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FULL-STACK APPLICATION DEVELOPMENT

Software Requirements
Specification Version 1.0

Green Leaf

Project Name: **Green Leaf**
Theme: **Plant Nursery & Gardening Tips**

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1.1 Background and Necessity for the Web Application

With growing awareness about environmental sustainability, people are increasingly turning towards home gardening, organic farming, and indoor plants for both aesthetic and health benefits. However, many plant lovers struggle to find the right plants for their needs, manage their care schedules, and access reliable gardening tips.

Traditional nurseries often lack a centralized digital platform for plant cataloging, personalized suggestions, and gardening guides. A dedicated web application can bridge this gap, making plant shopping and care management convenient and interactive.

1.2 Proposed Solution

Greenleaf will be a comprehensive web application designed for plant enthusiasts, professional gardeners, and nursery owners. The platform will provide:

- A detailed online plant catalog with care instructions
- Personalized plant recommendations based on climate and user preferences
- Gardening tips, blogs, and seasonal planting guides
- Online order placement for plants and gardening tools
- Plant care reminders through notifications

1.3 Purpose of the Document

The purpose of this document is to outline the detailed requirements for the development of Greenleaf. It will ensure all stakeholders have a clear understanding of the objectives, scope, functionalities, and deliverables of the project.

1.4 Scope of the Project

Greenleaf will be a responsive and visually appealing web application accessible on both desktop and mobile devices.

Key capabilities include:

- Browsing plants and gardening products
- Searching and filtering plants by type, size, care difficulty, and price
- Creating a user profile and managing a “My Garden” section
- Getting reminders for watering, fertilizing, and pruning
- Reading expert gardening articles and watching tutorial videos
- Allowing nursery admins to add/update/delete products and manage orders

Payment processing and delivery tracking are beyond the scope of this project.

1.5 Constraints

- The application must be compatible with major browsers (Chrome, Firefox, Edge, Safari)
- It must handle high-quality images without affecting performance
- The plant catalog should support multilingual descriptions in the future
- User data must be securely stored and managed according to privacy laws

1.6 Functional Requirements

For Users:

1. User Registration & Login

- Create accounts with email, password, and optional profile image
- Password recovery and reset features

2. Plant Catalog

- View all available plants with details: name, type, care level, light requirements, watering schedule, and price
- Filter plants by categories: Indoor, Outdoor, Flowering, Air-Purifying, Seasonal
- Search plants by name or botanical name

3. My Garden

- Add purchased plants to personal garden list
- Set watering/fertilizing reminders
- Track plant growth with notes and images

4. Gardening Tips & Blogs

- Read expert articles and seasonal guides
- Watch embedded gardening videos
- Save favorite tips to user profile

5. Shopping Cart

- Add/remove plants and tools to cart
- Update quantities
- View total estimated cost

6. Feedback & Reviews

- Submit reviews for plants and products
- Rate gardening tips and blog articles

For Admin:

- Manage plant catalog (Add/Update/Delete)
- Approve or remove user-submitted reviews
- Manage blog articles and seasonal guides
- Generate basic sales and inventory reports

Common Features:

- About Us, Contact Us pages
- Search, Sort, and Filter features
- Sitemap on the homepage
- Basic session management for logged-in users

1.7 Non-Functional Requirements

- **Safety:** No malicious or unnecessary file downloads
- **Accessibility:** Clear fonts, high-contrast color scheme
- **Performance:** Fast loading and smooth navigation
- **Security:** Authentication for protected pages
- **Scalability:** Ability to add more categories and plant details in future
- **Compatibility:** Works on latest browsers and devices

1.8 Interface Requirements

1.8.1 Hardware:

- Intel Core i5 or higher
- 8 GB RAM or higher
- 500 GB storage
- Mouse, Keyboard

1.8.2 Software:

Frontend: HTML5, CSS3, Bootstrap, JavaScript, jQuery, ReactJS/Angular, XML

Backend: PHP with Laravel OR Python with Django/Flask OR C# with ASP.NET

MVC/Core OR Java with Jakarta EE

Database: MySQL 8.0 / SQL Server 2019

Local Hosting (optional): XAMPP / WAMP

Database Design

Entities & Attributes Example:

Users (user_id PK, username, email, password_hash, profile_image)

Plants (plant_id PK, name, botanical_name, category, price, care_level, light_requirement, watering_schedule, description, image)

Orders (order_id PK, user_id FK, order_date, total_amount, status)

Cart (cart_id PK, user_id FK, plant_id FK, quantity)

Blogs (blog_id PK, title, content, image, created_at)

Reminders (reminder_id PK, user_id FK, plant_id FK, reminder_date, type)

Relationships:

- Users to Orders: One-to-Many
- Users to My Garden: One-to-Many
- Plants to Reminders: One-to-Many
- Users to Blogs (Saved): Many-to-Many

1.9 Project Deliverables

- Detailed Design & ERD Diagram
- Database Script (.sql)
- Source Code with installation instructions
- Read Me File with User Credentials
- Video demonstration of the working web application