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/* PROJECT: Healthcare Operations & Financial Analysis
   GOAL: Extracting insights on patient volume, efficiency, and costs.
   DATABASE: PostgreSQL
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-- ========================================
-- 1. SCHEMA SETUP & DATA IMPORT
-- ========================================

DROP TABLE IF EXISTS details;

CREATE TABLE details (
    Hospital_Name VARCHAR(100),
    Location      VARCHAR(100),
    Department    VARCHAR(100),
    DoctorsCount  INT,
    PatientsCount INT,
    AdmissionDate DATE,
    DischargeDate DATE,
    MedicalExpenses NUMERIC(15,2)
);

-- Importing data from CSV
COPY details (
    Hospital_Name, Location, Department, DoctorsCount,
    PatientsCount, AdmissionDate, DischargeDate, MedicalExpenses
)
FROM 'D:/SQL/Satish dhawale/Certificate/Hospital_Data.csv'
WITH (FORMAT csv, HEADER true, DELIMITER ',');

-- ========================================
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-- 2. ANALYTICAL QUERIES
-- ========================================

-- Q1: Total Number of Patients Across All Hospitals
SELECT
    Hospital_Name,
    SUM(PatientsCount) AS Total_Patients
FROM details
GROUP BY Hospital_Name;

-- Q2: Average Number of Doctors per Hospital
SELECT
    Hospital_Name,
    ROUND(AVG(DoctorsCount), 2) AS Average_Doctors
FROM details
GROUP BY Hospital_Name;

-- Q3: Top 3 Departments with Highest Patient Volume
SELECT
    Hospital_Name,
    Department,
    COUNT(PatientsCount) AS Visit_Frequency
FROM details
GROUP BY Hospital_Name, Department
ORDER BY Visit_Frequency DESC
LIMIT 3;

-- Q4: Hospital with the Maximum Medical Expenses
SELECT
    Hospital_Name,
    MAX(MedicalExpenses) AS Peak_Expense
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FROM details
GROUP BY Hospital_Name
ORDER BY Peak_Expense DESC
LIMIT 1;

-- Q5: Daily Average Medical Expenses (Operational Cost Baseline)
SELECT
    Hospital_Name,
    ROUND(AVG(MedicalExpenses / 30), 2) AS Daily_Avg_Expense
FROM details
GROUP BY Hospital_Name;

-- Q6: Longest Hospital Stay Identified
SELECT
    Hospital_Name,
    Department,
    AdmissionDate,
    DischargeDate,
    (DischargeDate - AdmissionDate) AS Max_Stay_Duration
FROM details
ORDER BY Max_Stay_Duration DESC
LIMIT 1;

-- Q7: Total Patients Treated Per City
SELECT
    Location,
    SUM(PatientsCount) AS Total_City_Patients
FROM details
GROUP BY Location;

-- Q8: Average Length of Stay Per Department (Efficiency Metric)
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SELECT
   Department,
   ROUND(AVG(DischargeDate - AdmissionDate), 2) AS Avg_Stay_Days
FROM details
GROUP BY Department;

-- Q9: Department with the Lowest Number of Patients
SELECT
   Department,
   MIN(PatientsCount) AS Min_Patient_Count
FROM details
GROUP BY Department
ORDER BY Min_Patient_Count ASC
LIMIT 1;

-- Q10: Monthly Financial Expenditure Report
SELECT
   EXTRACT(MONTH FROM AdmissionDate) AS Month_ID,
   SUM(MedicalExpenses) AS Total_Monthly_Revenue
FROM details
GROUP BY Month_ID
ORDER BY Month_ID;
```