### SQL Script for Hospital and Blood Bank Management

This presentation will guide you through a comprehensive SQL script for managing hospital and blood bank data. We'll cover basic operations like creating tables, inserting data, and querying information, as well as more advanced techniques for data analysis and manipulation.



### Introduction

This SQL script is designed for managing and analyzing data related to hospitals and blood banks. It includes table creation, data insertion, and a wide variety of queries to perform basic and advanced operations. These queries are tailored to extract meaningful insights, update data, and maintain the relationships between hospitals and blood banks.

### Description

- 1. **Table Structure**: The script defines two tables:
  - Hospital: Stores information about hospitals, including their name, location, contact details, and unique identifiers.
  - BloodBank: Contains details about blood banks, such as name, location, nodal officer, and email.
- 2. **Data Insertion**: Sample records for both tables are provided, simulating real-world scenarios for testing and demonstration.
- 3. **Basic Queries**: Operations like selecting all records, filtering by specific attributes, updating fields, and deleting records are included.
- 4. **Advanced Queries**: These include aggregate functions, joins, subqueries, and grouping to derive deeper insights. Examples include finding states with the most hospitals, identifying duplicate provider IDs, and calculating the average length of hospital names.
- 5. **Relationships**: Queries establish connections between hospitals and blood banks, such as finding hospitals with associated blood banks or retrieving records for hospitals and blood banks in the same district.
- 6. **View Creation**: A view named HospitalBloodBankView consolidates hospital and blood bank details, enabling easy retrieval for reporting.

### Purpose

- Database Management: Provides a foundation for organizing and managing hospital and blood bank data efficiently.
- **Data Analysis**: Facilitates analysis of key metrics, such as the number of hospitals and blood banks per state, duplication of provider IDs, and location-based insights.
- Operational Use: Supports tasks like updating contact details, adding new records, and maintaining data integrity.
- **Decision Support**: Enables stakeholders to identify regions with insufficient healthcare facilities or blood banks, aiding resource allocation and policy-making.

### Data Overview

### 1. Hospital Table:

Columns: hospital\_index, provider\_id, hospital\_name, address, city, state, zip\_code, county\_name, phone\_number,
 and email.

#### Sample Data:

- TAWAS ST JOSEPH HOSPITAL, located in Michigan (MI).
- MEMORIAL HEALTHCARE, located in Owosso, MI.

#### 2. BloodBank Table:

Columns: blood\_bank\_index, blood\_bank\_name, state, district, city, address, pincode, email, nodal\_officer.

### Sample Data:

- G.B. Pant Hospital Blood Bank in Port Blair, Andaman and Nicobar Islands.
- Red Cross Blood Bank in Mumbai, Maharashtra.

#### 3. Relationships:

• The script assumes a potential mapping between hospitals and blood banks through a HospitalBloodBank table (not explicitly created in this script but referenced in queries).

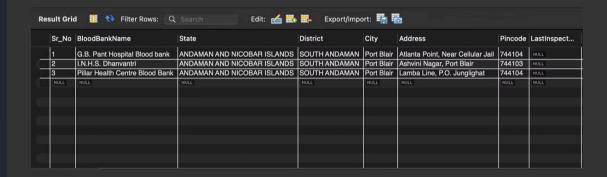
#### 4. Insights Possible:

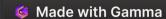
- Number of facilities in each region.
- States with no hospitals or blood banks.
- Patterns of healthcare resource distribution.



# -- Retrieve all blood banks in a specific state

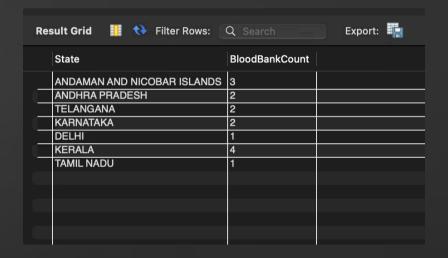
SELECT \* FROM BloodBanks WHERE State = 'Andaman And Nicobar Islands';





# -- Count the number of blood banks in each state

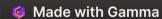
SELECT State, COUNT(\*) AS BloodBankCount FROM BloodBanks GROUP BY State;



-- Find hospitals with ZIP codes starting with '48'

SELECT \* FROM Hospitals WHERE ZIPCode LIKE '48%';

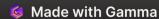
| ProviderID | HospitalName             | Address                  | City       | State | ZIPCode | CountyName | PhoneNumber |
|------------|--------------------------|--------------------------|------------|-------|---------|------------|-------------|
| 230100     | TAWAS ST JOSEPH HOSPITAL | 200 HEMLOCK              | TAWAS CITY | МІ    | 48764   | iosco      | 9893629301  |
| 230118     | HURON MEDICAL CENTER     | 1100 SOUTH VAN DYKE ROAD | BAD AXE    | MI    | 48413   | HURON      | 9892699521  |
| 230121     | MEMORIAL HEALTHCARE      | 826 WEST KING STREET     | owosso     | MI    | 48867   | SHIAWASSEE | 9897235211  |
| NULL       | NULL                     | NULL                     | NULL       | NULL  | NULL    | NULL       | NULL        |
|            |                          |                          |            |       |         |            |             |
|            |                          |                          |            |       |         |            |             |
|            |                          |                          |            |       |         |            |             |
|            |                          |                          |            |       |         |            |             |
|            |                          |                          |            |       |         |            |             |
|            |                          |                          |            |       |         |            |             |
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|            |                          |                          |            |       |         |            |             |
|            |                          |                          |            |       |         |            |             |



# -- Join query to find blood banks and hospitals in the same city

SELECT bb.BloodBankName, bb.City AS CityName, h.HospitalNameFROM BloodBanks bb JOIN Hospitals h ON bb.City = h.City;

| BloodBankName            | CityName   | HospitalName    |
|--------------------------|------------|-----------------|
| Apollo Blood Bank        | Hyderabad  | APOLLO HOSPITAL |
| Care Hospital Blood Bank | Hyderabad  | APOLLO HOSPITAL |
| Manipal Blood Bank       | Bangalore  | NARAYANA HEALTH |
| NIMHANS Blood Bank       | Bangalore  | NARAYANA HEALTH |
| Red Cross Blood Bank     | Trivandrum | KIMS HOSPITAL   |
|                          |            |                 |
|                          |            |                 |
|                          |            |                 |
|                          |            |                 |
|                          |            |                 |
|                          |            |                 |
|                          |            |                 |
|                          |            |                 |



## Calculate the percentage of blood banks in each state

SELECT State, COUNT() \* 100.0 / (SELECT COUNT() FROM BloodBanks) AS Percentage FROM BloodBanks GROUP BY State;

| State                       | Percentage |
|-----------------------------|------------|
| ANDAMAN AND NICOBAR ISLANDS | 14.28571   |
| ANDHRA PRADESH              | 14.28571   |
| TELANGANA                   | 14.28571   |
| KARNATAKA                   | 14.28571   |
| DELHI                       | 7.14286    |
| KERALA                      | 28.57143   |
| TAMIL NADU                  | 7.14286    |
|                             |            |
|                             |            |
|                             |            |
|                             |            |
|                             |            |
|                             |            |

## -- Retrieve the top 3 cities with the most blood banks

SELECT City, COUNT(\*) AS BloodBankCount FROM BloodBanks GROUP BY City ORDER BY BloodBankCount DESC LIMIT 3;

|    | City       | BloodBankCount |
|----|------------|----------------|
|    | Port Blair | 2              |
| Ų. | Bangalore  | 2              |
|    | Hyderabad  | 2              |
|    |            |                |
|    |            |                |
|    |            |                |
|    |            |                |
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|    |            |                |
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|    |            |                |
|    |            |                |

# -- Retrieve the total count of blood banks and hospitals per city

SELECT City, SUM(CASE WHEN Type = 'BloodBank' THEN 1 ELSE 0 END) AS
BloodBankCount, SUM(CASE WHEN Type = 'Hospital' THEN 1 ELSE 0 END) AS
HospitalCount FROM CombinedData GROUP BY City;

| City       | BloodBankCount | HospitalCount |
|------------|----------------|---------------|
| Port Blair | 2              | 0             |
| Anantapur  | 1              | 0             |
| Ananthapur | 1              | 0             |
| Hyderabad  | 2              | 1             |
| Bangalore  | 2              | 1             |
| New Delhi  | 1              | 0             |
| Trivandrum | 1              | 1             |
| Kochi      | 1              | 0             |
| Thrissur   | 1              | 0             |
| Thalassery | 1              | 0             |
| Vellore    | 1              | 0             |
| TAWAS C    | 0              | 1             |
| BAD AXE    | 0              | 1             |
| OWOSSO     | 0              | 1             |
| GAYLORD    | 0              | 1             |
| CLEVELA    | 0              | 1             |
| ROCHES     | 0              | 1             |
| BALTIMO    | 0              | 1             |
| BOSTON     | 0              | 1             |
| LOS ANG    | 0              | 1             |
| STANFORD   | 0              | 1             |
| Delhi      | 0              | 1             |

## -- Find the average number of hospitals per state

SELECT State, AVG(HospitalCount) AS AverageHospitals FROM ( SELECT State, COUNT(\*) AS HospitalCount FROM Hospitals GROUP BY State ) AS StateHospitalCounts GROUP BY State;

| State     | AverageHospitals |
|-----------|------------------|
| MI        | 4.0000           |
| ОН        | 1.0000           |
| MN        | 1.0000           |
| MD        | 1.0000           |
| MA        | 1.0000           |
| CA        | 2.0000           |
| Karnataka | 1.0000           |
| Kerala    | 1.0000           |
| Telangana | 1.0000           |
| Delhi     | 1.0000           |

# -- Generate a report of blood banks and hospitals grouped by state and district

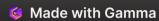
SELECT bb.State, bb.District, COUNT(DISTINCT bb.BloodBankName) AS
TotalBloodBanks, COUNT(DISTINCT h.HospitalName) AS TotalHospitals FROM
BloodBanks bb LEFT JOIN Hospitals h ON bb.State = h.State AND bb.District =
h.CountyName GROUP BY bb.State, bb.District;

|        | State                       | District           | TotalBloodBan | TotalHospit |
|--------|-----------------------------|--------------------|---------------|-------------|
|        | ANDAMAN AND NICOBAR ISLANDS | SOUTH ANDAMAN      | 2             | 0           |
| 1      | ANDHRA PRADESH              | ANANTAPUR          | 2             | 0           |
|        | DELHI                       | NEW DELHI          | 1             | 1           |
| 1      | KARNATAKA                   | BANGALORE          | 2             | 0           |
|        | KERALA                      | ERNAKULAM          | 1             | 0           |
|        | KERALA                      | KANNUR             | 1             | 0           |
|        | KERALA                      | THIRUVANANTHAPURAM | 1             | 1           |
| $\Box$ | KERALA                      | THRISSUR           | 1             | 0           |
|        | TAMIL NADU                  | VELLORE            | 1             | 0           |
| 1      | TELANGANA                   | HYDERABAD          | 2             | 1           |
|        |                             |                    |               |             |

# Identify hospitals with no associated blood banks in the same city

SELECT \* FROM Hospitals h WHERE NOT EXISTS ( SELECT 1 FROM BloodBanks bb WHERE bb.City = h.City );

|   | ProviderID | HospitalName                   | Address                  | City        | State | ZIPCode | CountyName     | PhoneNumber | LastUpdated         | Capacity |
|---|------------|--------------------------------|--------------------------|-------------|-------|---------|----------------|-------------|---------------------|----------|
|   | 230100     | TAWAS ST JOSEPH HOSPITAL       | 200 HEMLOCK              | TAWAS CITY  | МІ    | 48764   | iosco          | 999999999   | 2025-01-18 19:08:54 | 500      |
|   | 230118     | HURON MEDICAL CENTER           | 1100 SOUTH VAN DYKE ROAD | BAD AXE     | MI    | 48413   | HURON          | 9892699521  | 2025-01-18 19:08:54 | 500      |
|   | 230121     | MEMORIAL HEALTHCARE            | 826 WEST KING STREET     | owosso      | MI    | 48867   | SHIAWASSEE     | 9897235211  | 2025-01-18 19:08:54 | 500      |
|   | 230133     | OTSEGO MEMORIAL HOSPITAL       | 825 N CENTER AVE         | GAYLORD     | MI    | 49735   | OTSEGO         | 9897312100  | 2025-01-18 19:08:54 | 500      |
| 1 | 230150     | CLEVELAND CLINIC               | 9500 EUCLID AVENUE       | CLEVELAND   | ОН    | 44195   | CUYAHOGA       | 2164442200  | 2025-01-18 19:08:54 | 500      |
|   | 230151     | MAYO CLINIC                    | 200 FIRST ST SW          | ROCHESTER   | MN    | 55905   | OLMSTED        | 5072842511  | 2025-01-18 19:08:54 | 500      |
|   | 230152     | JOHNS HOPKINS HOSPITAL         | 1800 ORLEANS STREET      | BALTIMORE   | MD    | 21287   | BALTIMORE CITY | 4109555000  | 2025-01-18 19:08:54 | 500      |
|   | 230153     | MASSACHUSETTS GENERAL HOSPITAL | 55 FRUIT STREET          | BOSTON      | MA    | 02114   | SUFFOLK        | 6177262000  | 2025-01-18 19:08:54 | 500      |
|   | 230154     | UCLA MEDICAL CENTER            | 757 WESTWOOD PLAZA       | LOS ANGELES | CA    | 90095   | LOS ANGELES    | 3108259111  | 2025-01-18 19:08:54 | 500      |
|   | 230155     | STANFORD HOSPITAL              | 300 PASTEUR DRIVE        | STANFORD    | CA    | 94305   | SANTA CLARA    | 6507234000  | 2025-01-18 19:08:54 | 500      |



# -- Generate a report of blood banks and hospitals grouped by state

SELECT State, COUNT(DISTINCT BloodBankName) AS TotalBloodBanks, COUNT(DISTINCT HospitalName) AS TotalHospitals FROM (SELECT State, BloodBankName, NULL AS HospitalName FROM BloodBanks UNION ALL SELECT State, NULL AS BloodBankName, HospitalName FROM Hospitals ) AS StateEntities GROUP BY State;

| State                       | TotalBloodBan | TotalHospit |
|-----------------------------|---------------|-------------|
| ANDAMAN AND NICOBAR ISLANDS | 2             | 0           |
| ANDHRA PRADESH              | 2             | 0           |
| CA                          | 0             | 2           |
| DELHI                       | 1             | 1           |
| KARNATAKA                   | 2             | 1           |
| KERALA                      | 4             | 1           |
| MA                          | 0             | 1           |
| MD                          | 0             | 1           |
| MI                          | 0             | 4           |
| MN                          | 0             | 1           |