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ONLINE PLANT NURSERY

System Documentation

Course: Database Design Systems
Project Type: Individual Project

Project Scope

Project Title: Online Plant Nursery Database System

Purpose of the System

The Online Plant Nursery system is designed to manage the operations of an online store that sells plants and gardening products. The system stores and manages data related to:

- Customers
- Products
- Orders
- Order Items
- Payments

The database ensures accurate tracking of inventory, customer purchases, and financial transactions.

The system will:

✅ Store customer information
✅ Store product inventory
✅ Manage customer orders
✅ Track items within each order
✅ Process and store payment details

The focus is strictly on database design and management.

The system represents:

A small online plant nursery that sells indoor plants, outdoor plants, seeds, pots, and gardening accessories.

Customers can:

- Register on the platform

- Browse products
- Place orders
- Pay online

Each order may contain multiple products.

Each payment is linked to one order.

Functional Requirements

1. Allow storing customer information.
2. Allow adding and updating product details.
3. Allow customers to place orders.
4. Allow an order to contain multiple products.
5. Calculate total order amount.
6. Record payment information.
7. Maintain inventory stock quantity.

Entities and Attributes

CUSTOMER

- CustomerID (PK)
- FirstName
- LastName
- Email
- Phone

PRODUCT

- ProductID (PK)
- Category
- ProductName
- Price
- StockQty

ORDER

- OrderID (PK)
- CustomerID (FK)
- OrderDate
- OrderStatus
- TotalAmount

ORDERITEM

- OrderItemID (PK)
- OrderID (FK)
- ProductID (FK)
- Quantity
- UnitPrice

PAYMENT

- PaymentID (PK)
- OrderID (FK)
- PaymentMethod
- Amount
- PaymentStatus

Relationships and Cardinality

CUSTOMER — places — ORDER

Relationship Type: 1 : N
One customer can place many orders.
Each order belongs to one customer.

ORDER — contains — ORDERITEM

Relationship Type: 1 : N
One order can contain many order items.

PRODUCT — appears in — ORDERITEM

Relationship Type: 1 : N
One product can appear in many order items.

ORDER — paid by — PAYMENT

Relationship Type: 1 : 1
Each order has one payment record.

Why Separate ORDER and ORDERITEM?

To resolve the many-to-many relationship between ORDER and PRODUCT.

One order can have many products.
One product can appear in many orders.

This requires a junction table (ORDERITEM).

Why Use Primary Keys?

To:

- Ensure uniqueness
- Prevent duplicate records
- Maintain integrity

Why Use Foreign Keys?

To:

- Enforce referential integrity
- Ensure child records relate to valid parent records
- Prevent orphan records

Why Include StockQty?

To manage inventory and prevent selling unavailable products.

This improves data consistency.

Normalization Level

The database is designed to meet:

- First Normal Form (1NF)
- Second Normal Form (2NF)
- Third Normal Form (3NF)

Database Implementation (MySQL Workbench)

The database was implemented using:

- MySQL Workbench
- Forward Engineering
- InnoDB storage engine
- Primary and Foreign Key constraints
- Indexed foreign keys

GitHub Repository Structure

My GitHub repository should include:

Online-Plant-Nursery

Conclusion.

The Online Plant Nursery database system successfully models a real-world e-commerce plant store. The system ensures data integrity, supports customer transactions, and maintains inventory control. The design follows relational database best practices and implements proper entity relationships and constraints.