Project Phase 1 – Database Initial Study

# Members of the group

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# Analyse company situation

**GreenThumb Gardens and Landscaping**

# Company Objectives

Objective: Provide High-Quality Products and Services.

Database Implication:

* The **Plant** and **GardeningSupply** entities must store detailed information about product quality, specifications, and supplier details.
* The **Order** and **OrderItem** entities must accurately capture customer orders and ensure that the correct products are delivered.
* The **Supplier** and **SupplierItems** entities must be used to track reliable suppliers.

### Objective: Foster Gardening Expertise and Education.

Database Implication:

* The **Plant** entity can include attributes for plant care instructions, growing conditions, and other educational information.
* Customer profiles in the **Customer** entity can store gardening preferences and interests, enabling personalized recommendations.

### Objective: Build Strong Community Relationships.

Database Implication:

* The **Customer** entity should store detailed customer contact information to facilitate communication and personalized service.
* The database can be used to track customer purchase history, enabling targeted promotions and loyalty programs.

Objective: Ensure Efficient and Sustainable Operations.

Database Implication:

* The **Inventory** entity is crucial for tracking stock levels, managing reordering, and minimizing waste.
* The **LandscapingProject** and **ProjectAssignment** entities are essential for managing project schedules, resource allocation, and employee assignments.

# Company Operations

### Operation: Plant and Gardening Supply Sales.

Database Implication:

* The **Plant**, **GardeningSupply**, **Inventory**, **Order**, and **OrderItem** entities are directly involved in sales transactions.
* The database must support efficient order processing and inventory updates.

### Operation: Landscaping Services.

Database Implication:

* The **LandscapingProject**, **ProjectAssignment**, and **Employee** entities are essential for managing project details, employee assignments, and scheduling.
* The database should track material usage and project progress.

### Operation: Inventory Management.

Database Implication:

* The **Inventory** and **SupplierItems** entities are critical for tracking stock levels, managing supplier relationships, and reordering.
* The database should generate reports on inventory levels and stock movement.

### Operation: Customer Relationship Management.

Database Implication:

* The **Customer** entity is central to storing customer information and tracking purchase history.
* The database should support personalized recommendations and targeted promotions.

### Operation: Employee Management.

Database Implication:

* The **Employee** and **ProjectAssignment** entities are used to track employee assignments and manage workloads.
* The Database can be used to track employee hours.

# Company Organizational Structure

### Owner/Manager:

Database Implication:

* Requires access to all database information for strategic planning and financial analysis.
* Needs reports on sales, inventory, and project performance.

### Nursery Manager:

Database Implication:

* Focuses on the **Plant**, **Inventory**, and **Supplier** entities.
* Requires reports on plant inventory levels and supplier performance.

### Landscaping Manager:

Database Implication:

* Focuses on the **LandscapingProject**, **ProjectAssignment**, and **Employee** entities.
* Requires reports on project schedules, employee assignments, and material usage.

### Sales/Customer Service Staff:

Database Implication:

* Uses the **Customer**, **Order**, and **OrderItem** entities.
* Requires efficient order processing and customer information retrieval.

### Landscaping Crew:

Database Implication:

* Their time is tracked via the **ProjectAssignment** Entity.

### Inventory/Logistics Coordinator:

Database implication:

* Uses the **Inventory**, and **SupplierItems** entities.
* By connecting these elements, you demonstrate a clear understanding of how the database design supports the company's operations and objectives.

# Define problems and constraints

# Problems

## Inventory Discrepancies:

* Frequent discrepancies exist between recorded and actual inventory, leading to stockouts and lost sales.
* Plants perish due to ineffective tracking of age and condition.
* Over-ordering of supplies occurs due to a lack of accurate usage data.

## Landscaping Project Chaos:

* Project scheduling is inconsistent, resulting in double-booking and material shortages.
* Tracking project costs and material usage is difficult, hindering accurate budget estimation.
* Customer communication regarding project updates is inconsistent.

## Customer Frustration:

* Customers experience frustration due to delays in obtaining inventory information and personalized recommendations.
* Repeat business is lost due to the absence of a system to track customer preferences and provide targeted promotions.
* Customers are frustrated by inconsistent project updates.

## Employee Inefficiency:

* Employees waste time searching for inventory and clarifying project assignments.
* Overtime costs are excessive due to inefficient employee scheduling.
* Lack of clear project assignments leads to confusion and errors.

## Supplier Issues:

* Issues arise with late deliveries from certain suppliers.
* There is a lack of a method to effectively compare supplier pricing and quality.
* Tracking which supplier provided which items is difficult.

# Constraints

## Budget:

* Limited budget necessitates a cost-effective solution.
* Implementation must minimize disruption to daily operations.

## Time:

* Rapid implementation is required to address immediate operational challenges.
* A tight deadline exists for project completion.

## Technical Skills:

* Varying levels of staff computer literacy require a user-friendly system.
* Staff training may be necessary for effective system use.

## Data Migration:

* Existing inventory and customer data must be migrated to the new system.
* Data accuracy and integrity must be ensured during migration.

## Seasonal Demands:

* The system must handle peak seasonal demands without performance issues.
* The system must track seasonal inventory changes.

# Database system specification

# Objectives to solve identified problems

## Improve Inventory Management Efficiency:

* To create a real-time inventory tracking system that minimizes discrepancies, reduces waste from perishable plants, and optimizes supply ordering.
* This addresses the problems of inventory discrepancies and the impact of seasonal demands.

## Streamline Landscaping Project Management:

* To develop a system that facilitates efficient project scheduling, material tracking, and employee assignment, leading to better project cost control and customer communication.
* This addresses the problems of landscaping project chaos, and employee inefficiency.

## Enhance Customer Relationship Management:

* To build a database that enables personalized customer service, targeted promotions, and effective tracking of customer preferences and project updates.
* This addresses customer frustration.

## Optimize Supplier Management:

* To develop a system that tracks supplier performance, pricing, and delivery schedules, improving procurement efficiency.
* This addresses supplier issues.

## Improve Order Tracking and Fulfilment:

* To allow for easy tracking of orders, and to provide customer updates.
* This addresses customer frustration and employee inefficiency.

## System Interface and Data Sharing:

* Initially, the system will focus on internal operations.
* Future integration with online sales platforms and accounting software may be considered.
* The database will be designed to allow for reporting that can be shared with managers, and employees.

# Information That Company Requires from Database

## Inventory:

* Real-time plant and supply stock levels.
* Plant age and condition tracking.
* Supplier delivery schedules.
* Inventory usage reports.

## Landscaping Projects:

* Project schedules and timelines.
* Material usage and costs.
* Employee assignments and progress.
* Customer project updates.

## Customer Information:

* Customer contact details and purchase history.
* Plant and landscaping preferences.
* Customer feedback and communication logs.

## Supplier Information:

* Suppliers contact details and product catalogues.
* Supplier performance metrics (delivery times, quality).
* Supplier pricing.

## Orders:

* Order contents, dates, and customer information.
* Order status and tracking information.

## Employee Information:

* Employee contact information.
* Employee project assignments.
* Employee time tracking.

# Scope

## The database will encompass the following operational areas:

* Inventory management (plants and supplies).
* Landscaping project management.
* Customer relationship management.
* Order processing and tracking.
* Supplier management.
* Employee project assignment tracking.

**The scope is departmental and focused on the core operations of GreenThumb Gardens.**

# Boundaries

## Budget:

* The system must be developed within a defined budget.
* Cost-effective solutions will be prioritized.

## Time:

* The project must be completed within a specific timeframe.

## Technical Skills:

* The system must be user-friendly for staff with varying technical abilities.
* Training will be provided as needed.

## Hardware and Software:

* The database system will be designed to be compatible with existing hardware, or reasonably priced new hardware.
* The database software will be selected based on cost, ease of use, and functionality.

## Data Migration:

* Existing data will be migrated to the new system, with a focus on data integrity.

## Operational Constraints:

* The system must be able to handle seasonal fluctuations in demand.
* The system must be able to track perishable inventory.