Part 1: SDG Selection and Problem Definition

SDG Selection: SDG 3 – Good Health and Well-Being

Problem Definition: Address the issue of **increasing rates of chronic diseases** (e.g., diabetes, heart disease) in urban areas. The focus is on identifying patterns in lifestyle habits and health data that contribute to the rise of these diseases and how early intervention can help mitigate their impact.

Part 2: Database Design

```
CREATE TABLE Patients (

    patient_id INT PRIMARY KEY,

    name VARCHAR(100),

    age INT,

    gender VARCHAR(10),

    city VARCHAR(50)

);


CREATE TABLE Conditions (

    condition_id INT PRIMARY KEY,

    condition_name VARCHAR(100),

    description TEXT

);


CREATE TABLE HealthMetrics (

    metric_id INT PRIMARY KEY,

    patient_id INT,

    date DATE,

    weight DECIMAL(5,2),

    blood_pressure VARCHAR(20),

    glucose_level DECIMAL(5,2),

    diet VARCHAR(100),

    exercise_hours INT,

    FOREIGN KEY (patient_id) REFERENCES Patients(patient_id)
```

```sql
);

CREATE TABLE Treatments (
    treatment_id INT PRIMARY KEY,
    patient_id INT,
    condition_id INT,
    treatment_description TEXT,
    treatment_start_date DATE,
    treatment_end_date DATE,
    FOREIGN KEY (patient_id) REFERENCES Patients(patient_id),
    FOREIGN KEY (condition_id) REFERENCES Conditions(condition_id)
);


INSERT INTO Patients VALUES (1, 'John Doe', 45, 'Male', 'New York');

INSERT INTO Conditions VALUES (1, 'Diabetes', 'A chronic disease characterized by high blood sugar levels.');

INSERT INTO HealthMetrics VALUES (1, 1, '2024-09-01', 75.5, '120/80', 110, 'Balanced', 3);

INSERT INTO Treatments VALUES (1, 1, 1, 'Insulin therapy', '2024-09-01', NULL);
```

Part 3: SQL Programming

Get all patients with diabetes:

```sql
SELECT Patients.name, Conditions.condition_name

FROM Patients

JOIN Treatments ON Patients.patient_id = Treatments.patient_id

JOIN Conditions ON Treatments.condition_id = Conditions.condition_id

WHERE Conditions.condition_name = 'Diabetes';
```

Identify average glucose levels for patients with diabetes:

```sql
SELECT AVG(HealthMetrics.glucose_level) AS avg_glucose

FROM HealthMetrics

JOIN Treatments ON HealthMetrics.patient_id = Treatments.patient_id
```

WHERE Treatments.condition_id = 1; -- 1 is the ID for Diabetes