Лабораторная работа №8

Задание 1

Выполните импорт коллекции из файла restaurants.json

Выполните запросы :

1. Выведите все документы коллекции Ресторан в формате: **restaurant_id**, **name, borough** и **cuisine**, вывод **_id** для всех документов исключить.

```
test> use restaurants
switched to db restaurants
restaurants> db.restaurants.find(
...      {},
...      {
...           _id: 0,
...           restaurant_id: 1,
...           name: 1,
...           borough: 1,
...           cuisine: 1
...      }
... )
```

```
[
  {},
  {},
  {},
  {
    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',
restaurants>
  },
  {
    borough: 'Brooklyn',
    cuisine: 'American ',
    name: 'Riviera Caterer',
    restaurant_id: '40356018'
  },
```

2. Выведите первые 5 ресторанов в алфавитном порядке, которые находятся в районе **Bronx**.

```
restaurants> db.restaurants.find(
...      { borough: "Bronx" },   // фильтр по району
...      {
...           _id: 0,
...           restaurant_id: 1,
...           name: 1,
...           borough: 1,
...      }
... ).sort({ name: 1 }).limit(5)
```

```
[
  {
    borough: 'Bronx',
    name: 'African Market (Baboon Cafe)',
    restaurant_id: '40368026'
  },
  {
    borough: 'Bronx',
    name: 'African Terrace',
    restaurant_id: '40368021'
  },
  {
    borough: 'Bronx',
    name: 'Al Cholo Bakery',
    restaurant_id: '40424273'
  },
  {
    borough: 'Bronx',
    name: "Ali'S Roti Shop",
    restaurant_id: '40738028'
  },
  {
    borough: 'Bronx',
    name: 'Ambassador Diner',
    restaurant_id: '40403946'
  }
]
```

3. Найдите рестораны, которые набрали более 80, но менее 100 баллов.

```
restaurants> db.restaurants.find(
...      { "grades.score": { $gt: 80, $lt: 100 } },
...      {
...           _id: 0,
...           name: 1,
...           borough: 1,
...           restaurant_id: 1,
...           "grades.score": 1
...      }
... )
```

```
[
  {
    borough: 'Manhattan',
    grades: [
      { score: 11 },
      { score: 131 },
      { score: 11 },
      { score: 25 },
      { score: 11 },
      { score: 13 }
    ],
    name: "Murals On 54/Randolphs'S",
    restaurant_id: '40372466'
  },
  {
    borough: 'Manhattan',
    grades: [
      { score: 5 },
      { score: 8 },
      { score: 12 },
      { score: 2 },
      { score: 9 },
      { score: 92 },
      { score: 41 }
    ],
    name: 'Gandhi',
    restaurant_id: '40381295'
  },
```

```
  {
    borough: 'Manhattan',
    grades: [
      { score: 31 },
      { score: 98 },
      { score: 32 },
      { score: 21 },
      { score: 11 }
    ],
    name: 'Bella Napoli',
    restaurant_id: '40393488'
  },
  {
    borough: 'Manhattan',
    grades: [ { score: 89 }, { score: 6 }, { score: 13 } ],
    name: 'West 79Th Street Boat Basin Cafe',
    restaurant_id: '40756344'
  }
]
```

4. Найдите рестораны, которые не относятся к типу кухни **American**, получили оценку «**A**», не расположены в районе **Brooklyn**. Документ должен отображаться в соответствии с кухней в порядке убывания.

```
restaurants> db.restaurants.find(
...      {
...           cuisine: { $ne: "American" },
...           borough: { $ne: "Brooklyn" },
...           "grades.grade": "A"
...      },
...      {
...           _id: 0,
...           name: 1,
...           borough: 1,
...           cuisine: 1,
...           restaurant_id: 1,
...           "grades.grade": 1
...      }
... ).sort({ cuisine: -1 })
```

```
[
  {
    borough: 'Manhattan',
    cuisine: 'Vietnamese/Cambodian/Malaysia',
    grades: [
      { grade: 'A' },
      { grade: 'A' },
      { grade: 'C' },
      { grade: 'A' },
      { grade: 'A' }
    ],
    name: 'Thai Son',
    restaurant_id: '40559606'
  },
  {
    borough: 'Queens',
    cuisine: 'Vietnamese/Cambodian/Malaysia',
    grades: [
      { grade: 'B' },
      { grade: 'A' },
      { grade: 'A' },
      { grade: 'P' },
      { grade: 'B' }
    ],
    name: 'Pho Bac Vietnamese Seafood Cuisine',
    restaurant_id: '40578058'
  },
  {
    borough: 'Manhattan',
    cuisine: 'Vietnamese/Cambodian/Malaysia',
    grades: [
      { grade: 'A' }
```

5. Найдите идентификатор ресторана, название, район и кухню для тех ресторанов, чье название начинается с первых трех букв «*Wil*»

```
restaurants> db.restaurants.find(
...        { name: /^Wil/ },
...        {
...            _id: 0,
...            name: 1,
...            restaurant_id: 1,
...            borough: 1,
...            cuisine: 1
...        }
... )
```

```
[
  {
    borough: 'Brooklyn',
    cuisine: 'Delicatessen',
    name: "Wilken'S Fine Food",
    restaurant_id: '40356483'
  },
  {
    borough: 'Bronx',
    cuisine: 'American ',
    name: 'Wild Asia',
    restaurant_id: '40357217'
  },
  {
    borough: 'Bronx',
    cuisine: 'Pizza',
    name: 'Wilbel Pizza',
    restaurant_id: '40871979'
  }
]
```

6. Найдите рестораны, которые относятся к району *Bronx* и готовят *American* или *Chinese* блюда.

```
restaurants> db.restaurants.find(
...        {
...            borough: "Bronx",
...            cuisine: { $in: ["American", "Chinese"] }
...        },
...        {
...            _id: 0,
...            name: 1,
...            borough: 1,
...            cuisine: 1
...        }
... )
```

```
...)
[
  { borough: 'Bronx', cuisine: 'Chinese', name: 'Happy Garden' },
  { borough: 'Bronx', cuisine: 'Chinese', name: 'Happy Garden' },
  { borough: 'Bronx', cuisine: 'Chinese', name: 'China Wok Ii' },
  { borough: 'Bronx', cuisine: 'Chinese', name: 'Dragon City' },
  { borough: 'Bronx', cuisine: 'Chinese', name: 'Hunan Balcony' },
  {
    borough: 'Bronx',
    cuisine: 'Chinese',
    name: 'Great Wall Restaurant'
  },
  {
    borough: 'Bronx',
    cuisine: 'Chinese',
    name: 'Lucky House Restaurant'
  },
  { borough: 'Bronx', cuisine: 'Chinese', name: 'New Wah Kitchen' },
  { borough: 'Bronx', cuisine: 'Chinese', name: 'New Hing Restaurant' },
  {
    borough: 'Bronx',
    cuisine: 'Chinese',
    name: 'Hong Kong Restaurant'
  },
  { borough: 'Bronx', cuisine: 'Chinese', name: "Kristy'S Restaurant" },
  { borough: 'Bronx', cuisine: 'Chinese', name: 'East Dynasty' },
  {
    borough: 'Bronx',
    cuisine: 'Chinese',
    name: 'Lin Home Chinese Restaura'
  },
  { borough: 'Bronx', cuisine: 'Chinese', name: 'Peacock Restaurant' },
  { borough: 'Bronx', cuisine: 'Chinese', name: "Lin'S Garden" },
  {
    borough: 'Bronx',
    cuisine: 'Chinese',
    name: 'New Rainbow Restaurant'
  }
]
```

7. Найдите идентификатор ресторана, название и оценки для тех ресторанов, которые «*2014-08-11T00: 00: 00Z*» набрали *9* баллов за оценку *A*

```
restaurants> db.restaurants.find(
...     {
...         "grades": {
...             $elemMatch: {
...                 "date.$date": new Date("2014-08-11").getTime(),
...                 "grade": "A",
...                 "score": 9
...             }
...         }
...     },
...     {
...         _id: 0,
...         restaurant_id: 1,
...         name: 1,
...         grades: 1
...     }
... )
```

```
... )
[
  {
    grades: [
      { date: { '$date': 1407715200000 }, grade: 'A', score: 9 },
      { date: { '$date': 1389225600000 }, grade: 'A', score: 8 },
      { date: { '$date': 1368403200000 }, grade: 'B', score: 26 },
      { date: { '$date': 1346716800000 }, grade: 'B', score: 27 },
      { date: { '$date': 1328486400000 }, grade: 'B', score: 27 }
    ],
    name: 'Naim Kosher Pizza',
    restaurant_id: '40401060'
  },
  {
    grades: [
      { date: { '$date': 1421020800000 }, grade: 'A', score: 10 },
      { date: { '$date': 1407715200000 }, grade: 'A', score: 9 },
      { date: { '$date': 1389657600000 }, grade: 'A', score: 13 },
      { date: { '$date': 1360195200000 }, grade: 'A', score: 10 },
      { date: { '$date': 1335744000000 }, grade: 'A', score: 11 }
    ],
    name: 'Club Macanudo (Cigar Bar)',
    restaurant_id: '40526406'
  }
]
```

8. В каждом районе посчитайте количество ресторанов по каждому виду кухни. Документ должен иметь формат *borough, cuisine, count*

```
restaurants> db.restaurants.aggregate([
...     {
...         $group: {
...             _id: { borough: "$borough", cuisine: "$cuisine" },
...             count: { $sum: 1 }
...         }
...     }
... ])
[
```

```
[
  { _id: { borough: 'Queens', cuisine: 'Turkish' }, count: 1 },
  { _id: { borough: 'Queens', cuisine: 'Middle Eastern' }, count: 1 },
  {
    _id: { borough: 'Staten Island', cuisine: 'Jewish/Kosher' },
    count: 1
  },
  { _id: { borough: 'Queens', cuisine: 'Pakistani' }, count: 1 },
  { _id: { borough: 'Queens', cuisine: 'Pizza' }, count: 80 },
  { _id: { borough: 'Manhattan', cuisine: 'Donuts' }, count: 2 },
  { _id: { borough: 'Staten Island', cuisine: 'Bakery' }, count: 7 },
  { _id: { borough: 'Queens', cuisine: 'Italian' }, count: 40 },
  { _id: { borough: 'Brooklyn', cuisine: 'Mediterranean' }, count: 3 },
  { _id: { borough: 'Staten Island', cuisine: 'Italian' }, count: 17 },
  {
    _id: { borough: 'Brooklyn', cuisine: 'Pancakes/Waffles' },
    count: 1
```

9. В районе *Bronx* найдите ресторан с минимальной суммой набранных баллов.

```
restaurants> db.restaurants.aggregate([
...       { $match: { borough: "Bronx" } },
...       {
...           $project: {
...               _id: 0,
...               name: 1,
...               borough: 1,
...               total_score: { $sum: "$grades.score" }
...           }
...       },
...       { $sort: { total_score: 1 } },
...       { $limit: 1 }
... ])
[ { borough: 'Bronx', name: 'Ambassador Diner', total_score: 4 } ]
```

10. Добавьте в коллекцию свой любимый ресторан.

```
restaurants> db.restaurants.insertOne({
...       "address": {
...           "building": "58",
...           "coord": [39.513522, 57.865324],
...           "street": "улица Моторостроителей",
...           "zipcode": "152300"
...       },
...       "borough": "Тутаевский",
...       "cuisine": "Кофейня",
...       "grades": [
...           {"date": {"$date": new Date("2026-01-10").getTime()}, "grade": "A", "score": 10},
...           {"date": {"$date": new Date("2025-10-15").getTime()}, "grade": "B", "score": 14}
...       ],
...       "name": "Все Свои",
...       "restaurant_id": "51234567"
restaurants>
{
  acknowledged: true,
  insertedId: ObjectId('6962f01eaee8a5d60716c9b6')
}
```

11. В добавленном ресторане укажите информацию о времени его работы.

```
restaurants> db.restaurants.updateOne(
...       { restaurant_id: "51234567" },
...       {
...           $set: {
...               "opening_hours": {
...                   "monday": "8:00-22:00",
...                   "tuesday": "8:00-22:00",
...                   "wednesday": "8:00-22:00",
...                   "thursday": "8:00-22:00",
...                   "friday": "8:00-22:00",
...                   "saturday": "9:00-23:00",
...                   "sunday": "9:00-21:00"
...               }
...           }
...       }
... )
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
```

```
restaurants> db.restaurants.findOne(
...       { restaurant_id: "51234567" },
...       {
...           _id: 0,
...           name: 1,
...           "opening_hours": 1
...       }
... )
{
  name: 'Все Свои',
  opening_hours: {
    monday: '8:00-22:00',
    tuesday: '8:00-22:00',
    wednesday: '8:00-22:00',
    thursday: '8:00-22:00',
    friday: '8:00-22:00',
    saturday: '9:00-23:00',
    sunday: '9:00-21:00'
  }
}
```

12. Измените время работы вашего любимого ресторана.

```
restaurants> db.restaurants.updateOne(
...     { restaurant_id: "51234567" },
...     {
...         $set: {
...             "opening_hours.saturday": "9:00-00:00",
...             "opening_hours.sunday": "9:00-00:00"
...         }
...     }
... )
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
restaurants>
```

```
restaurants> db.restaurants.findOne(
...     { restaurant_id: "51234567" },
...     {
...         _id: 0,
...         name: 1,
...         "opening_hours": 1
...     }
... )
{
  name: 'Все Свои',
  opening_hours: {
    monday: '8:00-22:00',
    tuesday: '8:00-22:00',
    wednesday: '8:00-22:00',
    thursday: '8:00-22:00',
    friday: '8:00-22:00',
    saturday: '9:00-00:00',
    sunday: '9:00-00:00'
  }
}
```

Структура коллекции ресторанов
```
{
    "address": {
        «building»: «1007»,
        «coord»: [-73,856077, 40,848447],
        "street": "Моррис Парк Авеню",
        "zipcode": 10462
    },
    "borough": "Бронкс",
    "cuisine": "пекарня",
    "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"
}
```