Coding Challenge: Farm Yield Optimization

Data

-- Create the farmers table

CREATE TABLE farmers (

   farmer_id INT PRIMARY KEY,

   first_name VARCHAR(50) NOT NULL,

   last_name VARCHAR(50) NOT NULL,

   email VARCHAR(100) UNIQUE,

   hire_date DATE

);

-- Create the plots table

CREATE TABLE plots (

   plot_id INT PRIMARY KEY,

   plot_name VARCHAR(100) NOT NULL,

   farmer_id INT,

   crop_type VARCHAR(50) NOT NULL,

   soil_type VARCHAR(50),

   FOREIGN KEY (farmer_id) REFERENCES farmers(farmer_id)

);

-- Create the yields table

CREATE TABLE yields (

   yield_id INT PRIMARY KEY,

   plot_id INT,

   harvest_date DATE,

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    yield_kg DECIMAL(10, 2),

    weather_condition VARCHAR(50),

    FOREIGN KEY (plot_id) REFERENCES plots(plot_id)

);


-- Create the irrigation_logs table

CREATE TABLE irrigation_logs (

    log_id INT PRIMARY KEY,

    plot_id INT,

    irrigation_date DATE,

    water_amount_liters DECIMAL(10, 2),

    FOREIGN KEY (plot_id) REFERENCES plots(plot_id)

);

-- Insert data into farmers table (5 records)

INSERT INTO farmers (farmer_id, first_name, last_name, email, hire_date) VALUES

(1, 'John', 'Doe', 'john.doe@agri-innovate.com', '2020-05-15'),

(2, 'Jane', 'Smith', 'jane.smith@agri-innovate.com', '2021-02-20'),

(3, 'Peter', 'Jones', 'peter.jones@agri-innovate.com', '2020-11-10'),

(4, 'Maria', 'Garcia', 'maria.garcia@agri-innovate.com', '2022-08-01'),

(5, 'Alex', 'Chen', 'alex.chen@agri-innovate.com', '2023-03-25');


-- Insert data into plots table (8 records)

INSERT INTO plots (plot_id, plot_name, farmer_id, crop_type, soil_type) VALUES

(101, 'West Field', 1, 'Wheat', 'Loam'),

(102, 'North Pasture', 2, 'Corn', 'Clay'),

(103, 'South Farm', 1, 'Soybeans', 'Sand'),
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(104, 'East Meadow', 3, 'Wheat', 'Loam'),

(105, 'Plot A', 4, 'Corn', 'Clay'),

(106, 'Plot B', 5, 'Soybeans', 'Sand'),

(107, 'High Plains', 3, 'Corn', 'Loam'),

(108, 'Valley View', 2, 'Wheat', 'Clay');

-- Insert data into yields table (20 records)

INSERT INTO yields (yield_id, plot_id, harvest_date, yield_kg, weather_condition) VALUES

(1, 101, '2024-07-20', 1500.50, 'Sunny'),

(2, 102, '2024-09-15', 2100.75, 'Rainy'),

(3, 103, '2024-10-01', 950.20, 'Mild'),

(4, 104, '2024-07-25', 1650.30, 'Sunny'),

(5, 105, '2024-09-18', 2200.10, 'Rainy'),

(6, 106, '2024-10-05', 880.90, 'Mild'),

(7, 107, '2024-09-20', 2350.40, 'Sunny'),

(8, 108, '2024-08-01', 1450.60, 'Mild'),

(9, 101, '2023-07-19', 1400.00, 'Rainy'),

(10, 102, '2023-09-14', 2050.00, 'Sunny'),

(11, 103, '2023-10-02', 900.00, 'Mild'),

(12, 104, '2023-07-24', 1550.00, 'Rainy'),

(13, 105, '2023-09-17', 2150.00, 'Sunny'),

(14, 106, '2023-10-04', 850.00, 'Mild'),

(15, 107, '2023-09-19', 2250.00, 'Rainy'),

(16, 108, '2023-07-31', 1350.00, 'Mild'),

(17, 101, '2022-07-21', 1300.00, 'Sunny'),

(18, 102, '2022-09-16', 2000.00, 'Rainy'),

(19, 103, '2022-10-03', 800.00, 'Mild'),

(20, 104, '2022-07-26', 1500.00, 'Sunny');

-- Insert data into irrigation_logs table (15 records)

INSERT INTO irrigation_logs (log_id, plot_id, irrigation_date, water_amount_liters) VALUES

(1, 101, '2024-05-10', 50000.00),

(2, 102, '2024-06-12', 75000.00),

(3, 103, '2024-07-15', 30000.00),

(4, 104, '2024-05-12', 45000.00),

(5, 105, '2024-06-15', 80000.00),

(6, 106, '2024-07-18', 25000.00),

(7, 107, '2024-06-20', 70000.00),

(8, 108, '2024-05-25', 55000.00),

(9, 101, '2023-05-11', 48000.00),

(10, 102, '2023-06-13', 72000.00),

(11, 103, '2023-07-16', 28000.00),

(12, 104, '2023-05-13', 43000.00),

(13, 105, '2023-06-16', 78000.00),

(14, 106, '2023-07-19', 23000.00),

(15, 107, '2023-06-21', 68000.00);