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PROJECT_TERRESTRIAL

PLANT SHOP OPERATION SYSTEM
Database Project Documentation

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PROJECT OVERVIEW

The project I am presenting is the continuation of Project terreSTRIAL, originally developed in the Python programming language. This system was designed by me, Marcus Maximus A. Dimaano, second-year student, with an emphasis on robust database management tailored specifically for plant sellers and buyers. Being the backbone of the digital marketplace, this database is an organized depository where one can list their plants for sale. A buyer will easily find them and place an order, hence allowing free flowing interactions between plant enthusiasts and sellers through easy storage and retrieval of plant information.

This continuation develops on the present database structure that improves its ability to handle advanced functionalities while alleviating weaknesses in the initial version. The system currently supports the basic CRUD (Create, Read, Update, Delete) operations for plant listing management.

The database uses the proper use of tables, primary keys, and foreign keys to organize and connect data meaningfully. Each plant in the database is stored as a record in a table, with attributes such as plant name, description, price, and stock quantity. A primary key uniquely identifies each record, ensuring that data retrieval and updates are precise and efficient. Foreign keys establish relationships between tables, such as linking customer orders to the corresponding plant records or associating users with their purchase history. Such relational structures improve the system's data interaction management capabilities and ensure data integrity, thus laying the groundwork for analytics and suggestions capabilities.

>>>BASIC_TABLE_IN_PROJECT_TERRESTRIAL<<<

TABLE FOR BUNDLE

Column Name	Data Type	Constraints	Description
BundleID	INT	Primary Key, Auto Increment	Unique identifier for each bundle
BundleName	VARCHAR(255)	NOT NULL	Name of the bundle
Description	TEXT		Detailed description of the bundle

PlantID	INT	Foreign Key (Plants.PlantID)	References the plant in the bundle

TABLE FOR PLANT

Column Name	Data Type	Constraints	Description
PlantID	INT	Primary Key, Auto Increment	Unique identifier for each plant
PlantName	VARCHAR(255)	NOT NULL	Name of the plant
PlantType	VARCHAR(255)	NOT NULL	Type of the plant
Status	ENUM ('Pending', 'To be Traded', 'Sold', 'Selling')		Current status of the plant
Amount	DECIMAL(10,2)	NOT NULL	Price or value of the plan
OwnerID	INT	Foreign Key (Owner.OwnerID)	References the owner of the plant

TABLE FOR OWNER

Column Name	Data Type	Constraints	Description
OwnerID	INT	Primary Key, Auto Increment	Unique identifier for each owner
OwnerName	VARCHAR(255)	NOT NULL	Name of the owner

Such a development of terreSTRIAL, with its database at the center, was started on 20 November 2023 and is set to conclude on November 29, 2024, at 7:15:38 PM. This time would be a testimony to my upgrading the design and functionality of the database so that it delivers an optimized, truly modernized user experience for plant sellers and buyers alike.

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Overview of “Project Terrestrial” in Python :

Aspect	Description
Project Name	terreSTRIAL
Developer	Marcus Maximus A. Dimaano, 2nd-year student
Project Start Date	November 20, 2023
Project End Date	November 29, 2024, at 7:15:38 PM
Purpose	Create a project management and ordering system for plant sellers and buyers
Target Users	Plant sellers (to list plants for sale) and buyers (to browse and purchase plants).
Core Features	Basic CRUD operations, real-time stock tracking, and order management.
Enhancements	User authentication, search optimization, recommendation engine, and responsive design.
Additional Tools	Analytics for customer preferences and sales trends.
Project Goals	Modernize plant commerce, improve usability, and foster an online plant-selling community.
Platform Accessibility	Designed to be usable across multiple devices (desktop and mobile).
Research Contribution	Enhance the understanding of e-commerce solutions tailored for niche markets like plant sellers.

NOTE: THIS IS OVERVIEW FROM PYTHON, TO ELABORATE FUTHER.

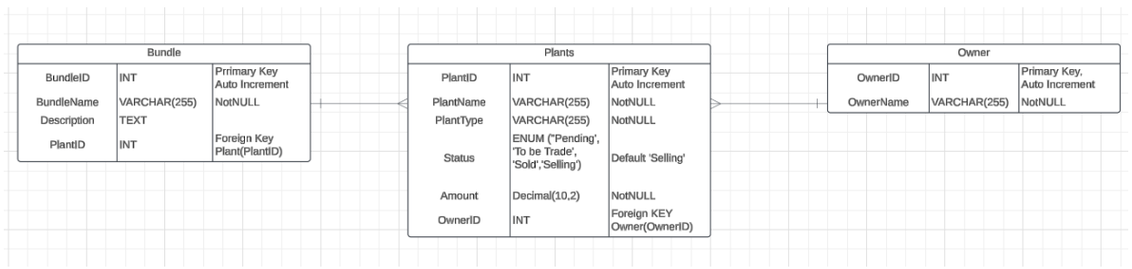
ENTITY-RELATIONSHIP DIAGRAM (ERD)

The following is an ERD of the database schema for a plant management system that focuses around three major entities: Bundles, Plants, and Owners. Bundles are simply groups of plants; Plants correspond to a physical plant or entity with a unique name and type, status, price, among other attributes. An owner then corresponds to an individual or a legal owner of the plants.

The ERD creates a relationship among these entities so that the data will be consistent and integrity maintained. Bundles and Plants have a one-to-many relationship; that means a single bundle may contain more than one plant, but each plant belongs to

only one bundle. Similarly, many-to-one relationships connect Plants to Owners. This means many plants can be owned by a single owner, but a single owner owns only one plant.

Figure 1. Entity Relationship Diagram



All in all, This is an ERD that depicts the whole outline of a strong and efficient plant management system. Defining the main entities Bundles, Plants, and Owners, it creates a solid foundation in which to organize and manage data.

The relationships of these entities are defined such that data integrity and consistency are maintained. One-to-many relationships of Bundles and Plants enable plants to be flexibly grouped, whereas the many-to-one relationship between Plants and Owners accurately depicts scenarios of ownership. and this is all the description within.

Entities and their Relationships

Owner ↔ Plant
Type:(One-to-Many)

Description:
- Each owner can own multiple plants.
- OwnerID in the Plant table is a foreign key referencing OwnerID in the Owner table.

Plant ↔ Bundle
Type:(One-to-Many)

- A plant can belong to multiple bundles (many-to-many), but this simplified model assumes a plant can belong to only one bundle.
- PlantID in the Bundle table is a foreign key referencing PlantID in the Plant table

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SQL SCRIPT IN A CMD:

```
-- Create Database
CREATE DATABASE Terrestrial;

-- Use Database
USE Terrestrial;


-- Owner Table
CREATE TABLE Owner (
    OwnerID INT PRIMARY KEY AUTO_INCREMENT,
    OwnerName VARCHAR(255) NOT NULL
);

-- Plant Table
CREATE TABLE Plant (
    PlantID INT PRIMARY KEY AUTO_INCREMENT,
    PlantName VARCHAR(255) NOT NULL,
    PlantType VARCHAR(255) NOT NULL,
    Status ENUM('Pending', 'To Be Trade', 'Sold', 'Selling') DEFAULT 'Selling',
    Amount DECIMAL(10, 2) NOT NULL,
    OwnerID INT,
    FOREIGN KEY (OwnerID) REFERENCES Owner(OwnerID) ON DELETE CASCADE
);

-- Bundle Table
CREATE TABLE Bundle (
    BundleID INT PRIMARY KEY AUTO_INCREMENT,
    BundleName VARCHAR(255) NOT NULL,
    Description TEXT,
    PlantID INT,
    FOREIGN KEY (PlantID) REFERENCES Plant(PlantID) ON DELETE CASCADE
);
```

SQL CODE IN PROJECT TERRESTRIAL (PYTHON PROGRAM):

START OF THE DATABASE

```
                    cursor.execute('''
                    CREATE TABLE IF NOT EXISTS plants (
                      id INTEGER PRIMARY KEY AUTOINCREMENT,
                      owner TEXT NOT NULL,
                      plant_name TEXT NOT NULL,
                      plant_type TEXT NOT NULL,
                      amount INTEGER NOT NULL,
                      bundle TEXT NOT NULL,
                      status TEXT NOT NULL
)
''')
conn.commit()
```

CODE>>>

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DATABASE FUNCTIONS PT.1

```
    labels = ["Owner", "Plant Name", "Amount", "Bundle"]
    entries = {}
    for i, label in enumerate(labels):
        tk.Label(form_window,
                 text=label,
                 font=("Arial", 12),
                 bg="black",
                 fg="white").pack(pady=5)

        entry = tk.Entry(form_window,
                         font=("Arial", 12)
                         )
        entry.pack(pady=5)
        entries[label] = entry


    if action == "Update" and selected_item:
        plant = tree.item(selected_item, "values)


        entries["Owner"].insert(0, plant[1])
        entries["Plant Name"].insert(0, plant[2])
        plant_type_combobox.set(plant[3])
        entries["Amount"].insert(0, plant[4])
        entries["Bundle"].insert(0, plant[5])
        status_combobox.set(plant[6])


    def submit_form():
        owner = entries["Owner"].get()
        plant_name = entries["Plant Name"].get()
        plant_type = plant_type_combobox.get()
        amount = entries["Amount"].get()
        bundle = entries["Bundle"].get()
        status = status_combobox.get()
```

CODE>>>

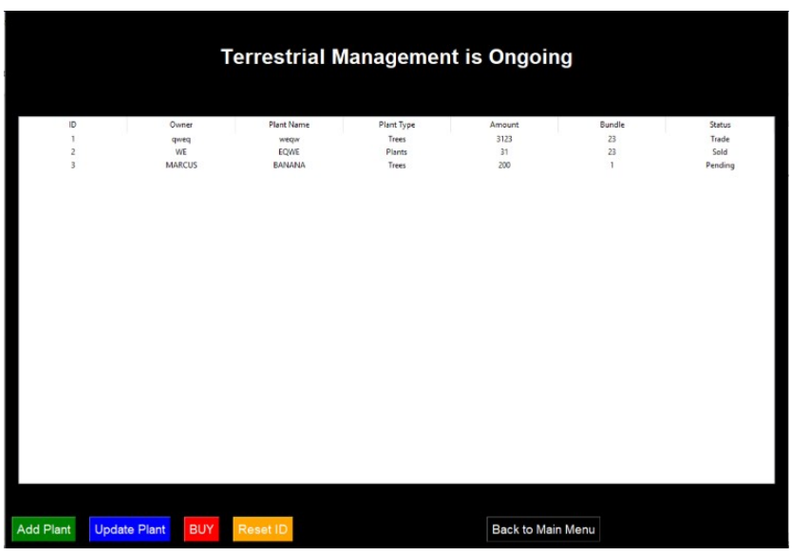
DATABASE WINDOW

```
  second_frame = tk.Frame(root,
                          bg="black"
                          )
   second_frame.pack(fill="both",
                     expand=True
```

```
                    )


    ongoing_label = tk.Label(second_frame,
                             text="Terrestrial Management is Ongoing”
                             font=("Arial", 24, "bold"),
                             fg="white",
                             bg="black"
                            )
    ongoing_label.pack(pady=50)


    columns = ("ID",
               "Owner",
               "Plant Name",
               "Plant Type",
               "Amount",
               "Bundle",
               "Status"
               )

    tree = ttk.Treeview(second_frame,
                        columns=columns,
                        show="headings",
                        height=15
                        )                                                    #
```

CODE>>>

OUTPUT:



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BSIT 2101 STUDENT

CREATOR, DIRECTOR AND OWNER OF

PROJECT TERRESTRIAL

PURPOSE: TO SUBMIT THE PROJECT
IT TO SIR ARJONEL(ADVISER)

BRAINSTORMING PROJECT
START: NOV 15,2024
END: NOV 15, 2024

MAKING THE PROJECT
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