HOSPITAL MANAGEMENT Using MongoDB and MySQL

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INTRODUCTION

- Data Management is one of the major challenges in Healthcare
- Hospitals struggle to store and manage the patients records and images from various tests and surgeries carried out
- Medical Reports are the most intensive and diverse in Hospital Management Information System

Use Cases

- Patient Details
  - Users: Doctor,Patient, Admin
- Diagnosis Details
  - User: Doctor
- Billing Management
  - Admin
- Lab Data Management
  - Lab Technician, Doctors,Patients

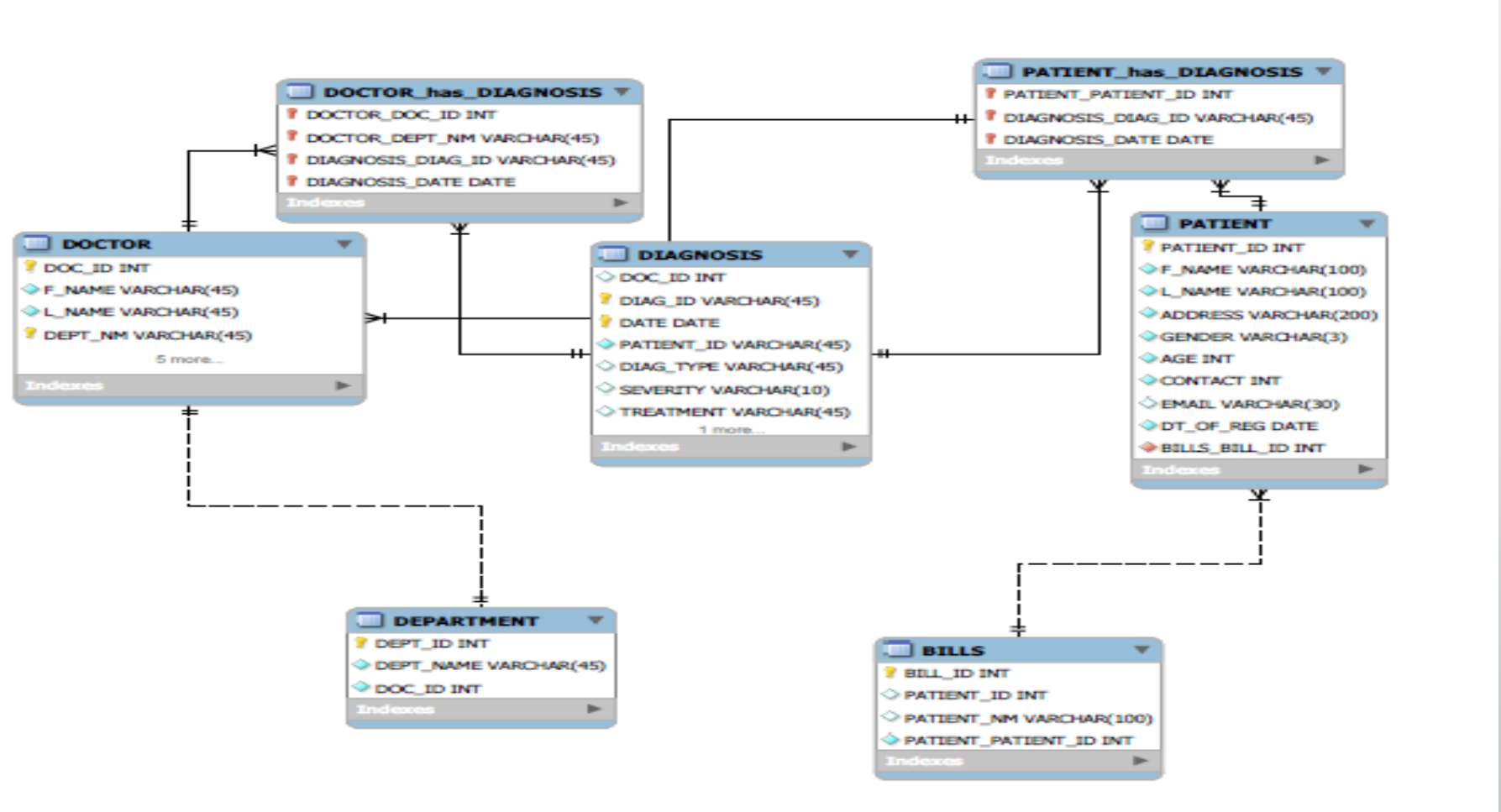
Users

- Doctor
- Patient
- Technician
- Admin

SQL Vs NoSQL

- Patient Details - SQL
- Diagnosis Details - SQL
- Billing Management - SQL
- Lab Data Management - NoSQL

SQL - UML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DOCTOR_DEPT_NM VARCHAR(45)
DIAGNOSIS_DIAG_ID VARCHAR(45)
DIAGNOSIS_DATE DATE
Indexes
PATIENT_has_DIAGNOSIS
PATIENT_PATIENT_ID INT
DIAGNOSIS_DIAG_ID VARCHAR(45)
DIAGNOSIS_DATE DATE
Indexes
DOCTOR
DOC_ID INT
F_NAME VARCHAR(45)
L_NAME VARCHAR(45)
DEPT_NM VARCHAR(45)
5 more...
Indexes
DIAGNOSIS
DOC_ID INT
DIAG_ID VARCHAR(45)
DATE DATE
PATIENT_ID VARCHAR(45)
DIAG_TYPE VARCHAR(45)
SEVERITY VARCHAR(10)
TREATMENT VARCHAR(45)
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Indexes
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L_NAME VARCHAR(100)
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GENDER VARCHAR(3)
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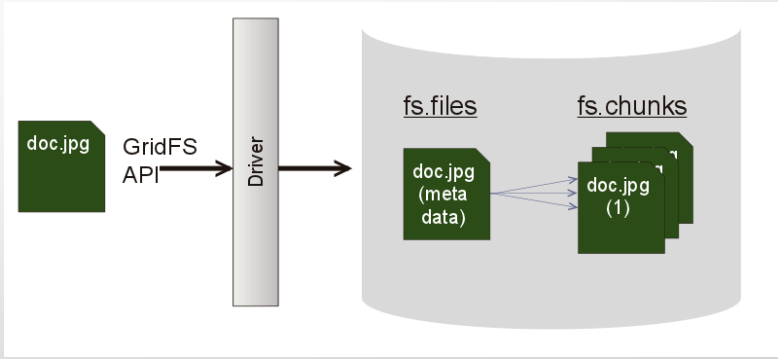
CONTACT INT
EMAIL VARCHAR(30)
DT_OF_REG DATE
BILLS_BILL_ID INT
Indexes
DEPARTMENT
DEPT_ID INT
DEPT_NAME VARCHAR(45)
DOC_ID INT
Indexes
BILLS
BILL_ID INT
PATIENT_ID INT
PATIENT_NM VARCHAR(100)
PATIENT_PATIENT_ID INT
Indexes

Data Base Design

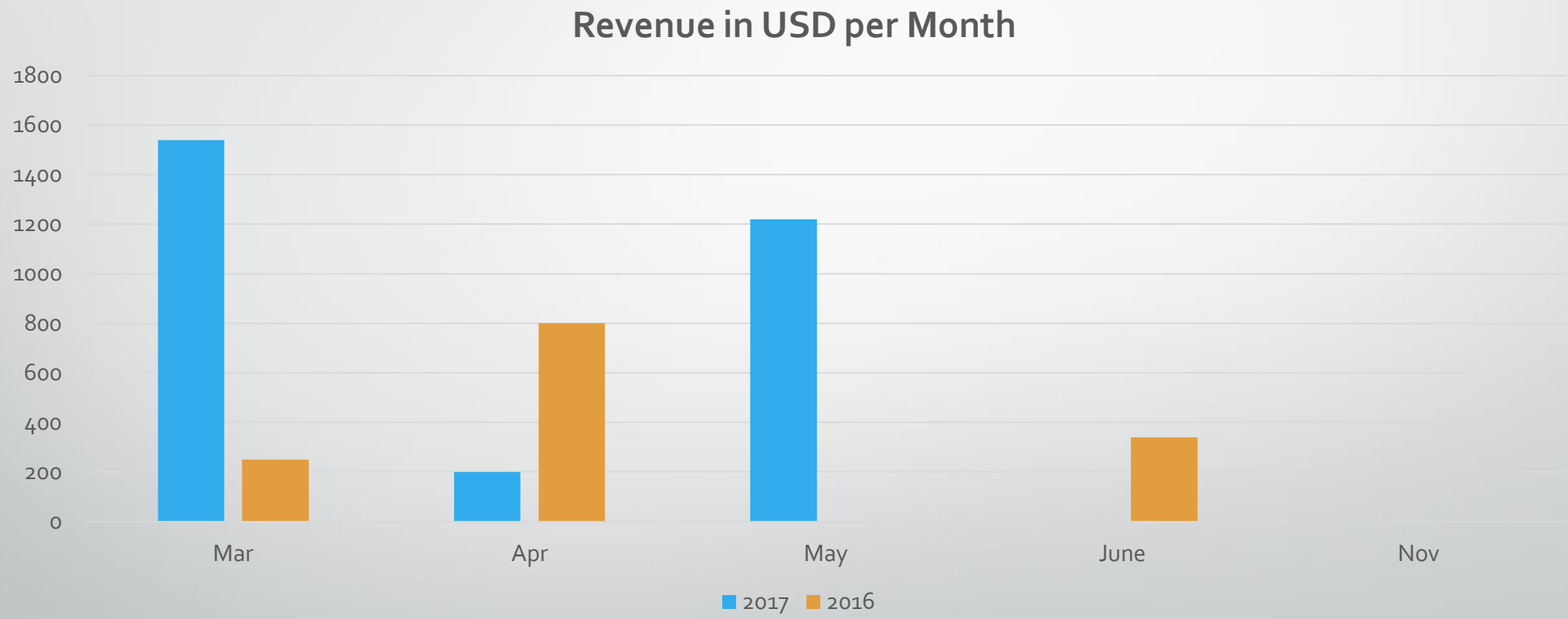
- Tables: Doctor, Patient, Diagnosis, Department, Bill
- Views: VW_Doc_consultn
- Stored Procedure: Business Matrices

Mongo Design – Lab Report Management

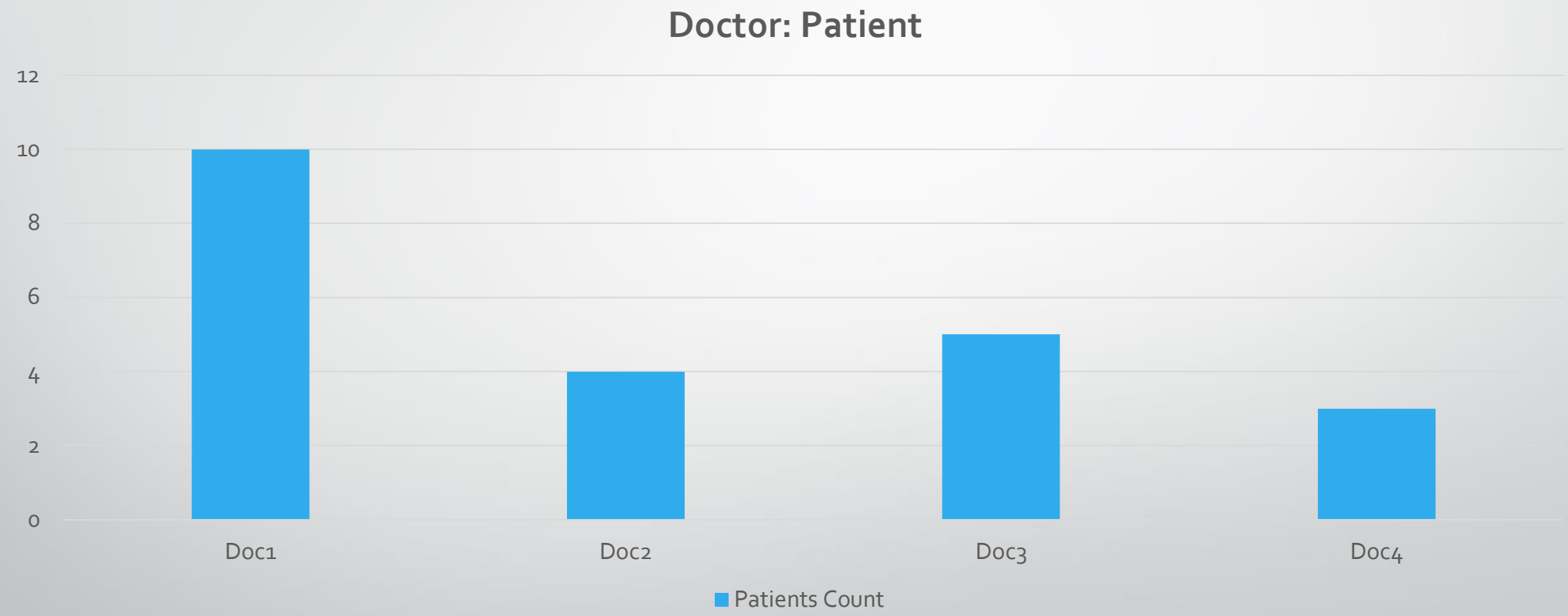
- Mongofile Utility
- GridFS - For files more than 16MB
  - fs.files
  - Fs.chunks – each chunk of size 255KB



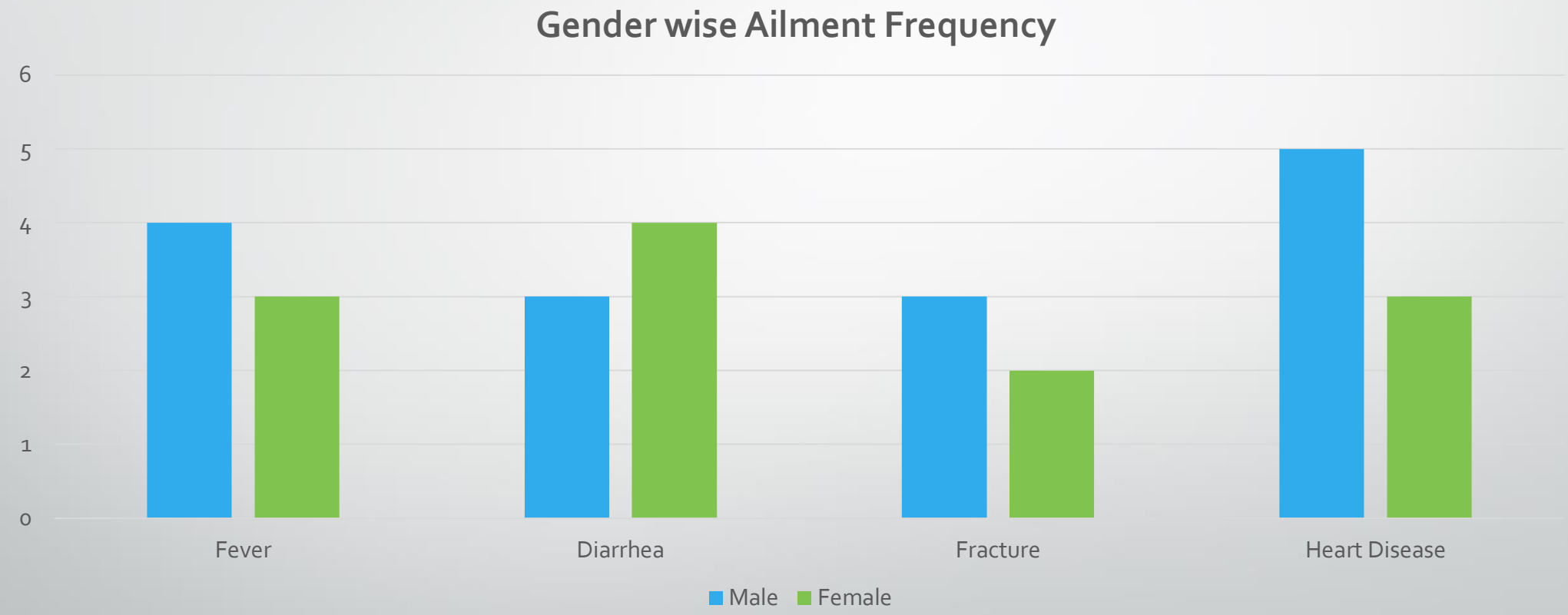
Business Matrix



Business Matrix



Business Matrix



What was the hardest part of this project?

- Deciding between SQL Vs NoSQL
- Populating Unstructured data
- Implementing the GridFS and mongofile

What problems did you run against in this project?

- Designing the management system
- Framing stored procedures
- Using Mongofiles feature

How did you solve these problems?

- Referenced SQL tutorial for stored procedure
- MogoDB manual
- Discussed with peer students who had some knowledge on DBMS

If you were to do this project again

- Improvise on the design
- Include analysis part in NoSQL
- Expand the scope to Drug Department

Thank You!