SQL Scripts

-- Create database

CREATE DATABASE SDG7;

-- Use the database

USE SDG7;

-- Create Regions Table

CREATE TABLE Regions (

RegionID INT PRIMARY KEY,

RegionName VARCHAR(100),

Population INT

);

-- Create Energy\_Sources Table

CREATE TABLE Energy\_Sources (

SourceID INT PRIMARY KEY,

SourceName VARCHAR(100),

Type VARCHAR(50)

);

-- Create Energy\_Consumption Table

CREATE TABLE Energy\_Consumption (

ConsumptionID INT PRIMARY KEY,

RegionID INT,

SourceID INT,

MonthlyConsumption DECIMAL(10, 2),

Year INT,

FOREIGN KEY (RegionID) REFERENCES Regions(RegionID),

FOREIGN KEY (SourceID) REFERENCES Energy\_Sources(SourceID)

);

-- Create Energy\_Access Table

CREATE TABLE Energy\_Access (

AccessID INT PRIMARY KEY,

RegionID INT,

AccessPercentage DECIMAL(5, 2),

FOREIGN KEY (RegionID) REFERENCES Regions(RegionID)

);

Sample Data

-- Insert sample data into Regions

INSERT INTO Regions (RegionID, RegionName, Population) VALUES

(1, 'Northland', 50000),

(2, 'Southfield', 60000),

(3, 'Eastwood', 45000),

(4, 'Westville', 55000),

(5, 'Centralia', 70000);

-- Insert sample data into Energy\_Sources

INSERT INTO Energy\_Sources (SourceID, SourceName, Type) VALUES

(1, 'Solar Panel', 'Solar'),

(2, 'Wind Turbine', 'Wind'),

(3, 'Hydro Generator', 'Hydro'),

(4, 'Biomass Plant', 'Biomass'),

(5, 'Geothermal Plant', 'Geothermal');

-- Insert sample data into Energy\_Consumption

INSERT INTO Energy\_Consumption (ConsumptionID, RegionID, SourceID, MonthlyConsumption, Year) VALUES

(1, 1, 1, 1500.00, 2024),

(2, 1, 2, 1000.00, 2024),

(3, 2, 1, 1200.00, 2024),

(4, 2, 3, 800.00, 2024),

(5, 3, 4, 1400.00, 2024),

(6, 3, 5, 600.00, 2024),

(7, 4, 2, 1100.00, 2024),

(8, 4, 3, 900.00, 2024),

(9, 5, 1, 1700.00, 2024),

(10, 5, 5, 500.00, 2024);

-- Insert sample data into Energy\_Access

INSERT INTO Energy\_Access (AccessID, RegionID, AccessPercentage) VALUES

(1, 1, 80.00),

(2, 2, 70.00),

(3, 3, 60.00),

(4, 4, 75.00),

(5, 5, 85.00);

-- Retrieve all energy consumption data

SELECT \* FROM Energy\_Consumption;

-- Retrieve energy consumption by region for a specific year

SELECT r.RegionName, e.SourceName, ec.MonthlyConsumption

FROM Energy\_Consumption ec

JOIN Regions r ON ec.RegionID = r.RegionID

JOIN Energy\_Sources e ON ec.SourceID = e.SourceID

WHERE ec.Year = 2024;

-- Retrieve energy access percentage by region

SELECT r.RegionName, ea.AccessPercentage

FROM Energy\_Access ea

JOIN Regions r ON ea.RegionID = r.RegionID;

Data Analysis

-- Average monthly consumption by energy source

SELECT e.SourceName, AVG(ec.MonthlyConsumption) AS AvgMonthlyConsumption

FROM Energy\_Consumption ec

JOIN Energy\_Sources e ON ec.SourceID = e.SourceID

GROUP BY e.SourceName;

-- Regions with the lowest energy access

SELECT r.RegionName, ea.AccessPercentage

FROM Energy\_Access ea

JOIN Regions r ON ea.RegionID = r.RegionID

ORDER BY ea.AccessPercentage ASC;