
{
  _id: ObjectId('67a9f62bd65c0aacab1899ac'),
  address: {
    building: '130',
    coord: [
      -73.984758,
      40.7457939
    ],
    street: 'Madison Avenue',
    zipcode: '10016'
  },
  borough: 'Manhattan',
  cuisine: 'Pizza/Italian',
  grades: [
    {
      date: 2014-12-24T00:00:00.000Z,
      grade: 'Z',
      score: 31
    },
    {
      date: 2014-06-17T00:00:00.000Z,
      grade: 'C',
      score: 98
```

```
>_MONGOSH
        date: 2014-12-24T00:00:00.000Z,

        grade: 'Z',

        score: 31

      },

      {

        date: 2014-06-17T00:00:00.000Z,

        grade: 'C',

        score: 98

      },

      {

        date: 2013-12-12T00:00:00.000Z,

        grade: 'C',

        score: 32

      },

      {

        date: 2013-05-22T00:00:00.000Z,

        grade: 'B',

        score: 21

      },

      {

        date: 2012-05-02T00:00:00.000Z,

        grade: 'A',

        score: 11

      }

    ],

    name: 'Bella Napoli',

    restaurant_id: '40393488'

  }
```
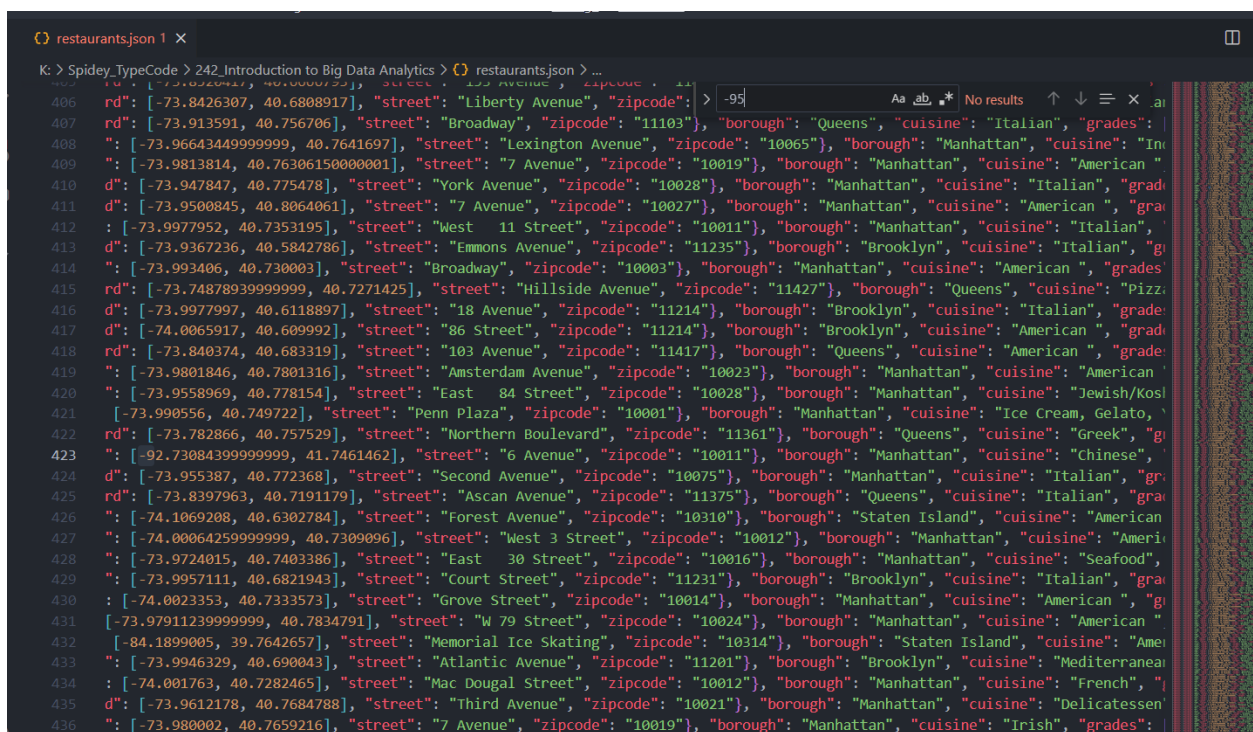
9. Cho biết những restaurant có điểm số > 80 và < 100
Sử dụng: db.restaurant.find({"grades.score": {$gt: 80, $lt: 100}}).pretty()

```
> db.restaurant.find({"grades.score": {$gt: 80, $lt: 100}}).pretty()
< {
    _id: ObjectId('67a9f62bd65c0aacab1897a8'),
    address: {
      building: '65',
      coord: [
        -73.9782725,
        40.7624022
      ],
      street: 'West   54 Street',
      zipcode: '10019'
    },
    borough: 'Manhattan',
    cuisine: 'American ',
    grades: [
      {
        date: 2014-08-22T00:00:00.000Z,
        grade: 'A',
        score: 11
      },
      {
        date: 2014-03-28T00:00:00.000Z,
        grade: 'C',
        score: 131
      },
      {
```

```
>_MONGOSH
        {
          date: 2013-09-25T00:00:00.000Z,
          grade: 'A',
          score: 11
        },
        {
          date: 2013-04-08T00:00:00.000Z,
          grade: 'B',
          score: 25
        },
        {
          date: 2012-10-15T00:00:00.000Z,
          grade: 'A',
          score: 11
        },
        {
          date: 2011-10-19T00:00:00.000Z,
          grade: 'A',
          score: 13
        }
      ],
      name: "Murals On 54/Randolphs'S",
      restaurant_id: '40372466'
    }
    {
      _id: ObjectId('67a9f62bd65c0aacab189849'),
      address: {
        building: '345',
        coord: [
```

```
    ],
    street: 'East 6 Street',
    zipcode: '10003'
  },
  borough: 'Manhattan',
  cuisine: 'Indian',
  grades: [
    {
      date: 2014-09-15T00:00:00.000Z,
      grade: 'A',
      score: 5
    },
    {
      date: 2014-01-14T00:00:00.000Z,
      grade: 'A',
      score: 8
    },
    {
      date: 2013-05-30T00:00:00.000Z,
      grade: 'A',
      score: 12
    },
    {
      date: 2013-04-24T00:00:00.000Z,
      grade: 'P',
      score: 2
```

```
    {
      date: 2012-04-06T00:00:00.000Z,
      grade: 'C',
      score: 92
    },
    {
      date: 2011-11-03T00:00:00.000Z,
      grade: 'C',
      score: 41
    }
  ],
  name: 'Gandhi',
  restaurant_id: '40381295'
}
{
  _id: ObjectId('67a9f62bd65c0aacab1899ac'),
  address: {
    building: '130',
    coord: [
      -73.984758,
      40.7457939
    ],
    street: 'Madison Avenue',
    zipcode: '10016'
  },
  borough: 'Manhattan',
  cuisine: 'Pizza/Italian',
  grades: [
```

>_MONGOSH

```
    {
      date: 2014-12-24T00:00:00.000Z,
      grade: 'Z',
      score: 31
    },
    {
      date: 2014-06-17T00:00:00.000Z,
      grade: 'C',
      score: 98
    },
    {
      date: 2013-12-12T00:00:00.000Z,
      grade: 'C',
      score: 32
    },
    {
      date: 2013-05-22T00:00:00.000Z,
      grade: 'B',
      score: 21
    },
    {
      date: 2012-05-02T00:00:00.000Z,
      grade: 'A',
      score: 11
    }
  ],
  name: 'Bella Napoli',
  restaurant_id: '40393488'
```

```
restaurant_id: '40393488'
  }
  {
    _id: ObjectId('67a9f62cd65c0aacab18a218'),
    address: {
      building: '',
      coord: [
        -74.0163793,
        40.7167671
      ],
      street: 'Hudson River',
      zipcode: '10282'
    },
    borough: 'Manhattan',
    cuisine: 'American ',
    grades: [
      {
        date: 2014-06-27T00:00:00.000Z,
        grade: 'C',
        score: 89
      },
      {
        date: 2013-06-06T00:00:00.000Z,
        grade: 'A',
        score: 6
      },
      {
        date: 2012-06-19T00:00:00.000Z,
        grade: 'A',
```

10. Cho biết restaurant có có tung độ (latitude) < -95.754.168

Sử dụng: db.restaurant.find({"address.coord.1": {$lt: -95.754168}}).pretty()

Tìm không có nên import vào mongodb cũng không tìm được tung độ như đề bài thay vào đó sẽ lấy số tung độ gần nhất là -92

Với lệnh: db.restaurant.find({ "address.coord.0":{ $lt: -92 }})

```
< {
    _id: ObjectId('67a9f62bd65c0aacab1897f0'),
    address: {
      building: '464',
      coord: [
        -92.73084399999999,
        41.7461462
      ],
      street: '6 Avenue',
      zipcode: '10011'
    },
    borough: 'Manhattan',
    cuisine: 'Chinese',
    grades: [
      {
```

11. Cho biết restaurant có borough là Brooklyn và có cuisine là American
Sử dụng 3 lệnh nhưng không tìm thấy:

```
> db.restaurants.find({ borough: "Brooklyn", cuisine: "American" })
<
> db.restaurants.find({ borough: { $regex: /Brooklyn/i }, cuisine: { $regex: /American/i } })
<
> db.restaurants.find({ borough: "Brooklyn", cuisine: "American" }).pretty()
<
restaurant >
```

12. Cho biết restaurant có borough là Manhattan và có grade là A
Sử dụng: db.restaurant.find({ borough: "Manhattan", "grades.grade": "A" })

```
db.restaurant.find({ borough: "Manhattan", "grades.grade": "A" })
{
    _id: ObjectId('67a9f62bd65c0aacab18964c'),
    address: {
        building: '351',
        coord: [
            -73.98513559999999,
            40.7676919
        ],
        street: 'West   57 Street',
        zipcode: '10019'
    },
    borough: 'Manhattan',
    cuisine: 'Irish',
    grades: [
        {
            date: 2014-09-06T00:00:00.000Z,
            grade: 'A',
            score: 2
        },
        {
            date: 2013-07-22T00:00:00.000Z,
            grade: 'A',
            score: 11
        },
        {
            date: 2013-07-31T00:00:00.000Z,
```

13. Cho biết có bao nhiêu restaurant theo borough

Sử dụng:

db.restaurant.aggregate([

  { $group: { _id: "$borough", total: { $sum: 1 } } }

])

```
> db.restaurant.aggregate([
    { $group: { _id: "$borough", total: { $sum: 1 } } } }
  ])
< {
    _id: 'Brooklyn',
    total: 684
  }
  {
    _id: 'Manhattan',
    total: 1883
  }
  {
    _id: 'Bronx',
    total: 310
  }
  {
    _id: 'Queens',
    total: 738
  }
  {
    _id: 'Staten Island',
    total: 158
  }
restaurant >
```

14. Cho biết tổng số score của các restaurant theo borough

Sử dụng:

db.restaurant.aggregate([

 { $unwind: "$grades" },

 { $group: { _id: "$borough", total_score: { $sum: "$grades.score" } } }])

])

```
> db.restaurant.aggregate([
    { $unwind: "$grades" },
    { $group: { _id: "$borough", total_score: { $sum: "$grades.score" } } }
  ])
< {
    _id: 'Bronx',
    total_score: 17007
  }
  {
    _id: 'Brooklyn',
    total_score: 37648
  }
  {
    _id: 'Manhattan',
    total_score: 102925
  }
  {
    _id: 'Queens',
    total_score: 42340
  }
  {
    _id: 'Staten Island',
    total_score: 7443
  }
restaurant > |
```

15. Cho biết tổng số score của các restaurant theo borough và chỉ lấy những score > 50
Sử dụng:

db.restaurant.aggregate([

 { $unwind: "$grades" },

 { $match: { "grades.score": { $gt: 50 } } },

 { $group: { _id: "$borough", total_score: { $sum: "$grades.score" } } }

])

```
> db.restaurant.aggregate([
    { $unwind: "$grades" },
    { $match: { "grades.score": { $gt: 50 } } },
    { $group: { _id: "$borough", total_score: { $sum: "$grades.score" } } }
  ])
< {
    _id: 'Brooklyn',
    total_score: 881
  }
  {
    _id: 'Bronx',
    total_score: 402
  }
  {
    _id: 'Staten Island',
    total_score: 110
  }
  {
    _id: 'Manhattan',
    total_score: 2226
  }
  {
    _id: 'Queens',
    total_score: 670
  }
restaurant >
```

16. Cho biết tổng số score cho từng restaurant
Sử dụng:

db.restaurant.aggregate([

{ $unwind: "$grades" },

{ $group: { _id: "$name", total_score: { $sum: "$grades.score" } } }

])

```
> db.restaurant.aggregate([
    { $unwind: "$grades" },
    { $group: { _id: "$name", total_score: { $sum: "$grades.score" } } }
  ])
< {
    _id: 'Eastwood Manor',
    total_score: 66
  }
  {
    _id: 'Barnes & Noble Booksellers',
    total_score: 45
  }
  {
    _id: 'Lincoln Plaza Cinemas',
    total_score: 86
  }
  {
    _id: 'Hanson Gourmet Deli & Cafe',
    total_score: 86
  }
  {
    _id: 'Nonis Coffee Shop',
    total_score: 51
  }
```

17. Cho biết số đánh giá (grade) của các restaurant theo từng borough
Sử dụng:

db.restaurant.aggregate([

 { $unwind: "$grades" },

 { $group: { _id: "$borough", total_grades: { $sum: 1 } } }

])

```
> db.restaurant.aggregate([
    { $unwind: "$grades" },
    { $group: { _id: "$borough", total_grades: { $sum: 1 } } } }
  ])
< {
    _id: 'Bronx',
    total_grades: 1506
  }
  {
    _id: 'Queens',
    total_grades: 3649
  }
  {
    _id: 'Staten Island',
    total_grades: 668
  }
  {
    _id: 'Brooklyn',
    total_grades: 3276
  }
  {
    _id: 'Manhattan',
    total_grades: 9048
  }
restaurant > |
```

18. Cho biết số đánh giá (grade) của từng restaurant.
Sử dụng:

db.restaurant.aggregate([

 { $unwind: "$grades" },

 { $group: { _id: "$name", total_grades: { $sum: 1 } } } }

])

```
> db.restaurant.aggregate([
    { $unwind: "$grades" },
    { $group: { _id: "$name", total_grades: { $sum: 1 } } }
  ])
< {
    _id: 'St Lucian Paradise',
    total_grades: 3
  }
  {
    _id: 'Jimmy Max Restaurant',
    total_grades: 6
  }
  {
    _id: "Pam'S Bakery",
    total_grades: 6
  }
  {
    _id: 'The Campbell Apartment - In Grand Central',
    total_grades: 4
  }
  {
    _id: 'Mayer, Brown & Platt',
    total_grades: 4
  }
```