Tables

1. Users
2. Roles
3. Regions
4. Areas
5. Branches
6. Parishes
7. CommunityNurseryGroups
8. Nurseries
9. Farmers
10. Gardens
11. Resources
12. NurseryResources
13. Seasons
14. ActivityCategories
15. Activities
16. NurseryActivities
17. GardenActivities
18. Targets
19. RoleActivities
20. TargetActivities (Optional)
21. AuditTrails

Importance of each table

1. Users:

Importance: Stores user information like names, emails, roles, and login credentials. This information is essential for user authentication, access control, and identifying who performs actions within the system.

2. Roles:

Importance: Defines different user roles (e.g., area manager, parish coordinator) with varying responsibilities and permissions. Roles determine what functionalities users can access and the actions they can perform.

3. Regions, Areas, Branches, Parishes:

Importance: Establishes a hierarchical location structure for nurseries and gardens. This structure enables regional and localized management by organizing locations into a clear hierarchy.

4. CommunityNurseryGroups:

Importance: Captures information about community groups associated with parishes. This allows for managing and supporting community-based nursery initiatives within specific locations.

5. Nurseries & Gardens:

Importance: Stores information about nurseries (linked to farmers and community groups) and individual gardens managed by farmers. This is the core data for managing nursery and garden locations and activities.

6. Farmers:

Importance: Maintains information about farmers associated with nurseries and gardens. This information helps identify the individuals responsible for managing these locations.

7. Resources:

Importance: Tracks resources (seeds, fertilizers, etc.) used in nurseries and gardens. This allows for inventory management and resource allocation for nursery operations.

8. NurseryResources:

Importance: Links specific nurseries with the resources they utilize, recording quantity and received date. This provides detailed information on resource usage within each nursery.

Relationships:

These tables are interconnected to represent real-world relationships:

Nurseries are linked to Farmers and potentially CommunityNurseryGroups (depending on their management structure).

Gardens are linked to Farmers who manage them.

9. Seasons:

Importance: Defines different seasons (e.g., rainy, dry) relevant to nursery activities. Seasons are a reference point for planning activities and tracking performance based on seasonal variations.

10. ActivityCategories:

Importance: Categorizes activities as either nursery or garden activities. This helps differentiate activities performed in different contexts (nursery vs. garden).

11. Activities:

Importance: Stores general information about various activities performed in nurseries and gardens (e.g., seeding, transplanting). This is a central reference point for activity details.

12. NurseryActivities & GardenActivities:

Importance: Links specific activities performed in nurseries and gardens with respective locations and performed dates. This captures detailed data on activity execution within nurseries and gardens.

Relationships:

These tables are connected based on activity type:

NurseryActivities link Activities to specific Nurseries.

GardenActivities link Activities to specific Gardens.

13. Targets:

Importance: Defines targets for various aspects of nursery management (e.g., seedling production, planting area). Targets set goals and objectives for different activities within the system.

14. TargetActivities (temp):

Importance: Optionally links targets with specific activities, enabling very specific target setting. This allows for defining granular targets focused on particular activities.

Relationships (Optional):

This table connects targets to activities for more precise target definition, but it's an optional inclusion.

15. RoleActivities:

Importance: Establishes a many-to-many relationship between user roles and activities. This defines which roles are responsible for which activities, facilitating targeted target assignment and performance evaluation based on roles.

Relationships:

This table connects Roles and Activities:

Roles define user responsibilities, and Activities represent tasks to be performed. This connection clarifies which roles are accountable for specific activities.

16. UserTargets (Not included, but can be added):

Importance: Assigns user roles with specific targets based on their responsibilities. This would further personalize target setting based on individual roles within the system.

Relationships (Potential):

This table would connect Users (through their Roles) and Targets for user-specific target assignment.

17. AuditTrails :

Importance: Tracks data changes and user actions within the system. This provides a record of modifications for auditing purposes, ensuring data integrity and identifying potential issues.

Database Model:

1. Users:

• id (INT PRIMARY KEY)

• role_id (INT FOREIGN KEY REFERENCES Roles(id))

• name (VARCHAR(255))

• email (VARCHAR(255))

• password (VARCHAR(255)) (hashed) (Only for users who log in)

• is_deleted (BOOLEAN DEFAULT FALSE)

2. Roles:

• id (INT PRIMARY KEY)

• name (VARCHAR(255)) (e.g., "area_manager", "branch_manager", "parish_coordinator", "MEL")

3. Regions:

• id (INT PRIMARY KEY)

• name (VARCHAR(255)) (e.g., "Region 1", "Region 2")

4. Areas:

• id (INT PRIMARY KEY)

• region_id (INT FOREIGN KEY REFERENCES Regions(id))

• name (VARCHAR(255))

• is_deleted (BOOLEAN DEFAULT FALSE)

5. Branches:

• id (INT PRIMARY KEY)

• area_id (INT FOREIGN KEY REFERENCES Areas(id))

• name (VARCHAR(255))

• is_deleted (BOOLEAN DEFAULT FALSE)

6. Parishes:

• id (INT PRIMARY KEY)

• branch_id (INT FOREIGN KEY REFERENCES Branches(id))

• name (VARCHAR(255))

• is_deleted (BOOLEAN DEFAULT FALSE)

7. CommunityNurseryGroups:

• id (INT PRIMARY KEY)

• parish_id (INT FOREIGN KEY REFERENCES Parishes(id))

• name (VARCHAR(255))

• coordinates (GEOMETRY) (point or polygon)

• photo_url (VARCHAR(255)) (Optional, URL to a group photo)

• is_deleted (BOOLEAN DEFAULT FALSE)

8. Nurseries:

• id (INT PRIMARY KEY)

• farmer_id (INT FOREIGN KEY REFERENCES Farmers(id)) (New foreign key)

• community_nursery_group_id (INT FOREIGN KEY REFERENCES CommunityNurseryGroups(id))

• map_polygon (GEOMETRY)

• photo_url (VARCHAR(255)) (Optional, URL to a nursery photo)

• is_deleted (BOOLEAN DEFAULT FALSE)

9. Farmers:

• id (INT PRIMARY KEY)

• name (VARCHAR(255))

• national_id (VARCHAR(255))

• photo_url (VARCHAR(255)) (URL to farmer's profile picture)

• is_deleted (BOOLEAN DEFAULT FALSE)

10. Gardens:

• id (INT PRIMARY KEY)

• farmer_id (INT FOREIGN KEY REFERENCES Farmers(id))

• map_polygon (GEOMETRY)

• photo_url (VARCHAR(255)) (Optional, URL to a garden photo)

• is_deleted (BOOLEAN DEFAULT FALSE)

11. Resources:

• id (INT PRIMARY KEY)

• name (VARCHAR(255)) (Name of the resource)

• quantity (INT) (Available quantity)

• category (VARCHAR(255)) (Optional, to categorize resources)

• description (TEXT) (Optional, for detailed information)

• unit (VARCHAR(255)) (Unit of measurement)

• is_deleted (BOOLEAN DEFAULT FALSE)

12. NurseryResources:

• id (INT PRIMARY KEY)

• nursery_id (INT FOREIGN KEY REFERENCES Nurseries(id))

• resource_id (INT FOREIGN KEY REFERENCES Resources(id))

• quantity (INT)

• received_date (DATE)

• is_deleted (BOOLEAN DEFAULT FALSE)

13. Seasons:

• id (INT PRIMARY KEY)

• name (VARCHAR(255)) (e.g., "Rainy Season", "Dry Season")

• start_date (DATE)

• end_date (DATE)

• is_deleted (BOOLEAN DEFAULT FALSE)

14. ActivityCategories:

• id (INT PRIMARY KEY)

• name (VARCHAR(255)) (e.g., NurseryActivity, GardenActivity)

• is_deleted (BOOLEAN DEFAULT FALSE)

15. Activities:

• id (INT PRIMARY KEY)

• activity_category_id (INT FOREIGN KEY REFERENCES ActivityCategories(id))

• name (VARCHAR(255)) (Specific activity name, e.g., Seeding, Transplanting)

• description (TEXT) (Optional)

• is_deleted (BOOLEAN DEFAULT FALSE)

16. NurseryActivities:

• id (INT PRIMARY KEY)

• nursery_id (INT FOREIGN KEY REFERENCES Nurseries(id))

• activity_id (INT FOREIGN KEY REFERENCES Activities(id)) (New foreign key)

• performed_date (DATE)

• images (TEXT) (comma-separated list of image URLs)

• is_deleted (BOOLEAN DEFAULT FALSE)

17. GardenActivities:

• id (INT PRIMARY KEY)

• garden_id (INT FOREIGN KEY REFERENCES Gardens(id))

• activity_id (INT FOREIGN KEY REFERENCES Activities(id)) (New foreign key)

• performed_date (DATE)

• images (TEXT) (comma-separated list of image URLs)

• is_deleted (BOOLEAN DEFAULT FALSE)

18. Targets:

• id (INT PRIMARY KEY)

• name (VARCHAR(255)) (Name of the target)

• description (TEXT) (Optional, detailed description)

• target_value (INT/FLOAT) (The numerical target value)

• target_date (DATE) (Date by which the target needs to be achieved)

• is_deleted (BOOLEAN DEFAULT FALSE)

19. RoleActivities:

• id (INT PRIMARY KEY)

• role_id (INT FOREIGN KEY REFERENCES Roles(id))

• activity_id (INT FOREIGN KEY REFERENCES Activities(id))

• is_deleted (BOOLEAN DEFAULT FALSE)

20. TargetActivities (Optional):

• id (INT PRIMARY KEY)

• target_id (INT FOREIGN KEY REFERENCES Targets(id))

• activity_id (INT FOREIGN KEY REFERENCES Activities(id)) (Optional, for granular target definition)

• is_deleted (BOOLEAN DEFAULT FALSE)

21. AuditTrails: (New table for audit trails)

- id (INT PRIMARY KEY)

- user_id (INT FOREIGN KEY REFERENCES Users(id)) (Tracks who made the change)

- action (VARCHAR(255)) (Specific action taken, e.g., "Created Nursery", "Updated Target")

- timestamp (DATETIME) (Date and time of the action)

- table_name (VARCHAR(255)) (Name of the table affected)

Schema

```
CREATE TABLE Users (
  id INT PRIMARY KEY,
  role_id INT,
  name VARCHAR(255),
  email VARCHAR(255),
  password VARCHAR(255),
  is_deleted BOOLEAN DEFAULT FALSE,
  FOREIGN KEY (role_id) REFERENCES Roles(id)
);

CREATE TABLE Roles (
  id INT PRIMARY KEY,
  name VARCHAR(255)
);

CREATE TABLE Regions (
  id INT PRIMARY KEY,
  name VARCHAR(255)
```

```
);

CREATE TABLE Areas (
  id INT PRIMARY KEY,
  region_id INT,
  name VARCHAR(255),
  is_deleted BOOLEAN DEFAULT FALSE,
  FOREIGN KEY (region_id) REFERENCES Regions(id)
);

CREATE TABLE Branches (
  id INT PRIMARY KEY,
  area_id INT,
  name VARCHAR(255),
  is_deleted BOOLEAN DEFAULT FALSE,
  FOREIGN KEY (area_id) REFERENCES Areas(id)
);

CREATE TABLE Parishes (
  id INT PRIMARY KEY,
  branch_id INT,
  name VARCHAR(255),
  is_deleted BOOLEAN DEFAULT FALSE,
  FOREIGN KEY (branch_id) REFERENCES Branches(id)
);

CREATE TABLE CommunityNurseryGroups (
  id INT PRIMARY KEY,
  parish_id INT,
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    name VARCHAR(255),
    coordinates GEOMETRY,
    photo_url VARCHAR(255),
    is_deleted BOOLEAN DEFAULT FALSE,
    FOREIGN KEY (parish_id) REFERENCES Parishes(id)
);

CREATE TABLE Nurseries (
    id INT PRIMARY KEY,
    farmer_id INT,
    community_nursery_group_id INT,
    map_polygon GEOMETRY,
    photo_url VARCHAR(255),
    is_deleted BOOLEAN DEFAULT FALSE,
    FOREIGN KEY (farmer_id) REFERENCES Farmers(id),
    FOREIGN KEY (community_nursery_group_id) REFERENCES
CommunityNurseryGroups(id)
);

CREATE TABLE Farmers (
    id INT PRIMARY KEY,
    name VARCHAR(255),
    national_id VARCHAR(255),
    photo_url VARCHAR(255),
    is_deleted BOOLEAN DEFAULT FALSE
);

CREATE TABLE Gardens (
    id INT PRIMARY KEY,
    farmer_id INT,
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```
    map_polygon GEOMETRY,
    photo_url VARCHAR(255),
    is_deleted BOOLEAN DEFAULT FALSE,
    FOREIGN KEY (farmer_id) REFERENCES Farmers(id)
);

CREATE TABLE Resources (
    id INT PRIMARY KEY,
    name VARCHAR(255),
    quantity INT,
    category VARCHAR(255),
    description TEXT,
    unit VARCHAR(255),
    is_deleted BOOLEAN DEFAULT FALSE
);

CREATE TABLE NurseryResources (
    id INT PRIMARY KEY,
    nursery_id INT,
    resource_id INT,
    quantity INT,
    received_date DATE,
    is_deleted BOOLEAN DEFAULT FALSE,
    FOREIGN KEY (nursery_id) REFERENCES Nurseries(id),
    FOREIGN KEY (resource_id) REFERENCES Resources(id)
);

CREATE TABLE Seasons (
    id INT PRIMARY KEY,
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  name VARCHAR(255),
  start_date DATE,
  end_date DATE,
  is_deleted BOOLEAN DEFAULT FALSE
);

CREATE TABLE ActivityCategories (
  id INT PRIMARY KEY,
  name VARCHAR(255),
  is_deleted BOOLEAN DEFAULT FALSE
);

CREATE TABLE Activities (
  id INT PRIMARY KEY,
  activity_category_id INT,
  name VARCHAR(255),
  description TEXT,
  is_deleted BOOLEAN DEFAULT FALSE,
  FOREIGN KEY (activity_category_id) REFERENCES ActivityCategories(id)
);

CREATE TABLE NurseryActivities (
  id INT PRIMARY KEY,
  nursery_id INT,
  activity_id INT,
  performed_date DATE,
  images TEXT,
  is_deleted BOOLEAN DEFAULT FALSE,
  FOREIGN KEY (nursery_id) REFERENCES Nurseries(id),
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```
    FOREIGN KEY (activity_id) REFERENCES Activities(id)
);

CREATE TABLE GardenActivities (
    id INT PRIMARY KEY,
    garden_id INT,
    activity_id INT,
    performed_date DATE,
    images TEXT,
    is_deleted BOOLEAN DEFAULT FALSE,
    FOREIGN KEY (garden_id) REFERENCES Gardens(id),
    FOREIGN KEY (activity_id) REFERENCES Activities(id)
);

CREATE TABLE Targets (
    id INT PRIMARY KEY,
    name VARCHAR(255),
    description TEXT,
    target_value INT,
    target_date DATE,
    is_deleted BOOLEAN DEFAULT FALSE
);

CREATE TABLE RoleActivities (
    id INT PRIMARY KEY,
    role_id INT,
    activity_id INT,
    is_deleted BOOLEAN DEFAULT FALSE,
    FOREIGN KEY (role_id) REFERENCES Roles(id),
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```
  FOREIGN KEY (activity_id) REFERENCES Activities(id)
);

CREATE TABLE TargetActivities (
  id INT PRIMARY KEY,
  target_id INT,
  activity_id INT,
  is_deleted BOOLEAN DEFAULT FALSE,
  FOREIGN KEY (target_id) REFERENCES Targets(id),
  FOREIGN KEY (activity_id) REFERENCES Activities(id)
);

CREATE TABLE AuditTrails (
  id INT PRIMARY KEY,
  user_id INT,
  action VARCHAR(255),
  timestamp DATETIME,
  table_name VARCHAR(255),
  record_id INT,
  field_name VARCHAR(255),
  old_value TEXT,
  new_value TEXT
);
```