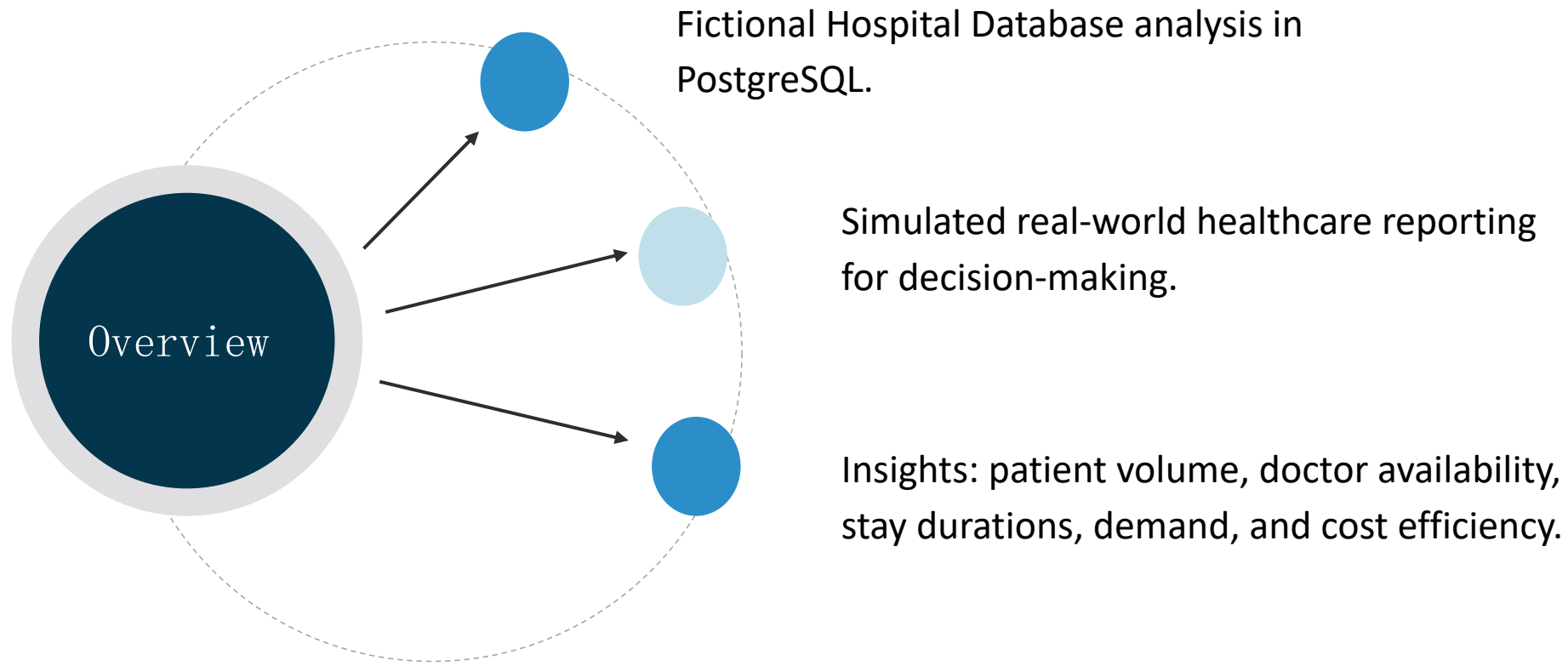


Hospital Data SQL Analysis Project



Project Overview



Dataset Used

Table:
hospital

Columns:

- hospital_name
- location

- department
- patients_count

- doctors_count
- medical_expenses

- admission_date
- discharge_date

Objectives

- Analyze patient loads
- Evaluate doctor availability
- Monitor expenses
- Compare performance city-wise
- Measure stay duration
- Improve efficiency



Business Problems



- City with highest demand



- Total patients treated



- Top expense hospitals



- High/low patient volume departments



- Overburdened departments



- Cost per patient-day



- Avg. stay by department



Methodology



Key Insights



- Total patient volume



- Top crowded departments



- Cost per day per hospital



- Top spending hospital



- Longest stay case

Key Insights



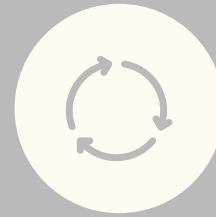
- City-wise patient distribution



- Underutilized departments



- Monthly expenses trend



- Avg. stay duration

Skills Gained



- Business-focused SQL queries



- Date & financial calculations



- Translating KPIs to SQL



- Grouping, ranking, summarizing
- Healthcare data analytics

Sample Table

pgAdmin 4

File Object Tools Edit View Window Help

Object

Servers (1)

- PostgreSQL 17
 - Databases (7)
 - emp
 - emp_join
 - hospital
 - Cast
 - Catalogs
 - Event Triggers
 - Extensions
 - Foreign Data W
 - Languages
 - Publications
 - Schemas
 - Subscriptions
 - library
 - postgres
 - school
 - stock
 - Login/Group Roles
 - Tablespaces

Hospital Data Analysis Project.sql* X

hospital/postgres@PostgreSQL 17

No limit

Query Query History

```
1 -- create table
2 CREATE TABLE hospital(
3     hospital_name VARCHAR(40) NOT NULL,
4     location VARCHAR(30) NOT NULL,
5     department VARCHAR(30) NOT NULL,
6     doctors_count INT NOT NULL,
7     patients_count INT NOT NULL,
8     admission_date DATE NOT NULL,
9     discharge_date DATE NOT NULL,
10    medical_expenses NUMERIC(10,2) NOT NULL);
11
12
13
14 INSERT INTO hospital(Hospital_Name, Location, Department, Doctors_Count, Patients_Count, Ad
15 VALUES
16 ('Wellness Clinic', 'Chennai', 'Orthopedics', 47, 182, '2023-12-13', '2023-12-14', 31364.88
17 ('Fortis Care', 'Pune', 'ENT', 15, 51, '2023-12-29', '2024-01-09', 47280.19),
18 ('Wellness Clinic', 'Ahmedabad', 'Pediatrics', 20, 120, '2023-10-07', '2023-10-21', 28574.7
19 ('Heritage Hospital', 'Hyderabad', 'Urology', 8, 172, '2023-04-29', '2023-05-11', 7000.83),
20 ('City Hospital', 'Kolkata', 'Gynecology', 35, 76, '2023-02-10', '2023-02-12', 47210.46),
21 ('Heritage Hospital', 'Hyderabad', 'Oncology', 11, 76, '2023-02-05', '2023-02-17', 18612.34
22 ('Global Medicare', 'Ahmedabad', 'Oncology', 22, 99, '2023-08-01', '2023-08-06', 47808.55),
23 ('Apollo Health', 'Jaipur', 'General Medicine', 37, 173, '2023-10-01', '2023-10-12', 12284.
24 ('Heritage Hospital', 'Jaipur', 'ENT', 9, 198, '2023-06-12', '2023-06-18', 14650.23),
```

Scratch Pad X

Total rows: 12 Query complete 00:00:00.128

CRLF Ln 12, Col 1



Type here to search



33°C Haze



13:41
15-08-2025

Sample SQL Queries

Advanced:

patients per city, avg.
doctors, avg. stay by dept,
highest expenses, cost/day,
monthly expenses, least
patient dept, longest stay

Basic:

hospitals in
Bangalore, <50
patients,
admission after
2023-01-01, <10
doctors











Sample SQL Queries

1. Total Number of Patients

```
-- 1. Total Number of Patients
-- Write an SQL query to find the total number of patients across all hospitals.
SELECT SUM(patients_count) AS total_patients
FROM hospital;
```

Output Messages Notifications

						SQL	Showing rows: 1 to 1 	Page No:
total_patients 								
bigint								
9436								

```
SELECT SUM(patients_count) AS total_patients
FROM hospital;
```


Sample SQL Queries

2. Average Number of Doctors per Hospital

```
SELECT hospital_name,  
AVG(doctors_count) AS avg_doctors  
FROM hospital  
GROUP BY hospital_name;
```

```
127 --2. Average Number of Doctors per Hospital  
128 -- Retrieve the average count of doctors available in each hospital.  
129 v |SELECT hospital_name,  
130   AVG(doctors_count) AS avg_doctors  
131   FROM hospital  
132   GROUP BY hospital_name;  
133
```

Data Output Messages Notifications

Showing rows: 1 to 8		
	hospital_name character varying (40)	avg_doctors numeric
1	City Hospital	24.7000000000000000
2	Healing Touch	26.0000000000000000
3	Global Medicare	30.1000000000000000
4	Fortis Care	25.9166666666666667
5	Sunrise Medical	27.6250000000000000
6	Green Valley Hospital	28.8750000000000000
7	Heritage Hospital	24.5000000000000000
8	Metro Hospital	27.6923076923076923

✓ Successfully

Sample SQL Queries

3. Top 3 Departments with the Highest Number of Patients

```
SELECT department,  
SUM(patients_count) AS total_patients  
FROM hospital  
GROUP BY department  
ORDER BY total_patients DESC  
LIMIT 3;
```

```
133  
134 --3. Top 3 Departments with the Highest Number of Patients  
135 -- Find the top 3 hospital departments that have the highest number of patients.  
136 v SELECT department,  
137 SUM(patients_count) AS total_patients  
138 FROM hospital  
139 GROUP BY department  
140 ORDER BY total_patients DESC  
141 LIMIT 3;  
142
```

Data Output			Messages	Notifications
Showing rows: 1 to 3			Page	
	department character varying (30)	total_patients bigint		
1	Urology	1825		
2	Neurology	1229		
3	Pediatrics	1127		

Sample SQL Queries

4. Hospital with the Maximum Medical Expenses

```
SELECT hospital_name, location, medical_expenses
FROM hospital
ORDER BY medical_expenses DESC
LIMIT 1;
```

```
142
143 --4. Hospital with the Maximum Medical Expenses
144 -- Identify the hospital that recorded the highest medical expenses.
145 v SELECT hospital_name, location, medical_expenses
146 FROM hospital
147 ORDER BY medical_expenses DESC
148 LIMIT 1;
149
150 --5. Daily Average Medical Expenses
```

Data Output Messages Notifications

	hospital_name character varying (40)	location character varying (30)	medical_expenses numeric (10,2)
1	Healing Touch	Mumbai	49955.41

Sample SQL Queries

5. Daily Average Medical Expenses

```
SELECT hospital_name, location,  
       ROUND(medical_expenses / (discharge_date -  
admission_date), 2) AS daily_avg_expenses  
FROM hospital;
```

```
147 ORDER BY medical_expenses DESC  
148 LIMIT 1;  
149  
150 --5. Daily Average Medical Expenses  
151 -- Calculate the average medical expenses per day for each hospital.  
152 SELECT hospital_name, location,  
153        ROUND(medical_expenses / (discharge_date - admission_date), 2) AS daily_avg_expenses  
154 FROM hospital;  
155
```

Data Output Messages Notifications

	hospital_name character varying (40)	location character varying (30)	daily_avg_expenses numeric
1	Wellness Clinic	Chennai	31364.88
2	Fortis Care	Pune	4298.20
3	Wellness Clinic	Ahmedabad	2041.05
4	Heritage Hospital	Hyderabad	583.40
5	City Hospital	Kolkata	23605.23
6	Heritage Hospital	Hyderabad	1551.03
7	Global Medicare	Ahmedabad	9561.71
8	Apollo Health	Jainpur	1116.79

Total rows: 100 Query complete 00:00:00.138

Showing rows: 1 to 100 Page No: 1

✓ Successfully run. Total query runtime: 138 m

Sample SQL Queries

6. Longest Hospital Stay

```
SELECT hospital_name, location, department,  
       (discharge_date - admission_date) AS  
       stay_duration  
FROM hospital  
ORDER BY stay_duration DESC  
LIMIT 1;
```

```
155  
156 --6. Longest Hospital Stay  
157 -- Find the patient with the longest stay by calculating the difference between Discharge D  
158 v SELECT hospital_name, location, department,  
159       (discharge_date - admission_date) AS stay_duration  
160 FROM hospital  
161 ORDER BY stay_duration DESC  
162 LIMIT 1;
```

Data Output Messages Notifications

≡+ 📄 ▼ 📋 ▼ 🗑️ 🗄️ ⬇️ 📈 SQL

Showing rows: 1 to 1 ✎ Page No: 1

	hospital_name character varying (40) 🔒	location character varying (30) 🔒	department character varying (30) 🔒	stay_duration integer 🔒
1	Apollo Health	Lucknow	ENT	15

Sample SQL Queries

7. Total Patients Treated Per City

```
SELECT location AS city,  
SUM(patients_count) AS total_patients  
FROM hospital  
GROUP BY location  
ORDER BY total_patients DESC;
```

```
--7. Total Patients Treated Per City  
-- Count the total number of patients treated in each city.  
SELECT location AS city,  
SUM(patients_count) AS total_patients  
FROM hospital  
GROUP BY location  
ORDER BY total_patients DESC;
```

Output Messages Notifications

Showing rows: 1 to 10	
city character varying (30)	total_patients bigint
Ahmedabad	1555
Jaipur	1505
Hyderabad	1303
Lucknow	1264
Chennai	974
Bangalore	812
Kolkata	596
Mumbai	592

✓ Successfully run. Total qu

Sample SQL Queries

8. Average Length of Stay Per Department

```
SELECT department,  
ROUND(AVG(discharge_date - admission_date), 2) AS  
avg_stay_days  
FROM hospital  
GROUP BY department  
ORDER BY avg_stay_days DESC;
```

```
--8. Average Length of Stay Per Department  
-- Calculate the average number of days patients spend in each department.  
SELECT department,  
ROUND(AVG(discharge_date - admission_date), 2) AS avg_stay_days  
FROM hospital  
GROUP BY department  
ORDER BY avg_stay_days DESC;
```

Output Messages Notifications

department character varying (30)	avg_stay_days numeric
Pediatrics	9.60
Neurology	9.25
Urology	8.89
ENT	8.56
Orthopedics	7.86
General Medicine	7.75
Oncology	7.70
Gynecology	7.67

Showing rows: 1 to 10

✓ Successfully run. Total q

Sample SQL Queries

9. Identify the Department with the Lowest Number of Patients

```
SELECT department,  
SUM(patients_count) AS total_patients  
FROM hospital  
GROUP BY department  
ORDER BY total_patients ASC  
LIMIT 1;
```

```
--9. Identify the Department with the Lowest Number of Patients  
-- Find the department with the least number of patients.  
SELECT department,  
SUM(patients_count) AS total_patients  
FROM hospital  
GROUP BY department  
ORDER BY total_patients ASC  
LIMIT 1;
```

Output Messages Notifications

								SQL	Showing rows
department					total_patients				
character varying (30)					bigint				
Cardiology					544				

Sample SQL Queries

10. Monthly Medical Expenses Report

```
SELECT TO_CHAR(admission_date, 'YYYY-MM') AS
month_year,
SUM(medical_expenses) AS total_expenses
FROM hospital
GROUP BY TO_CHAR(admission_date, 'YYYY-MM')
ORDER BY month_year;
```

```
--10. Monthly Medical Expenses Report
-- Group the data by month and calculate the total medical expenses for each month.
SELECT TO_CHAR(admission_date, 'YYYY-MM') AS month_year,
SUM(medical_expenses) AS total_expenses
FROM hospital
GROUP BY TO_CHAR(admission_date, 'YYYY-MM')
ORDER BY month_year;
```

Output Messages Notifications



Showing rows: 1 to 12 Page No

month_year text	total_expenses numeric
2023-01	220713.45
2023-02	301722.72
2023-03	207766.53
2023-04	88995.93
2023-05	271860.44
2023-06	191858.07
2023-07	211527.13
2023-08	181039.55

✓ Successfully run. Total query run

Thank You!

Every great presentation is complete with a great audience
— and that's you!

