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**SCHOOL OF COMPUTER SCIENCE ENGINEERING
AND INFORMATION SYSTEMS**

FALL SEMESTER 2024-2025

PMCA503P – DATABASE SYSTEMS LAB

MONGO-DB CYCLESHEET

SUBMITTED ON: 09 – NOV - 2024

SUBMITTED BY-

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PROGRAM: MCA

REGISTER No.: 24MCA0242

CYCLE SHEET-MONGODB AND APPLICATION DEVELOPMENT

Create the restaurants collection in your DB [DB_regno]

use DB_24MCA0242

Output

```
mycompiler_mongodb> switched to db DB_24MCA0242
DB_24MCA0242>

[Execution complete with exit code 0]
```

Import the json file to your collection [restaurants.json]

Restaurants.json file:

```
[
  {
    "restaurant_id": "100001",
    "name": "Central Cafe",
    "borough": "Manhattan",
    "cuisine": "Italian",
    "ratings": [
      { "date": "2023-05-01T00:00:00Z", "grade": "A", "score": 95 }
    ]
  },
  {
    "restaurant_id": "100002",
    "name": "Green Garden",
    "borough": "Brooklyn",
    "cuisine": "Vegetarian",
    "ratings": [
      { "date": "2023-06-10T00:00:00Z", "grade": "B", "score": 82 }
    ]
  }
]
```

```
},  
{  
  "restaurant_id": "100003",  
  "name": "Spicy House",  
  "borough": "Queens",  
  "cuisine": "Mexican",  
  "ratings": [  
    { "date": "2023-07-15T00:00:00Z", "grade": "A", "score": 90 }  
  ]  
},  
{  
  "restaurant_id": "100004",  
  "name": "Ocean View",  
  "borough": "Bronx",  
  "cuisine": "Seafood",  
  "ratings": [  
    { "date": "2023-08-21T00:00:00Z", "grade": "A", "score": 88 }  
  ]  
},  
{  
  "restaurant_id": "100005",  
  "name": "Sunshine Diner",  
  "borough": "Staten Island",  
  "cuisine": "American",  
  "ratings": [  
    { "date": "2023-09-30T00:00:00Z", "grade": "C", "score": 72 }  
  ]  
}  
]
```

Output

```
mycompiler_mongodb> switched to db DB_24MCA0242
DB_24MCA0242>
DB_24MCA0242> ... ..
  acknowledged: true,
  insertedIds: {
    '0': ObjectId('672ef6443bb8bcfaf442f807'),
    '1': ObjectId('672ef6443bb8bcfaf442f808'),
    '2': ObjectId('672ef6443bb8bcfaf442f809'),
    '3': ObjectId('672ef6443bb8bcfaf442f80a'),
    '4': ObjectId('672ef6443bb8bcfaf442f80b')
  }
}
DB_24MCA0242>

[Execution complete with exit code 0]
```

Write mongodb queries to

1. Display all the documents in the collection restaurants.

```
db.restaurants.find({})
```

Output

```
DB_24MCA0242> [
  {
    _id: ObjectId('672f148fea6da9b05042f807'),
    restaurant_id: '100001',
    name: 'Central Cafe',
    borough: 'Nz',
    cuisine: 'Italian',
    grades: [
      {
        date: ISODate('2023-05-01T00:00:00.000Z'),
        grade: 'A',
        score: 95
      }
    ]
  },
```

```
{
  _id: ObjectId('672f148fea6da9b05042f808'),
  restaurant_id: '100002',
  name: 'Green Garden',
  borough: 'Brooklyn',
  cuisine: 'Vegetarian',
  grades: [
    {
      date: ISODate('2023-06-10T00:00:00.000Z'),
      grade: 'B',
      score: 82
    }
  ]
},
```

```
{
  _id: ObjectId('672f148fea6da9b05042f809'),
  restaurant_id: '100003',
  name: 'Spicy House',
  borough: 'Queens',
  cuisine: 'Mexican',
  grades: [
    {
      date: ISODate('2014-08-11T00:00:00.000Z'),
      grade: 'A',
      score: 11
    }
  ]
},
```

```
{
  _id: ObjectId('672f148fea6da9b05042f80a'),
  restaurant_id: '100004',
  name: 'WillOcean View',
  borough: 'Manhattan',
  cuisine: 'Seafood',
  grades: [
    {
      date: ISODate('2023-08-21T00:00:00.000Z'),
      grade: 'A',
      score: 88
    }
  ]
},
```

```
{
  _id: ObjectId('672f148fea6da9b05042f80b'),
  restaurant_id: '100005',
  name: 'Sunshine Diner',
  borough: 'Staten Island',
  cuisine: 'American',
  grades: [
    {
      date: ISODate('2023-09-30T00:00:00.000Z'),
      grade: 'C',
      score: 72
    }
  ]
}
]
DB_24MCA0242>
```

[Execution complete with exit code 0]

2. Display the fields restaurant_id, name, borough and cuisine for all the documents in the collection restaurant.

```
db.restaurants.find({}, { restaurant_id: 1, name: 1, borough: 1, cuisine: 1 })
```

Output

```
DB_24MCA0242> [
  {
    _id: ObjectId('672f16366982141fce42f807'),
    restaurant_id: '100001',
    name: 'Central Cafe',
    borough: 'Nz',
    cuisine: 'Italian'
  },
  {
    _id: ObjectId('672f16366982141fce42f808'),
    restaurant_id: '100002',
    name: 'Green Garden',
    borough: 'Brooklyn',
    cuisine: 'Vegetarian'
  },
```

```
{
  _id: ObjectId('672f16366982141fce42f809'),
  restaurant_id: '100003',
  name: 'Spicy House',
  borough: 'Queens',
  cuisine: 'Mexican'
},
{
  _id: ObjectId('672f16366982141fce42f80a'),
  restaurant_id: '100004',
  name: 'Willocean View',
  borough: 'Manhattan',
  cuisine: 'Seafood'
},
```

```
{
  _id: ObjectId('672f16366982141fce42f80a'),
  restaurant_id: '100004',
  name: 'Willocean View',
  borough: 'Manhattan',
  cuisine: 'Seafood'
},
{
  _id: ObjectId('672f16366982141fce42f80b'),
  restaurant_id: '100005',
  name: 'Sunshine Diner',
  borough: 'Staten Island',
  cuisine: 'American'
}
]
DB_24MCA0242>

[Execution complete with exit code 0]
```

3. Display all the restaurant which is in the borough Bronx.

```
db.restaurants.find({ borough: "Bronx" })
```

Output

```
,
}
DB_24MCA0242>
DB_24MCA0242> [
  {
    _id: ObjectId('672f0c06645db05ce842f80a'),
    restaurant_id: '100004',
    name: 'Ocean View',
    borough: 'Bronx',
    cuisine: 'Seafood',
    grades: [
      {
        date: ISODate('2023-08-21T00:00:00.000Z'),
        grade: 'A',
        score: 88
      }
    ]
  }
]
DB_24MCA0242>

[Execution complete with exit code 0]
```

4. Display the next 5 restaurants after skipping first 5 which are in the borough Bronx.

```
db.restaurants.find({ borough: "Bronx" }).skip(5).limit(5)
```

Output

```
DB_24MCA0242> [
  {
    _id: ObjectId('672f3bb65bd81122d342f80c'),
    restaurant_id: '100006',
    name: 'Sunshine Diner',
    borough: 'Bronx',
    cuisine: 'American',
    grades: [
      {
        date: ISODate('2023-09-30T00:00:00.000Z'),
        grade: 'C',
        score: 72
      }
    ]
  },
  {
    _id: ObjectId('672f3bb65bd81122d342f80d'),
    restaurant_id: '100007',
    name: 'The Bronx Grill',
    borough: 'Bronx',
    cuisine: 'American',
    grades: [
      {
        date: ISODate('2023-09-30T00:00:00.000Z'),
        grade: 'B',
        score: 78
      }
    ]
  },
  {
    _id: ObjectId('672f3bb65bd81122d342f80e'),
    restaurant_id: '100008',
    name: 'The Bronx Grill',
    borough: 'Bronx',
    cuisine: 'American',
    grades: [
      {
        date: ISODate('2023-09-30T00:00:00.000Z'),
        grade: 'B',
        score: 78
      }
    ]
  },
  {
    _id: ObjectId('672f3bb65bd81122d342f80f'),
    restaurant_id: '100009',
    name: 'The Bronx Grill',
    borough: 'Bronx',
    cuisine: 'American',
    grades: [
      {
        date: ISODate('2023-09-30T00:00:00.000Z'),
        grade: 'B',
        score: 78
      }
    ]
  },
  {
    _id: ObjectId('672f3bb65bd81122d342f810'),
    restaurant_id: '100010',
    name: 'The Bronx Grill',
    borough: 'Bronx',
    cuisine: 'American',
    grades: [
      {
        date: ISODate('2023-09-30T00:00:00.000Z'),
        grade: 'B',
        score: 78
      }
    ]
  }
]
```

```
{
  _id: ObjectId('672f3bb65bd81122d342f80d'),
  restaurant_id: '100007',
  name: 'Sunshine Diner',
  borough: 'Bronx',
  cuisine: 'American',
  grades: [
    {
      date: ISODate('2024-11-28T00:00:00.000Z'),
      grade: 'B',
      score: 72
    }
  ]
}
DB_24MCA0242>

[Execution complete with exit code 0]
```

5. Find the restaurants who achieved a score more than 90.

```
db.restaurants.find({ "grades.score": { $gt: 90 } })
```

Output

```
,
}
DB_24MCA0242>
DB_24MCA0242> [
  {
    _id: ObjectId('672f0cf5453ce9fab342f807'),
    restaurant_id: '100001',
    name: 'Central Cafe',
    borough: 'Bronx',
    cuisine: 'Italian',
    grades: [
      {
        date: ISODate('2023-05-01T00:00:00.000Z'),
        grade: 'A',
        score: 95
      }
    ]
  }
]
DB_24MCA0242>

[Execution complete with exit code 0]
```


6. Find the restaurants that do not prepare any cuisine of 'American' and their grade score more than 70 and latitude less than -65.754168.

```
db.restaurants.find({  
  
  cuisine: { $ne: "American" },  
  
  "grades.score": { $gt: 70 },  
  
  "address.coord.1": { $lt: -65.754168 }  
  
})
```

Output

```
DB_24MCA0242> ... .. [  
  {  
    _id: ObjectId('672f3ddc7f68ad1bffa42f80c'),  
    restaurant_id: '100006',  
    name: 'Mountain Delights',  
    borough: 'Brooklyn',  
    cuisine: 'Chinese',  
    grades: [  
      {  
        date: ISODate('2023-04-15T00:00:00.000Z'),  
        grade: 'A',  
        score: 85  
      }  
    ],  
    address: {  
      coord: [ -73.856077, -66.123456 ],  
      street: 'Mountain Street',  
      zipcode: '11201'  
    }  
  },  
]
```

```
{  
  _id: ObjectId('672f3e66baebdf618f42f80e'),  
  restaurant_id: '100008',  
  name: 'Fresh Greens',  
  borough: 'Bronx',  
  cuisine: 'Vegetarian',  
  grades: [  
    {  
      date: ISODate('2023-06-05T00:00:00.000Z'),  
      grade: 'B',  
      score: 78  
    }  
  ],  
  address: {  
    coord: [ -73.85, -66.5 ],  
    street: 'Green Blvd',  
    zipcode: '10463'  
  }  
}  
]  
DB_24MCA0242>  
[Execution complete with exit code 0]
```

7. Find the restaurant Id, name, borough and cuisine for those restaurants which contain 'Wil' as first three letters for its name.

```
db.restaurants.find(  
  { name: { $regex: /^Wil/ } },  
  { restaurant_id: 1, name: 1, borough: 1, cuisine: 1 }  
)
```

Output

```
DB_24MCA0242>  
DB_24MCA0242> ... .. [  
  {  
    _id: ObjectId('672f0d90e24643617342f80a'),  
    restaurant_id: '100004',  
    name: 'WillOcean View',  
    borough: 'Manhattan',  
    cuisine: 'Seafood'  
  }  
]  
DB_24MCA0242>  
DB_24MCA0242>  
  
[Execution complete with exit code 0]
```

8. Find the restaurant Id, name, borough and cuisine for those restaurants which belong to the borough Staten Island or Queens or Bronx or Brooklyn.

```
db.restaurants.find(  
  { borough: { $in: ["Staten Island", "Queens", "Bronx", "Brooklyn"] } },  
  { restaurant_id: 1, name: 1, borough: 1, cuisine: 1 }  
)
```

Output

```
DB_24MCA0242> ... .. [
  {
    _id: ObjectId('672f0e97a8854d397a42f808'),
    restaurant_id: '100002',
    name: 'Green Garden',
    borough: 'Brooklyn',
    cuisine: 'Vegetarian'
  },
  {
    _id: ObjectId('672f0e97a8854d397a42f809'),
    restaurant_id: '100003',
    name: 'Spicy House',
    borough: 'Queens',
    cuisine: 'Mexican'
  },
  {
    _id: ObjectId('672f0e97a8854d397a42f80b'),
    restaurant_id: '100005',
    name: 'Sunshine Diner',
    borough: 'Staten Island',
    cuisine: 'American'
  }
]
DB_24MCA0242>

[Execution complete with exit code 0]
```

9. Find the restaurant Id, name, and grades for those restaurants which achieved a grade of "A" and scored 11 on an isodate "2014-08-11" among many of survey dates.

```
db.restaurants.find({
  grades: {
    $elemMatch: {
      grade: "A",
      score: 11,
      date: ISODate("2014-08-11T00:00:00Z")
    }
  }
}, { restaurant_id: 1, name: 1, grades: 1 })
```

Output

```
DB_24MCA0242>
DB_24MCA0242> ... .. [
  {
    _id: ObjectId('672f0fb834e097dfee42f809'),
    restaurant_id: '100003',
    name: 'Spicy House',
    grades: [
      {
        date: ISODate('2014-08-11T00:00:00.000Z'),
        grade: 'A',
        score: 11
      }
    ]
  }
]
DB_24MCA0242>

[Execution complete with exit code 0]
```

10. Arrange the name of the restaurants in descending along with all the columns.

```
db.restaurants.find({}).sort({ name: -1 })
```

Output

```
DB_24MCA0242>
DB_24MCA0242> [
  {
    _id: ObjectId('672f0fe6dedf19d14942f80a'),
    restaurant_id: '100004',
    name: 'WillOcean View',
    borough: 'Manhattan',
    cuisine: 'Seafood',
    grades: [
      {
        date: ISODate('2023-08-21T00:00:00.000Z'),
        grade: 'A',
        score: 88
      }
    ]
  },
]
```

```
{
  _id: ObjectId('672f0fe6dedf19d14942f80b'),
  restaurant_id: '100005',
  name: 'Sunshine Diner',
  borough: 'Staten Island',
  cuisine: 'American',
  grades: [
    {
      date: ISODate('2023-09-30T00:00:00.000Z'),
      grade: 'C',
      score: 72
    }
  ]
},
```

```
{
  _id: ObjectId('672f0fe6dedf19d14942f809'),
  restaurant_id: '100003',
  name: 'Spicy House',
  borough: 'Queens',
  cuisine: 'Mexican',
  grades: [
    {
      date: ISODate('2014-08-11T00:00:00.000Z'),
      grade: 'A',
      score: 11
    }
  ]
},
```

```
{
  _id: ObjectId('672f0fe6dedf19d14942f808'),
  restaurant_id: '100002',
  name: 'Green Garden',
  borough: 'Brooklyn',
  cuisine: 'Vegetarian',
  grades: [
    {
      date: ISODate('2023-06-10T00:00:00.000Z'),
      grade: 'B',
      score: 82
    }
  ]
},
```

```
{
  _id: ObjectId('672f0fe6dedf19d14942f807'),
  restaurant_id: '100001',
  name: 'Central Cafe',
  borough: 'Nz',
  cuisine: 'Italian',
  grades: [
    {
      date: ISODate('2023-05-01T00:00:00.000Z'),
      grade: 'A',
      score: 95
    }
  ]
}
]
DB_24MCA0242>
```

[Execution complete with exit code 0]