

DBMS TASK 3

SMART AGRICULTURE MONITORING SYSTEM

INSERT QUERY

INSERT INTO Farm (farm_name, farm_location, size) VALUES

- > ('Farm1', 'Location1', 50.0),
- > ('Farm2', 'Location2', 30.0),
- > ('Farm3', 'Location3', 40.0);

Query OK, 3 rows affected (0.01 sec)

Records: 3 Duplicates: 0 Warnings: 0

mysql>

mysql> INSERT INTO Crop (crop_type, crop_name) VALUES

- > ('Vegetable', 'Tomato'),
- > ('Fruit', 'Apple'),
- > ('Grain', 'Wheat');

Query OK, 3 rows affected (0.01 sec)

Records: 3 Duplicates: 0 Warnings: 0

mysql>

mysql> INSERT INTO Equipment (equipment_name, manufacturer) VALUES

- > ('Tractor', 'John Deere'),
- > ('Plow', 'Case IH'),
- > ('Harvester', 'New Holland');

Query OK, 3 rows affected (0.01 sec)

Records: 3 Duplicates: 0 Warnings: 0

mysql>

mysql> INSERT INTO Pesticide (pesticide_name, application_method) VALUES

- > ('Algaecide', 'Spraying'),
- > ('Insecticide', 'Dusting'),
- > ('Herbicide', 'Watering');

Query OK, 3 rows affected (0.01 sec)

Records: 3 Duplicates: 0 Warnings: 0

mysql>

mysql> INSERT INTO Soil (soil_type, ph_level, moisture_level) VALUES

-> ('Red soil', 6.5, 30.0),
-> ('Clay soil', 7.0, 25.0),
-> ('Loamy soil', 6.8, 35.0);

Query OK, 3 rows affected (0.01 sec)

Records: 3 Duplicates: 0 Warnings: 0

mysql>

mysql> INSERT INTO FarmerRegistration (farm_id, soil_id, registration_date, end_date, registration_status) VALUES

-> (1, 1, '2022-01-01', NULL, 'Active'),
-> (2, 2, '2022-02-01', NULL, 'Active'),
-> (3, 1, '2022-03-01', NULL, 'Active');

Query OK, 3 rows affected (0.01 sec)

Records: 3 Duplicates: 0 Warnings: 0

mysql>

mysql> INSERT INTO CropSoil (soil_id, crop_id) VALUES

-> (1, 1),
-> (2, 2),
-> (3, 3);

Query OK, 3 rows affected (0.01 sec)

Records: 3 Duplicates: 0 Warnings: 0

mysql>

mysql> INSERT INTO FarmEquipment (farm_id, equipment_id, start_date, end_date) VALUES

-> (1, 1, '2022-01-01', NULL),
-> (2, 2, '2022-02-01', NULL),
-> (3, 3, '2022-03-01', NULL);

Query OK, 3 rows affected (0.01 sec)

Records: 3 Duplicates: 0 Warnings: 0

mysql>

mysql> INSERT INTO FarmPesticide (farm_id, pesticide_id, quantity) VALUES

```
-> (1, 1, 5.0),  
-> (2, 2, 3.0),  
-> (3, 3, 2.0);
```

Query OK, 3 rows affected (0.01 sec)
Records: 3 Duplicates: 0 Warnings: 0

mysql>

mysql> INSERT INTO EquipmentFare (equipment_id, quantity, fare) VALUES

```
-> (1, 2, 150.0),  
-> (2, 1, 100.0),  
-> (3, 3, 200.0);
```

Query OK, 3 rows affected (0.01 sec)
Records: 3 Duplicates: 0 Warnings: 0

mysql>

mysql> INSERT INTO PesticideFare (pesticide_id, quantity, fare) VALUES

```
-> (1, 2, 50.0),  
-> (2, 1, 30.0),  
-> (3, 3, 80.0);
```

Query OK, 3 rows affected (0.01 sec)
Records: 3 Duplicates: 0 Warnings: 0

mysql>

mysql> INSERT INTO FarmerMonthlyFare (farm_id, amount,
receipt_creation_date, receipt_sent_date) VALUES

```
-> (1, 500.0, '2023-01-01 08:00:00', '2023-01-05 10:30:00'),  
-> (2, 300.0, '2023-02-01 09:15:00', '2023-02-05 11:45:00'),  
-> (3, 400.0, '2023-03-01 10:30:00', '2023-03-05 12:15:00');
```

Query OK, 3 rows affected (0.01 sec)

mysql> UPDATE FarmerRegistration

```
-> SET registration_date = '2023-02-15',  
-> end_date = '2023-03-31'  
-> WHERE farm_id = 1;
```

Query OK, 1 row affected (0.02 sec)
Rows matched: 1 Changed: 1 Warnings: 0

```
mysql>
mysql> UPDATE FarmerRegistration
  -> SET registration_date = '2023-01-10',
  ->   end_date = '2023-03-15'
  -> WHERE farm_id = 2;
Query OK, 1 row affected (0.02 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

Note: There is no farmer name attribute in the given database. Therefore assuming it as the name of the farm instead.

a. List all the Farms who have lands with the soil type “Red soil”

QUERY

```
mysql> SELECT Farm.*
  -> FROM Farm
  -> JOIN FarmerRegistration ON Farm.farm_id = FarmerRegistration.farm_id
  -> JOIN Soil ON FarmerRegistration.soil_id = Soil.soil_id
  -> WHERE Soil.soil_type = 'Red soil';
```

```
+-----+-----+-----+-----+
| farm_id | farm_name | farm_location | size |
+-----+-----+-----+-----+
|    1 | Farm1    | Location1    | 50.00 |
|    3 | Farm3    | Location3    | 40.00 |
+-----+-----+-----+-----+
```

```
mysql> SELECT Farm.*
  -> FROM Farm
  -> JOIN FarmerRegistration ON Farm.farm_id = FarmerRegistration.farm_id
  -> JOIN Soil ON FarmerRegistration.soil_id = Soil.soil_id
  -> WHERE Soil.soil_type = 'Red soil';
+-----+-----+-----+-----+
| farm_id | farm_name | farm_location | size |
+-----+-----+-----+-----+
|    1 | Farm1    | Location1    | 50.00 |
|    3 | Farm3    | Location3    | 40.00 |
+-----+-----+-----+-----+
2 rows in set (0.01 sec)
```

b. List all the Farm who have used pesticide “Algaecide” from Jan 2023 to March 2023

QUERY

```
mysql> SELECT DISTINCT Farm.*
-> FROM Farm
-> JOIN FarmerRegistration ON Farm.farm_id = FarmerRegistration.farm_id
-> JOIN FarmPesticide ON FarmerRegistration.farm_id =
FarmPesticide.farm_id
-> JOIN Pesticide ON FarmPesticide.pesticide_id = Pesticide.pesticide_id
-> WHERE Pesticide.pesticide_name = 'Algaecide'
-> AND FarmerRegistration.registration_date BETWEEN '2023-01-01' AND
'2023-03-31';
```

```
+-----+-----+-----+-----+
| farm_id | farm_name | farm_location | size |
+-----+-----+-----+-----+
|      1 | Farm1    | Location1    | 50.00 |
+-----+-----+-----+-----+
1 row in set (0.00 sec)
```

```
mysql> SELECT DISTINCT Farm.*
-> FROM Farm
-> JOIN FarmerRegistration ON Farm.farm_id = FarmerRegistration.farm_id
-> JOIN FarmPesticide ON FarmerRegistration.farm_id = FarmPesticide.farm_id
-> JOIN Pesticide ON FarmPesticide.pesticide_id = Pesticide.pesticide_id
-> WHERE Pesticide.pesticide_name = 'Algaecide'
-> AND FarmerRegistration.registration_date BETWEEN '2023-01-01' AND '2023-03-31';
+-----+-----+-----+-----+
| farm_id | farm_name | farm_location | size |
+-----+-----+-----+-----+
|      1 | Farm1    | Location1    | 50.00 |
+-----+-----+-----+-----+
1 row in set (0.00 sec)
mysql>
```