

This project creates a MySQL database schema for analyzing Lupus disease. It includes tables for patients, doctors, medications, visits, and lab results. Sample data and queries demonstrate how to extract insights from the database.

# Lupus Disease

541, 2011 2015
Date

## Lupus Disease Diagram

Safe
Proprietary

### Symptoms

- Noticed Tiredness**
- Central Pigment**
- Acute Lich**  
Tender, Swollen, Sore
- Painful Lumps**  
Congenital, Swollen
- Painful Dermal Pigment**  
Painful, Swelling
- Painful Cysts**  
Lupus, Swelling
- Severe Dermal**  
Tender, Swollen, Sore
- Itchy Patches**  
Chest, Swelling
- Cause Patches**  
Lupus, Swelling
- Painful Cysts**  
Congenital, Swollen
- Itching Patches**  
Chest, Swelling
- Painful Patches**  
Tender, Swollen, Sore

### Symptoms

Lupus, Tiredness, Swelling, Painful, Swelling

### Clinical Trials

- A study on the effects of the drug
- Rate of the drug
- Adverse effects of the drug
- Adverse effects of the drug

### Symptoms

Lupus, Tiredness, Swelling, Painful, Swelling

### Symptoms

Lupus, Tiredness, Swelling, Painful, Swelling

### Clinical Trials

Controlled and treatment

Controlled and treatment

Controlled and treatment

### Treatment

Lupus, Tiredness, Swelling, Painful, Swelling

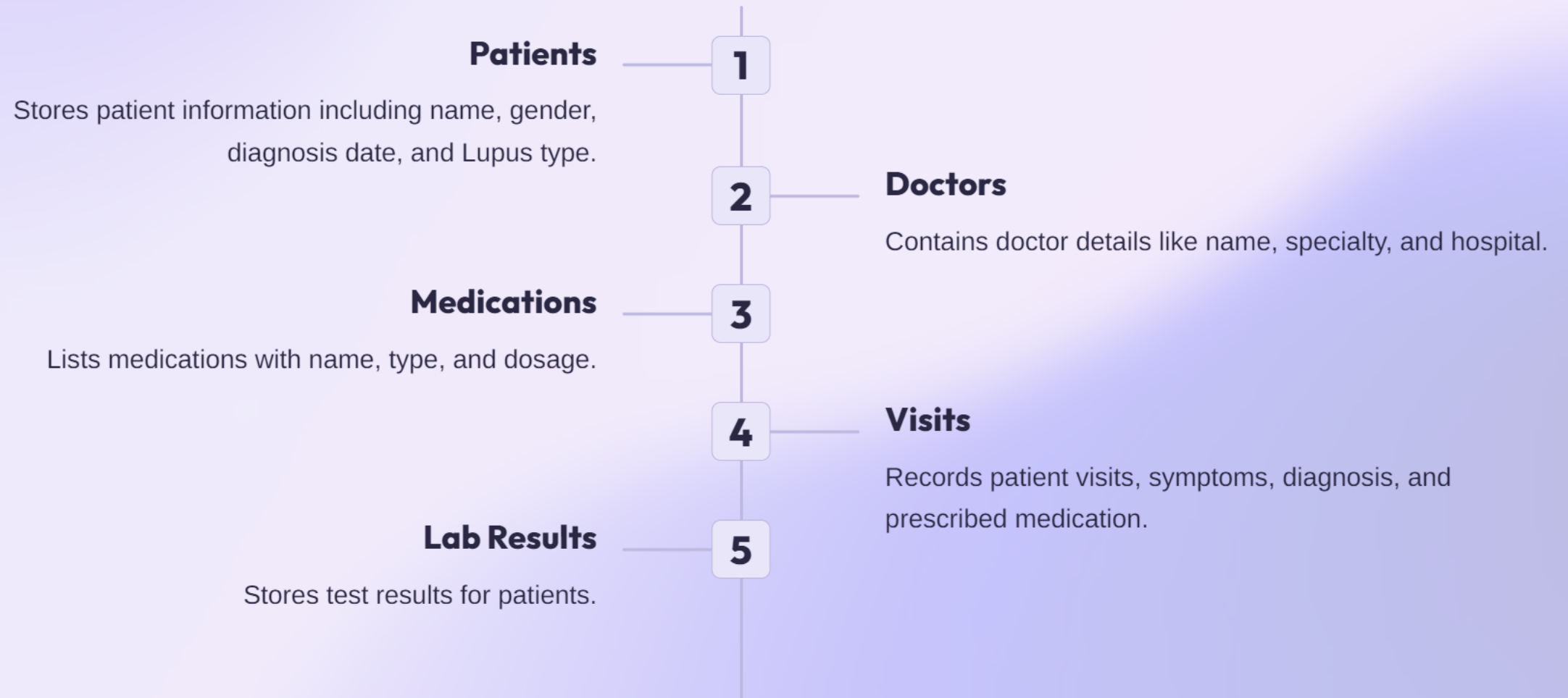
### Treatment

Lupus, Tiredness, Swelling, Painful, Swelling

### Treatment

Lupus, Tiredness, Swelling, Painful, Swelling

# Database Schema



# Sample Queries: Patient Information

1

## Find Systemic Lupus Patients

Query to retrieve patients diagnosed with Systemic Lupus.

2

## Medications for Systemic Lupus

Find medications prescribed for Systemic Lupus patients.

3

## Patient Count per Doctor

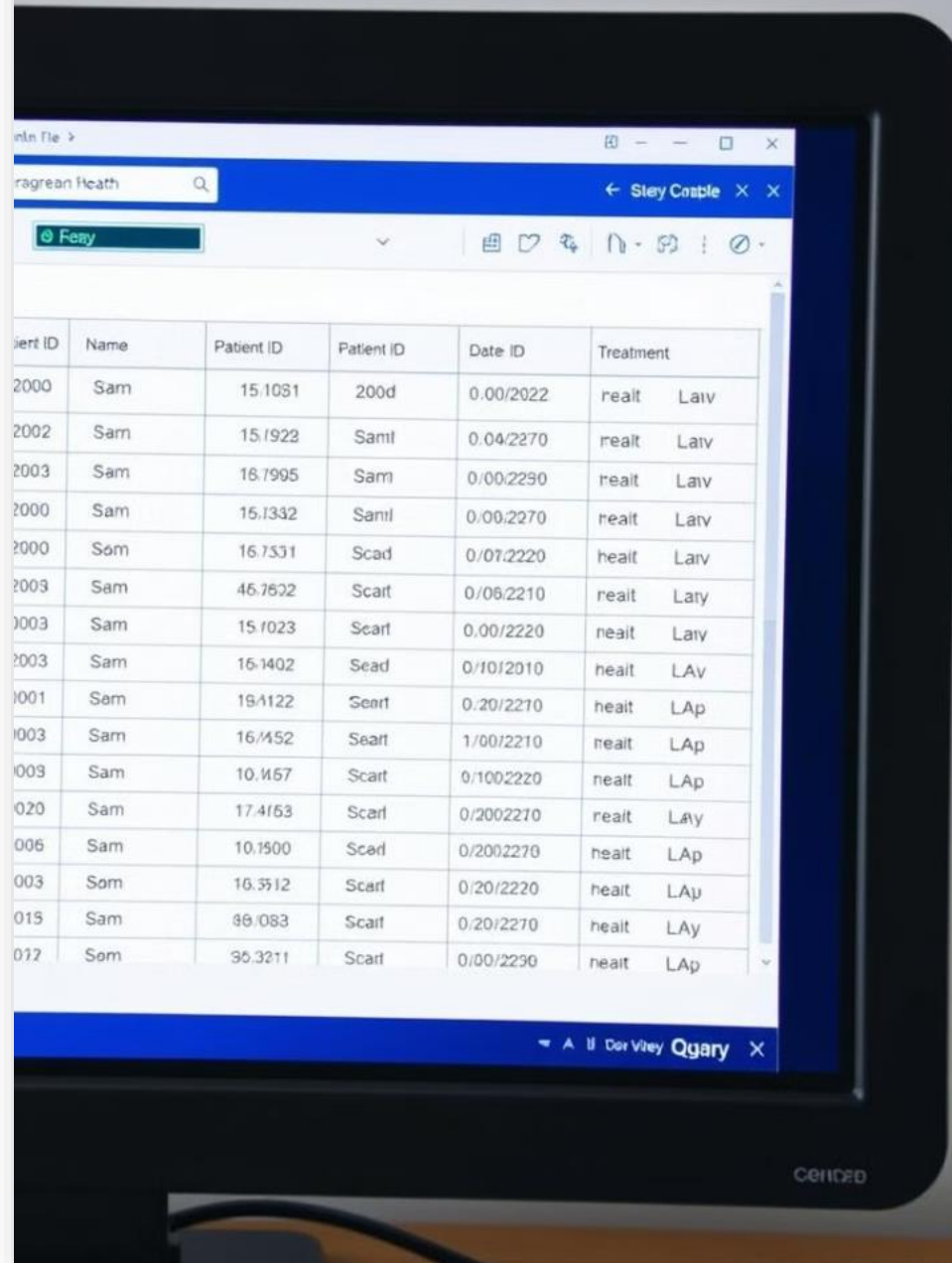
Count the number of Lupus patients each doctor is treating.

4

## Visit Details for a Patient

Retrieve all visit details for a specific patient.

- KotaKonda Venkata Pavani



The screenshot shows a web application interface with a table of patient information. The table has columns for Patient ID, Name, Patient ID, Patient ID, Date ID, and Treatment. The data is as follows:

Patient ID	Name	Patient ID	Patient ID	Date ID	Treatment
2000	Sam	15.1031	200d	0.00/2022	realt Laiv
2002	Sam	15.1922	SamI	0.04/2270	realt Laiv
2003	Sam	16.7995	SamI	0.00/2290	realt Laiv
2000	Sam	15.1332	SamI	0.00/2270	realt Laiv
2000	Sam	16.7331	Scad	0.07/2220	healt Larv
2003	Sam	46.7622	Scarf	0.06/2210	realt Lary
2003	Sam	15.1023	Scarf	0.00/2220	realt Larv
2003	Sam	16.1402	Scad	0.10/2010	healt LAv
2001	Sam	19.4122	Scarf	0.20/2210	healt LAp
2003	Sam	16.4452	Scarf	1.00/2210	realt LAp
2003	Sam	10.4457	Scarf	0.100/2220	realt LAp
2020	Sam	17.4153	Scarf	0.200/2210	realt LAy
2006	Sam	10.1900	Scarf	0.200/2210	healt LAp
2003	Sam	16.3512	Scarf	0.20/2220	healt LAp
2015	Sam	88.083	Scarf	0.20/2210	healt LAy
2012	Sam	36.3211	Scarf	0.00/2290	healt LAp



# Sample Queries: Lab Results and Medications

Query	Purpose
High CRP Test Results	Find lab results for patients with high C-Reactive Protein
Most Prescribed Medication	Identify the most frequently prescribed medication
Positive Anti-dsDNA Results	List patients with positive Anti-Double Stranded DNA test
Prednisone Prescriptions	Find patients prescribed Prednisone for Lupus treatment

- KotaKonda Venkata Pavani



# Demographic and Geographic Analysis

## BY DRUG CLASS

- Corticosteroids
- Antimalarials
- Biologics

## BY GEOGRAPHY

- North America
- Europe
- Asia-Pacific
- Rest of The world



## City with Highest Lupus Cases

Query to find the city with the most Lupus patients.

## Average Age of Lupus Patients

Calculate the average age of patients diagnosed with Lupus.

## Lupus Types Distribution

Analyze the distribution of different Lupus types among patients.



# Visit and Symptom Analysis

1

## Joint Pain Symptom

Retrieve visits where patients experienced joint pain.

2

## Doctor with Most Patients

Find the doctor who has treated the highest number of Lupus patients.

3

## Rheumatologist Visits

Identify patients who have visited a Rheumatologist more than once.

4

## Visit Counts

Count visits associated with each patient and doctor.

- KotaKonda Venkata Pavani



# Lab Test Analysis

## ANA Test Results

Retrieve lab test results for patients positive for Anti-Nuclear Antibody.

## ESR Test Results

List patients who have had an Erythrocyte Sedimentation Rate test and their results.

## CRP Test Analysis

Analyze C-Reactive Protein test results across patients.

## Anti-dsDNA Trends

Track trends in Anti-Double Stranded DNA test results over time.

- KotaKonda Venkata Pavani





```
mysql> SELECT name, gender, dob, diagnosis_date, city, state
-> FROM Patients
-> WHERE lupus_type = 'Systemic';
```

name	gender	dob	diagnosis_date	city	state
Jane Doe	Female	1985-06-15	2021-08-12	New York	NY
Emma Davis	Female	1980-09-10	2020-05-20	Chicago	IL
Chris Evans	Male	1975-11-30	2021-12-05	Dallas	TX
James Clark	Male	1992-07-18	2022-08-30	Austin	TX
Kevin Adams	Male	1982-03-27	2023-01-05	Seattle	WA

5 rows in set (0.05 sec)

**Find all patients diagnosed with Systemic Lupus?.**

```
mysql> SELECT DISTINCT medication_prescribed
-> FROM Visits
-> JOIN Patients ON Visits.patient_id = Patients.patient_id
-> WHERE lupus_type = 'Systemic';
```

medication_prescribed
Hydroxychloroquine
Methotrexate
Azathioprine

3 rows in set (0.03 sec)

**What medications are prescribed for Systemic Lupus?**



```
mysql> SELECT Doctors.name, COUNT(DISTINCT Patients.patient_id) AS number_of_patients
-> FROM Doctors
-> JOIN Visits ON Doctors.doctor_id = Visits.doctor_id
-> JOIN Patients ON Visits.patient_id = Patients.patient_id
-> GROUP BY Doctors.name;
```

name	number_of_patients
Dr. Emily Stone	3
Dr. John Wilson	3
Dr. Michael Brown	2
Dr. Olivia Williams	1
Dr. Sarah Miller	1

5 rows in set (0.06 sec)

**List the number of patients each doctor is treating for Lupus.**

```
mysql> SELECT Visits.visit_date, Doctors.name AS doctor_name, Visits.symptoms, Visits.diagnosis, Visits.medication_prescribed
-> FROM Visits
-> JOIN Doctors ON Visits.doctor_id = Doctors.doctor_id
-> JOIN Patients ON Visits.patient_id = Patients.patient_id
-> WHERE Patients.name = 'John Smith';
```

visit_date	doctor_name	symptoms	diagnosis	medication_prescribed
2023-05-22	Dr. Michael Brown	Skin rash	Cutaneous lupus	Prednisone

1 row in set (0.00 sec)

**Retrieve all visit details for a specific patient (e.g., John Smith).**

- KotaKonda Venkata Pavani

```
mysql> SELECT Patients.name, Lab_Results.test_name, Lab_Results.result_value, Lab_Results.test_date
-> FROM Lab_Results
-> JOIN Patients ON Lab_Results.patient_id = Patients.patient_id
-> WHERE test_name = 'C-Reactive Protein (CRP)' AND result_value = 'High';
```

name	test_name	result_value	test_date
John Smith	C-Reactive Protein (CRP)	High	2023-05-21

1 row in set (0.00 sec)

**Find all lab results for patients with a high C-Reactive Protein (CRP) test.**

```
mysql> SELECT city, COUNT(patient_id) AS number_of_patients
-> FROM Patients
-> GROUP BY city
-> ORDER BY number_of_patients DESC
-> LIMIT 1;
```

city	number_of_patients
New York	1

1 row in set (0.00 sec)

**Which city has the highest number of Lupus patients?**

- KotaKonda Venkata Pavani

```
mysql> SELECT lupus_type, COUNT(visit_id) AS total_visits
-> FROM Visits
-> JOIN Patients ON Visits.patient_id = Patients.patient_id
-> GROUP BY lupus_type;
```

lupus_type	total_visits
Systemic	5
Cutaneous	2
Drug-Induced	2
Neonatal	1

4 rows in set (0.00 sec)

**Find the total number of visits for each type of Lupus.**

```
mysql> SELECT Patients.name, Lab_Results.test_name, Lab_Results.result_value, Lab_Results.test_date
-> FROM Lab_Results
-> JOIN Patients ON Lab_Results.patient_id = Patients.patient_id
-> WHERE test_name = 'Anti-Nuclear Antibody (ANA)' AND result_value = 'Positive';
```

name	test_name	result_value	test_date
Jane Doe	Anti-Nuclear Antibody (ANA)	Positive	2022-03-14
Chris Evans	Anti-Nuclear Antibody (ANA)	Positive	2021-12-09
Kevin Adams	Anti-Nuclear Antibody (ANA)	Positive	2023-02-14

3 rows in set (0.00 sec)

**Retrieve the lab test results of all patients who tested positive for Anti-Nuclear Antibody (ANA).**

- KotaKonda Venkata Pavani



```
mysql> SELECT medication_prescribed, COUNT(medication_prescribed) AS prescription_count
-> FROM Visits
-> GROUP BY medication_prescribed
-> ORDER BY prescription_count DESC
-> LIMIT 1;
```

medication_prescribed	prescription_count
Hydroxychloroquine	3

1 row in set (0.00 sec)

**Which medication has been prescribed the most?**

```
mysql> SELECT Patients.name, Lab_Results.test_name, Lab_Results.result_value, Lab_Results.test_date
-> FROM Lab_Results
-> JOIN Patients ON Lab_Results.patient_id = Patients.patient_id
-> WHERE test_name = 'Anti-Double Stranded DNA (anti-dsDNA)' AND result_value = 'Positive';
```

name	test_name	result_value	test_date
Michael Brown	Anti-Double Stranded DNA (anti-dsDNA)	Positive	2021-11-04

1 row in set (0.00 sec)

**List all patients who have had a positive Anti-Double Stranded DNA (anti-dsDNA) test result.**

- KotaKonda Venkata Pavani

```
mysql> SELECT Patients.name, Visits.medication_prescribed
-> FROM Visits
-> JOIN Patients ON Visits.patient_id = Patients.patient_id
-> WHERE medication_prescribed = 'Prednisone';
```

name	medication_prescribed
John Smith	Prednisone
Sophia Johnson	Prednisone
Lisa White	Prednisone

3 rows in set (0.00 sec)

**Find all patients who have been prescribed "Prednisone" for their Lupus treatment.**

```
mysql> SELECT AVG(YEAR(CURDATE()) - YEAR(dob)) AS average_age
-> FROM Patients;
```

average_age
38.1000

1 row in set (0.05 sec)

**What is the average age of patients diagnosed with Lupus?**

- KotaKonda Venkata Pavani

```
mysql> SELECT Patients.name, Visits.visit_date, Visits.symptoms
-> FROM Visits
-> JOIN Patients ON Visits.patient_id = Patients.patient_id
-> WHERE symptoms LIKE '%Joint pain%';
```

name	visit_date	symptoms
Jane Doe	2022-03-15	Joint pain, Fatigue
James Clark	2022-09-01	Fatigue, Joint pain
Kevin Adams	2023-02-15	Joint pain

3 rows in set (0.09 sec)

**Retrieve all visits where patients experienced joint pain as a symptom.**

```
mysql> SELECT Doctors.name, COUNT(DISTINCT Patients.patient_id) AS number_of_patients
-> FROM Doctors
-> JOIN Visits ON Doctors.doctor_id = Visits.doctor_id
-> JOIN Patients ON Visits.patient_id = Patients.patient_id
-> GROUP BY Doctors.name
-> ORDER BY number_of_patients DESC
-> LIMIT 1;
```

name	number_of_patients
Dr. Emily Stone	3

1 row in set (0.00 sec)

**Find the doctor who has treated the highest number of Lupus patients.**



```
mysql> SELECT Patients.name, Lab_Results.test_name, Lab_Results.result_value, Lab_Results.test_date
-> FROM Lab_Results
-> JOIN Patients ON Lab_Results.patient_id = Patients.patient_id
-> WHERE test_name = 'Erythrocyte Sedimentation Rate (ESR)';
```

name	test_name	result_value	test_date
Emma Davis	Erythrocyte Sedimentation Rate (ESR)	High	2020-06-09
James Clark	Erythrocyte Sedimentation Rate (ESR)	Normal	2022-08-31

2 rows in set (0.00 sec)

**List all patients who have had an Erythrocyte Sedimentation Rate (ESR) test and their results.**

```
mysql> SELECT Doctors.name, COUNT(DISTINCT Patients.patient_id) AS number_of_patients
-> FROM Doctors
-> JOIN Visits ON Doctors.doctor_id = Visits.doctor_id
-> JOIN Patients ON Visits.patient_id = Patients.patient_id
-> GROUP BY Doctors.name
-> ORDER BY number_of_patients DESC
-> LIMIT 1;
```

name	number_of_patients
Dr. Emily Stone	3

1 row in set (0.00 sec)

**Which patients have visited a Rheumatologist more than once?**

- KotaKonda Venkata Pavani

**Questions?**

**Feel free to ask!**

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