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Smart Online Plant Marketplace using PHP and MySQL

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ABSTRACT: The Smart Online Plant Marketplace is an advanced e-commerce platform that simplifies plant shopping by providing a convenient and interactive digital environment for plant lovers. Users can explore a wide range of plants, access detailed descriptions and care guides, and receive personalized recommendations based on their preferences and purchase history. The system integrates secure payment gateways, real-time order tracking, and a responsive search and filtering mechanism to enhance the shopping experience. Additionally, the platform offers chatbot-based customer support, reviews and ratings for informed decision-making, and a dedicated plant care section to promote healthy plant growth. For sellers, it includes an inventory management module and an analytics dashboard to monitor sales trends and optimize stock levels.

I. INTRODUCTION

The plant and gardening industry has seen significant growth as more people embrace indoor gardening and sustainable living. Traditional plant purchasing is constrained by geographic limitations, inconsistent availability, and a lack of expert guidance at the point of sale. Customers visiting physical nurseries often cannot find the specific plant species they need, and sellers struggle to manage inventory efficiently.

Advancements in web technologies and e-commerce have created an opportunity to build a specialised online marketplace tailored exclusively to plants. PHP, combined with a MySQL database, provides a robust, scalable, and cost-effective foundation. With Bootstrap and HTML/CSS for the front end and WAMP Server as the development environment, the system can be rapidly developed and deployed.

This project proposes a Smart Online Plant Marketplace that brings together buyers and sellers in a single feature-rich digital environment. The platform provides intuitive browsing, personalized recommendations, secure payments, and real-time order tracking — all designed to promote plant adoption and environmental awareness.

The platform also promotes community engagement through features like reviews and ratings. Customers can share their experiences, provide feedback on purchased plants, and rate sellers based on product quality and service. This not only helps other users make better decisions but also encourages sellers to maintain high standards. The transparent feedback system fosters trust and accountability within the marketplace ecosystem.

In the context of environmental sustainability, the Smart Online Plant Marketplace plays a vital role in promoting green living. By making plants more accessible and providing educational resources, the platform encourages individuals to incorporate greenery into their homes and workplaces. This contributes to improved air quality, enhanced mental well-being, and a healthier lifestyle. Furthermore, the platform can support eco-friendly initiatives such as promoting native plant species, reducing carbon footprint through optimized delivery systems, and encouraging sustainable packaging practices.

Technologically, the system leverages modern web development frameworks and tools to ensure scalability, performance, and security. The use of responsive design principles ensures that the platform is accessible across various devices, including desktops, tablets, and smartphones. Backend technologies handle data processing, user authentication, and database management, while frontend technologies focus on delivering an intuitive and visually appealing user interface. The integration of APIs enables smooth communication between different components of the system, ensuring efficient functionality.

II. EXISTING SYSTEM

The traditional approach to purchasing plants involves visiting physical nurseries or local garden stores, which can be timeconsuming and inconvenient. Limited stock availability, lack of detailed plant care information, and restricted geographical reach hinder the overall shopping experience. Some existing online platforms offer plant sales, but they lack personalized recommendations, efficient inventory management, and dedicated customer support.

Moreover, users frequently face difficulties verifying plant quality, tracking orders in real-time, and accessing reliable postpurchase guidance, leading to a fragmented and less engaging experience.

DISADVANTAGES

- Limited Availability & Accessibility — Customers restricted to locally available plants.
- Lack of Real-Time Order Tracking — No visibility into delivery status after purchase.
- Inconsistent Plant Care Guidance — Post-purchase support is absent or unreliable.

III. PROPOSED SYSTEM

The proposed system is a comprehensive online plant marketplace built using PHP, MySQL, HTML, CSS, and Bootstrap. It offers an intuitive search and filtering system, secure payment gateways, and real-time order tracking for customer convenience. The platform integrates a personalized recommendation engine based on user preferences along with plant care guides to assist buyers in maintaining their plants.

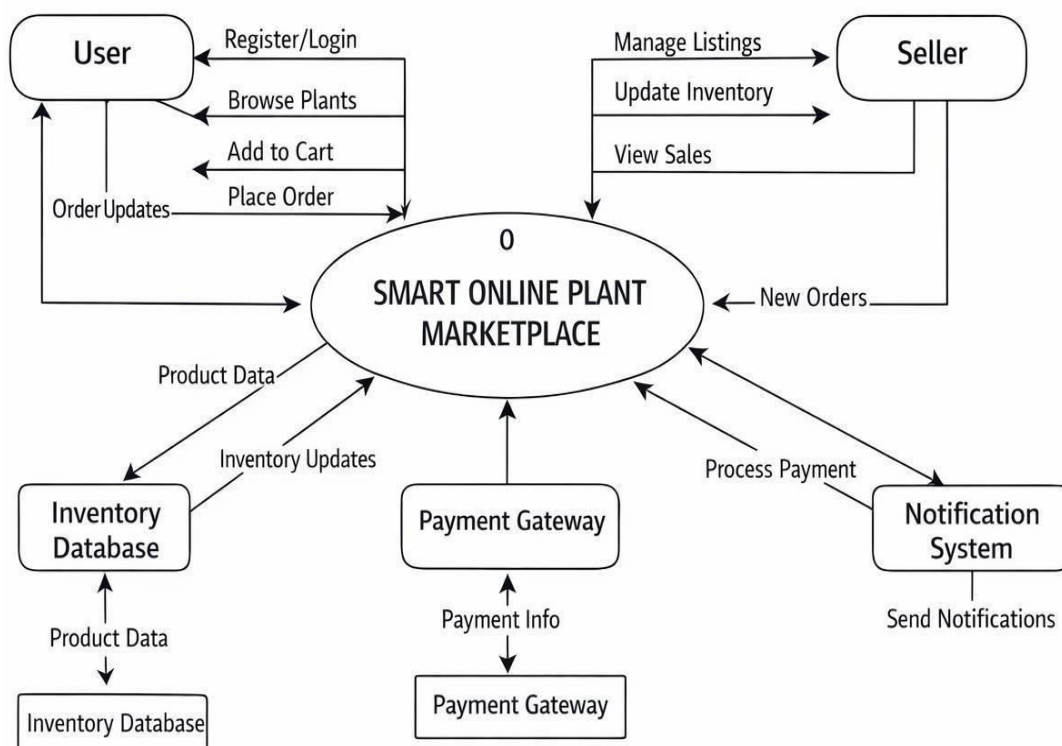
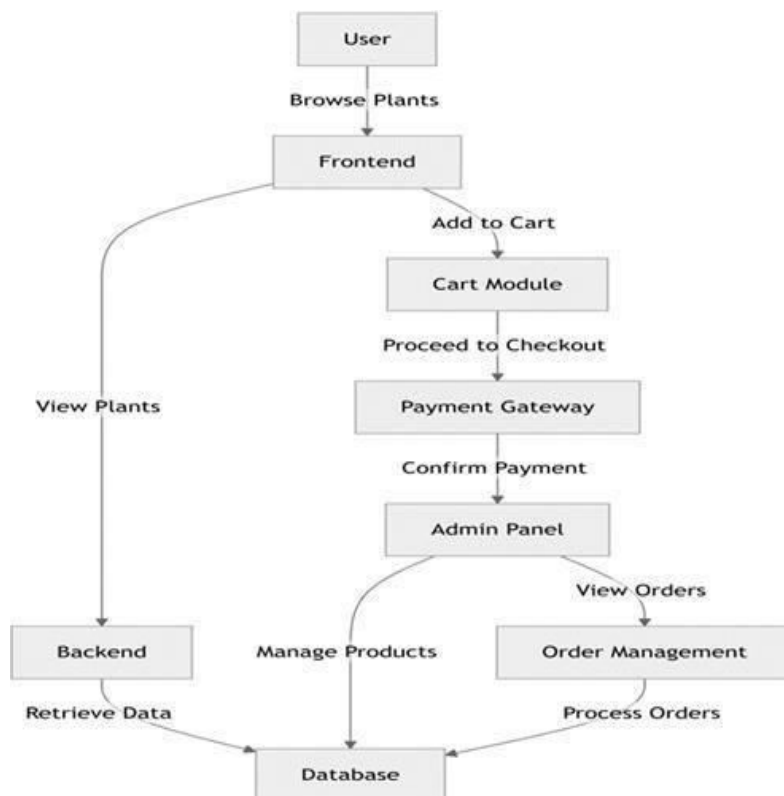
Sellers benefit from an advanced inventory management system and an analytics dashboard for sales insights. Customer engagement is further improved through chatbot-assisted support, reviews and ratings, and an interactive user interface. This solution ensures a seamless, efficient, and sustainable way to purchase plants online while promoting environmental awareness.

ADVANTAGES

- Personalized Shopping Experience — Recommendation engine tailors suggestions to user preferences.
- Enhanced Convenience & Accessibility — Browse and purchase plants from anywhere, anytime.
- Advanced Inventory & Seller Management — Real-time stock tracking and analytics dashboards.

IV. SYSTEM ARCHITECTURE

The architecture of the Smart Online Plant Marketplace follows a three-tier web application model: a presentation layer (HTML, CSS, Bootstrap), an application logic layer (PHP), and a data layer (MySQL via WAMP Server). The workflow begins when a user browses product categories; the PHP backend retrieves matching plant records from MySQL and renders the results dynamically. Secure payment processing is handled through integrated payment APIs, and all order state changes are tracked in the database and displayed in real time.



V. MODULE DESCRIPTIONS

User and Admin Management

This module manages user registration, login, and profile management. Users can update personal details and track their order history. The admin panel allows administrators to monitor users, manage permissions, and control overall system activities. It ensures secure access through proper authentication and authorization.

Product Exploration & Selection

This module enables users to browse plants through categories, search options, and filters. Each product page displays plant details, price, availability, and care instructions. A recommendation feature suggests products based on user preferences and browsing history.

Cart Management

Users can add, remove, or modify plant quantities in their shopping cart. The system automatically updates the total price and checks product availability in real time, allowing users to review selected items before proceeding to checkout.

Seamless Transaction Processing

This module handles secure online payments using multiple methods such as cards, UPI, and digital wallets. It encrypts transaction data to ensure safety. After successful payment, users receive a confirmation notification and a digital invoice.

Order Processing

Once payment is completed, this module manages order confirmation and updates inventory records automatically. It tracks the order from packaging to delivery. Users can view real-time order status, and administrators can manage returns or cancellations.

Catalog Management System

This module allows administrators to add new plants, update product details, manage categories, and monitor stock levels.

Sales insights and stock reports help sellers in better inventory planning and demand forecasting.

VI. METHODOLOGY

1. Requirement Analysis

This methodology was used to identify the system requirements and user needs for the Smart Online Plant Marketplace. The project analyzed the problems in traditional plant purchasing systems and defined important features such as user registration, plant browsing, shopping cart, payment processing, order tracking, and seller management. This phase helped in planning the overall functionality of the system.

2. UML-Based System Design

The project used UML-based design methodology to model the structure and workflow of the system. Different UML diagrams such as Use Case Diagram, Class Diagram, Activity Diagram, Sequence Diagram, and Collaboration Diagram were created to represent interactions between users, sellers, administrators, and system modules. This methodology helped in clearly visualizing the system architecture and module communication.

3. Layered Architecture

The system followed a layered architecture methodology by separating the application into presentation layer, business logic layer, and database layer. The frontend handled user interaction, the backend processed business operations, and the database managed data storage. This methodology improved scalability, maintainability, and efficient communication between system components.

4. Database Management

A relational database methodology was used with MySQL for storing and managing user details, plant information, orders, payments, and inventory records. Proper table relationships and normalization techniques were applied to ensure data consistency, reduce redundancy, and support efficient data retrieval during transactions and product management.

5. Software Testing

The project used multiple software testing methodologies to ensure system reliability and performance. Unit Testing, Integration Testing, System Testing, Functional Testing, White Box Testing, and Black Box Testing were performed to identify errors and validate each module. This methodology ensured that the platform functions correctly, securely, and efficiently before deployment.

VI. RESULTS

The Smart Online Plant Marketplace was successfully developed and tested across all core modules. The following screenshots demonstrate the working output of the system, including the plant browsing interface and the shopping cart module.

1. SCREENSHOTS

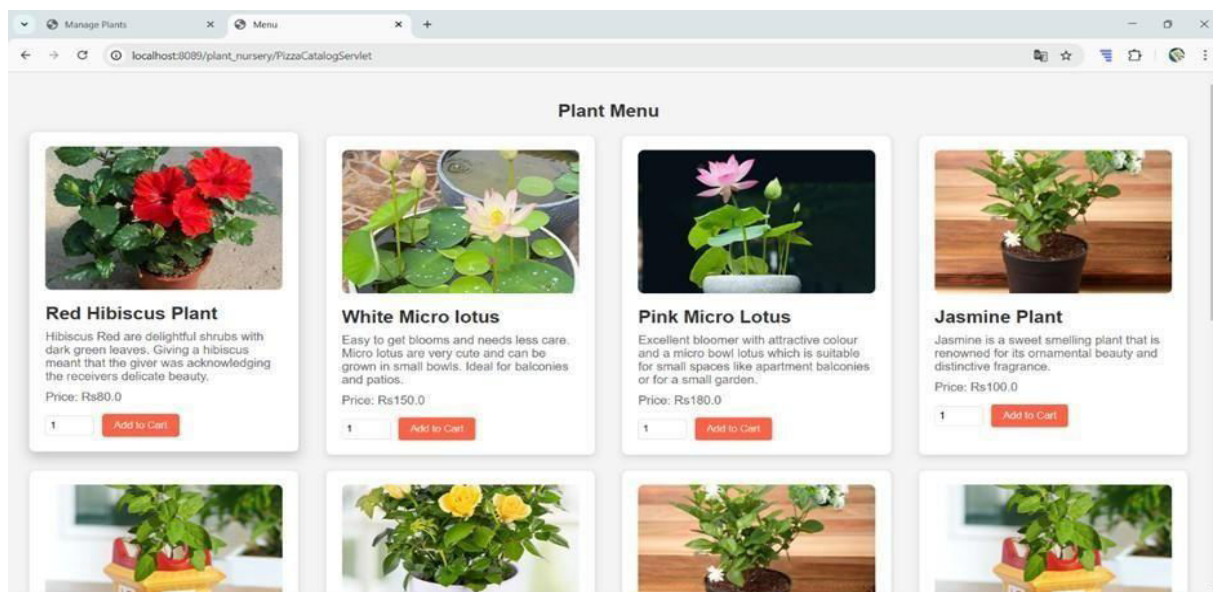


Fig No. 7.1 — Plant Menu Page (Product Listing)

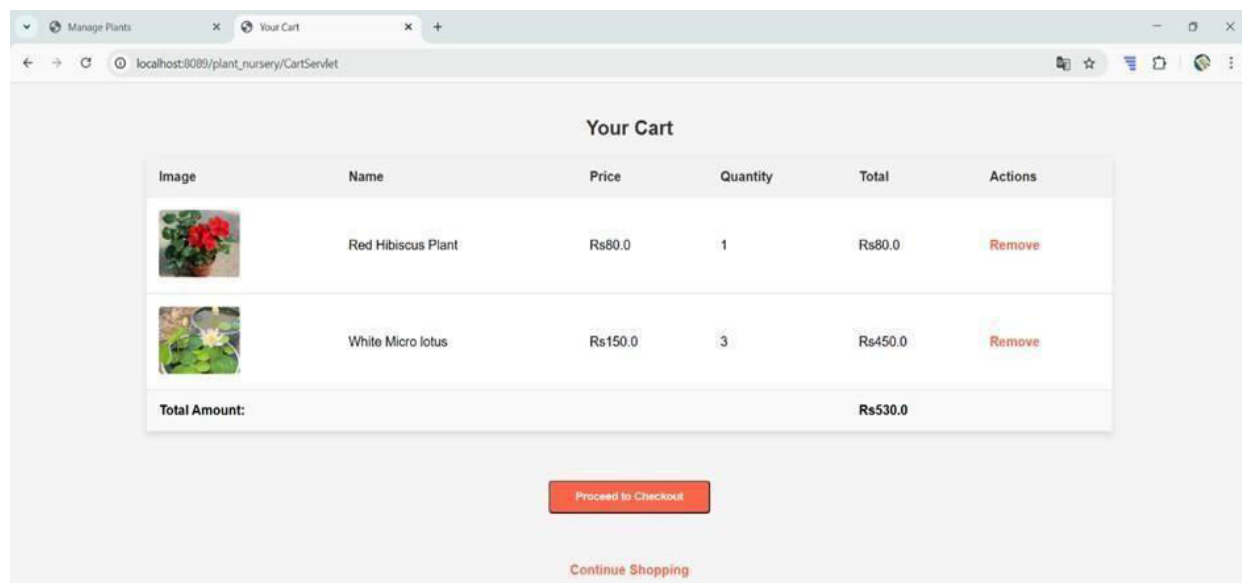


Fig. No. 7.2 — Shopping Cart / Order Output

VII. CONCLUSION

The Smart Online Plant Marketplace successfully addresses the challenges associated with traditional plant shopping by providing a comprehensive and user-friendly e-commerce platform tailored for plant enthusiasts. By integrating features such as secure payment systems, personalized recommendations, real-time order tracking, and detailed plant care guidance, the platform enhances customer satisfaction and informed decision-making.

The inclusion of seller-oriented modules such as inventory management and analytics dashboards ensures efficient stock control and improved business performance. The chatbot-based support and review system strengthen customer engagement and trust. Overall, the project promotes convenient plant purchasing, supports sustainable practices, and contributes to environmental awareness while demonstrating the effective use of modern web technologies.

VIII. FUTURE ENHANCEMENTS

The Smart Online Plant Marketplace can be further enhanced by developing a mobile application for smartphone-based browsing and purchasing. Integration with AI-based plant disease detection can enable users to photograph their plants and receive automated health diagnoses and care suggestions. Augmented reality (AR) features can allow buyers to visualise how a plant would look in their home before purchase.

The platform can also be connected with logistics APIs for automated shipping and delivery scheduling. A subscription-based plant care service and community forum can be introduced to build a loyal user base. Future versions may also incorporate advanced deep learning models to further personalise recommendations.

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