**Indian Agricultural System Queries**

**-- Create a new database**

**CREATE DATABASE IndianAgriculturalSystem;**

**USE IndianAgriculturalSystem;**

**-- 1. Farmers Table**

**CREATE TABLE Farmers (**

**FarmerID INT PRIMARY KEY AUTO\_INCREMENT,**

**Name VARCHAR(100) NOT NULL,**

**Age INT,**

**Gender VARCHAR(10),**

**Region VARCHAR(50),**

**Email VARCHAR(100),**

**PhoneNumber VARCHAR(15)**

**);**

**-- 2. Lands Table**

**CREATE TABLE Lands (**

**LandID INT PRIMARY KEY AUTO\_INCREMENT,**

**FarmerID INT,**

**Size DECIMAL(10, 2),**

**Location VARCHAR(100),**

**FOREIGN KEY (FarmerID) REFERENCES Farmers(FarmerID)**

**);**

**-- 3. Crops Table**

**CREATE TABLE Crops (**

**CropID INT PRIMARY KEY AUTO\_INCREMENT,**

**CropName VARCHAR(100) NOT NULL,**

**Season VARCHAR(50),**

**Yield DECIMAL(10, 2)**

**);**

**-- 4. Harvests Table**

**CREATE TABLE Harvests (**

**HarvestID INT PRIMARY KEY AUTO\_INCREMENT,**

**FarmerID INT,**

**CropID INT,**

**Quantity DECIMAL(10, 2),**

**HarvestDate DATE,**

**FOREIGN KEY (FarmerID) REFERENCES Farmers(FarmerID),**

**FOREIGN KEY (CropID) REFERENCES Crops(CropID)**

**);**

**-- 5. Livestock Table**

**CREATE TABLE Livestock (**

**LivestockID INT PRIMARY KEY AUTO\_INCREMENT,**

**FarmerID INT,**

**AnimalType VARCHAR(50),**

**Count INT,**

**FOREIGN KEY (FarmerID) REFERENCES Farmers(FarmerID)**

**);**

**-- 6. Fertilizers Table**

**CREATE TABLE Fertilizers (**

**FertilizerID INT PRIMARY KEY AUTO\_INCREMENT,**

**Name VARCHAR(100),**

**Type VARCHAR(50),**

**Quantity DECIMAL(10, 2)**

**);**

**-- 7. Pesticides Table**

**CREATE TABLE Pesticides (**

**PesticideID INT PRIMARY KEY AUTO\_INCREMENT,**

**Name VARCHAR(100),**

**Type VARCHAR(50),**

**Quantity DECIMAL(10, 2)**

**);**

**-- 8. Markets Table**

**CREATE TABLE Markets (**

**MarketID INT PRIMARY KEY AUTO\_INCREMENT,**

**Location VARCHAR(100),**

**ContactNumber VARCHAR(15)**

**);**

**-- 9. Sales Table**

**CREATE TABLE Sales (**

**SaleID INT PRIMARY KEY AUTO\_INCREMENT,**

**FarmerID INT,**

**CropID INT,**

**Quantity DECIMAL(10, 2),**

**SaleDate DATE,**

**FOREIGN KEY (FarmerID) REFERENCES Farmers(FarmerID),**

**FOREIGN KEY (CropID) REFERENCES Crops(CropID)**

**);**

**-- 10. Customers Table**

**CREATE TABLE Customers (**

**CustomerID INT PRIMARY KEY AUTO\_INCREMENT,**

**Name VARCHAR(100),**

**PhoneNumber VARCHAR(15),**

**Email VARCHAR(100)**

**);**

**-- Insert data into Farmers table**

**INSERT INTO Farmers (Name, Age, Gender, Region, Email, PhoneNumber) VALUES**

**('Rajesh Kumar', 34, 'Male', 'Maharashtra', 'rajesh@example.com', '9876543210'),**

**('Sita Sharma', 28, 'Female', 'Uttar Pradesh', 'sita@example.com', '9123456789'),**

**('Amit Verma', 30, 'Male', 'Haryana', 'amit@example.com', '9456781234'),**

**('Priya Singh', 25, 'Female', 'Madhya Pradesh', 'priya@example.com', '9988776655');**

**-- Insert data into Lands table**

**INSERT INTO Lands (FarmerID, Size, Location) VALUES**

**(1, 10.5, 'Pune'),**

**(2, 8.0, 'Agra'),**

**(3, 15.0, 'Delhi');**

**-- Insert data into Crops table**

**INSERT INTO Crops (CropName, Season, Yield) VALUES**

**('Wheat', 'Kharif', 25.5),**

**('Rice', 'Rabi', 30.0),**

**('Sugarcane', 'Kharif', 20.0);**

**-- Insert data into Harvests table**

**INSERT INTO Harvests (FarmerID, CropID, Quantity, HarvestDate) VALUES**

**(1, 1, 2000, '2024-05-10'),**

**(2, 2, 1500, '2024-06-15');**

**-- Insert data into Livestock table**

**INSERT INTO Livestock (FarmerID, AnimalType, Count) VALUES**

**(1, 'Cows', 10),**

**(2, 'Goats', 5);**

**-- Insert data into Fertilizers table**

**INSERT INTO Fertilizers (Name, Type, Quantity) VALUES**

**('Nitrogen', 'Chemical', 1000),**

**('Phosphorus', 'Organic', 500);**

**-- Insert data into Pesticides table**

**INSERT INTO Pesticides (Name, Type, Quantity) VALUES**

**('Insecticide A', 'Insecticide', 300),**

**('Fungicide B', 'Fungicide', 200);**

**-- Insert data into Markets table**

**INSERT INTO Markets (Location, ContactNumber) VALUES**

**('Pune Market', '1234567890'),**

**('Agra Market', '2345678901');**

**-- Insert data into Sales table**

**INSERT INTO Sales (FarmerID, CropID, Quantity, SaleDate) VALUES**

**(1, 1, 500, '2024-05-12'),**

**(2, 2, 300, '2024-06-17');**

**-- Insert data into Customers table**

**INSERT INTO Customers (Name, PhoneNumber, Email) VALUES**

**('Ravi Mehta', '9876543210', 'ravi@example.com'),**

**('Anjali Bhatia', '1234567890', 'anjali@example.com');**

**-- Update a farmer's contact information**

**UPDATE Farmers SET PhoneNumber = '9999999999' WHERE FarmerID = 1;**

**-- Update a crop's yield**

**UPDATE Crops SET Yield = 28.0 WHERE CropID = 1;**

**-- Delete a customer**

**DELETE FROM Customers WHERE CustomerID = 2;**

**-- Delete a farmer**

**DELETE FROM Farmers WHERE FarmerID = 3;**

**-- Select all farmers**

**SELECT \* FROM Farmers;**

**-- Select all crops**

**SELECT \* FROM Crops;**

**-- Select all sales records**

**SELECT \* FROM Sales;**

**-- Start a transaction**

**START TRANSACTION;**

**-- Example of adding a sale and committing**

**INSERT INTO Sales (FarmerID, CropID, Quantity, SaleDate) VALUES (1, 1, 100, '2024-06-20');**

**COMMIT;**

**-- Example of rolling back a transaction**

**START TRANSACTION;**

**INSERT INTO Sales (FarmerID, CropID, Quantity, SaleDate) VALUES (1, 2, 200, '2024-06-21');**

**-- If there's an error, roll back**

**ROLLBACK;**

**-- Create a view to show farmers and their crops**

**CREATE VIEW FarmerCrops AS**

**SELECT f.Name AS FarmerName, c.CropName, h.Quantity AS HarvestedQuantity**

**FROM Farmers f**

**JOIN Harvests h ON f.FarmerID = h.FarmerID**

**JOIN Crops c ON h.CropID = c.CropID;**

**-- Select from the view**

**SELECT \* FROM FarmerCrops;**

**-- To update the view**

**CREATE OR REPLACE VIEW FarmerCrops AS**

**SELECT f.Name AS FarmerName, c.CropName, SUM(h.Quantity) AS TotalHarvestedQuantity**

**FROM Farmers f**

**JOIN Harvests h ON f.FarmerID = h.FarmerID**

**JOIN Crops c ON h.CropID = c.CropID**

**GROUP BY f.Name, c.CropName;**

**-- Select from the modified view**

**SELECT \* FROM FarmerCrops;**

**-- Aggregate Queries**

**-- Total harvested quantity by farmer and crop**

**SELECT f.Name AS FarmerName, c.CropName, SUM(h.Quantity) AS TotalHarvested**

**FROM Harvests h**

**JOIN Farmers f ON h.FarmerID = f.FarmerID**

**JOIN Crops c ON h.CropID = c.CropID**

**GROUP BY f.Name, c.CropName;**

**-- Farmers with significant harvests**

**SELECT f.Name AS FarmerName, SUM(h.Quantity) AS TotalHarvested**

**FROM Harvests h**

**JOIN Farmers f ON h.FarmerID = f.FarmerID**

**GROUP BY f.Name**

**HAVING SUM(h.Quantity) > 1000; -- Example: more than 1000 units**

**-- Crops with high yield**

**SELECT CropName, Yield**

**FROM Crops**

**WHERE Yield > 25.0; -- Example: yield greater than 25**

**-- Count of livestock for each type owned by farmers**

**SELECT l.AnimalType, SUM(l.Count) AS TotalCount**

**FROM Livestock l**

**GROUP BY l.AnimalType**

**HAVING SUM(l.Count) > 5; -- Example: more than 5 animals**

**-- Sales by farmer and crop**

**SELECT f.Name AS FarmerName, c.CropName, SUM(s.Quantity) AS TotalSales**

**FROM Sales s**

**JOIN Farmers f ON s.FarmerID = f.FarmerID**

**JOIN Crops c ON s.CropID = c.CropID**

**GROUP BY f.Name, c.CropName**

**HAVING SUM(s.Quantit**