🧪 Practical Exercise: Migrating Medical Data to MongoDB

🧱 Step 1: Propose a MongoDB Data Model

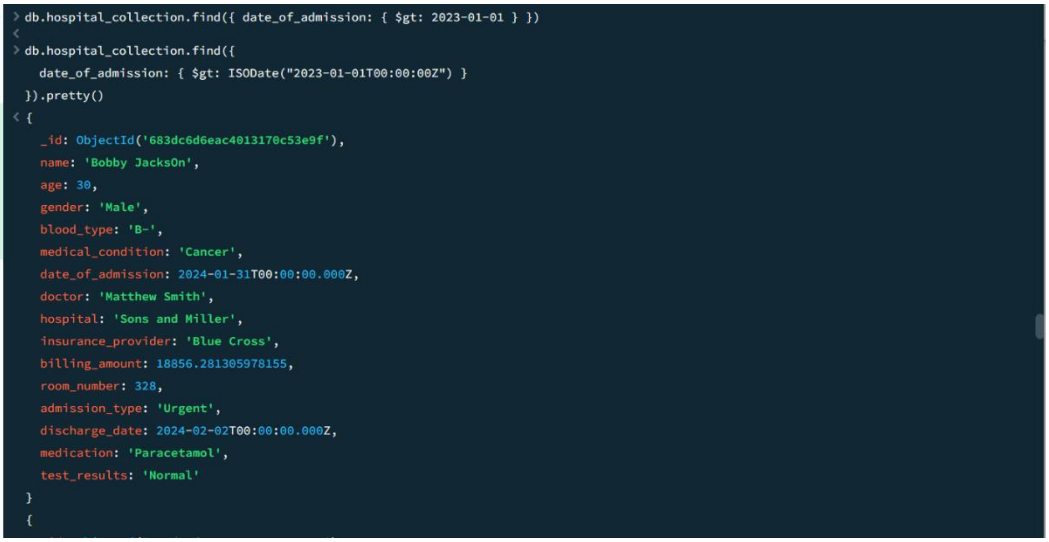
MongoDB Data Model: One collection used. Each line in my csv_file is represented by a document in my unique collection.


```
_id: ObjectId('683dc6d6eac4013170c53e9f')
name : "Bobby JacksOn"
age : 30
gender : "Male"
blood_type : "B-"
medical_condition : "Cancer"
date_of_admission : 2024-01-31T00:00:00.000+00:00
doctor : "Matthew Smith"
hospital : "Sons and Miller"
insurance_provider : "Blue Cross"
billing_amount : 18856.281305978155
room_number : 328
admission_type : "Urgent"
discharge_date : 2024-02-02T00:00:00.000+00:00
medication : "Paracetamol"
test_results : "Normal"
```


An example document in MongoDB JSON-like format.

🧪 Step 4: MongoDB Queries

1. 📅 List all patients admitted after **January 1, 2023**.



2. How many patients are in the collection?

```
> db.hospital_collection.countDocuments()
< 55500
hospital>
```

3. How many patients:
    1. Are older than 50?

```
> db.hospital_collection.count({ age: { $gt: 50 } })
< 28667
hospital>
```

    2. Have the first name **"Thomas"**?

```
> db.hospital_collection.count({
    name: {
      $regex: "Thomas\\b",
      $options: "i"
    }
  })
< 731
hospital>
```

3. Per each distinct **Medical Condition**?

```
> db.hospital_collection.aggregate([
    {
      $group: {
        _id: "$medical_condition",
        count: { $sum: 1 }
      }
    }])
< {
    _id: 'Obesity',
    count: 9231
  }
  {
    _id: 'Asthma',
    count: 9185
  }
  {
    _id: 'Hypertension',
    count: 9245
  }
  {
    _id: 'Diabetes',
    count: 9304
  }
  {
```

4. 💊 What is the frequency of usage for each **Medication**?

```
> db.hospital_collection.aggregate([
    {
      $group: {
        _id: "$medication",
        count: { $sum: 1 }
      }
    }])
< {
    _id: 'Lipitor',
    count: 11140
  }
  {
    _id: 'Ibuprofen',
    count: 11127
  }
  {
    _id: 'Paracetamol',
    count: 11071
  }
  {
    _id: 'Penicillin',
    count: 11068
  }
  {
    _id: 'Aspirin',
    count: 11094
  }
hospital>
```

5. 🔍 Retrieve all patients currently taking "Lipitor"

```
> db.hospital_collection.find({ medication:"Lipitor" })
< {
    _id: ObjectId('683dc6d6eac4013170c53eaa'),
    name: 'aaRon MARtiNeZ',
    age: 38,
    gender: 'Female',
    blood_type: 'A-',
    medical_condition: 'Hypertension',
    date_of_admission: 2023-08-13T00:00:00.000Z,
    doctor: 'Douglas Mayo',
    hospital: 'Lyons-Blair',
    insurance_provider: 'Medicare',
    billing_amount: 7999.586879604188,
    room_number: 288,
    admission_type: 'Urgent',
    discharge_date: 2023-09-05T00:00:00.000Z,
    medication: 'Lipitor',
    test_results: 'Inconclusive'
  }
  {
```