E-Commerce Web Application

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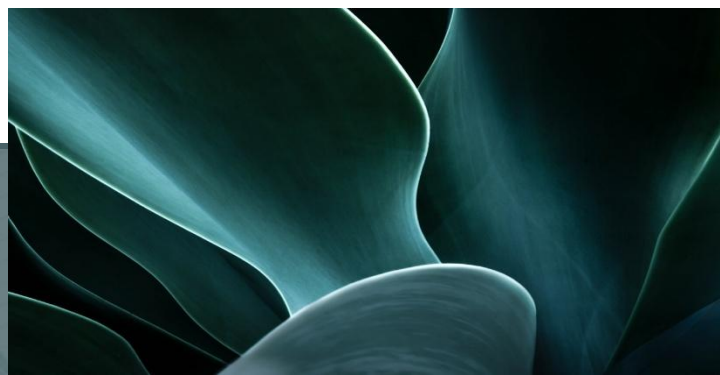
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Database Management System

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Introduction

This project is a dynamic e-commerce web application built using PHP, MySQL, Bootstrap, and HTML/CSS. It enables users to browse products, manage carts, place orders, and make payments, while administrators can manage inventory, users, and transactions.

Objectives

➢ Develop a modular and scalable e-commerce platform

➢ Implement secure user and admin authentication

➢ Enable dynamic product and category management

➢ Ensure responsive design across devices

➢ Maintain normalized and efficient database schema

Technologies Used

Technology	Purpose
PHP	Backend logic and server-side scripting
MySQL	Relational database management
Bootstrap	Responsive UI design
HTML/CSS	Frontend structure and styling
JavaScript	Client-side interactivity

System Overview

➢ User Roles: Admin and Customer

➢ Frontend: HTML, CSS, Bootstrap

➢ Backend: PHP with modular includes and functions

➢ Database: MySQL with normalized tables

➢ Security: Password hashing, session management

Project Structure

Ecommerce_Website/

├── admin_area/   → Admin dashboard and controls

├── users_area/   → User registration, login, profile

├── functions/   → Common reusable PHP functions

├── includes/   → DB connection and footer

├── cart.php   → Cart logic and display

├── index.php   → Homepage

├── display_all.php   → Product listing

├── product_details.php → Product detail view

├── search_product.php   → Search functionality

├── style.css   → Global styling

Database Design

Table Name	Description
admin_table	Admin credentials and profile
user_table	User credentials and profile
products	Product details and images
brands	Brand metadata
categories	Product categories
cart_details	Temporary cart items
user_orders	Finalized orders
orders_pending	Orders awaiting confirmation
user_payments	Payment records

Key Functional Modules

Admin Panel

➢ Login/Logout/Registration

➢ Insert/Edit/Delete Products, Brands, Categories

➢ View/Delete Orders, Payments, Users

User Side

➢ Registration/Login/Profile Management

➢ Product Browsing and Search

➢ Cart Management and Checkout

➢ Order History and Payment Confirmation

Code Highlights

➢ Modular Includes: *connect.php, common_function.php, footer.php*

➢ Reusable Functions: *getProducts(), cartItems(), cartTotalPrice()*

➢ Secure Auth: *password_hash() and password_verify()*

➢ Dynamic UI: *Bootstrap cards, modals, and responsive tables*

➢ Session Handling: *Role-based access and redirects*

Security Measures

➢ Passwords stored using password_hash()

➢ Login verification with password_verify()

➢ Session-based access control for admin and users

➢ Input validation and SQL query sanitization

Testing and Validation

➢ Manual testing of all modules

➢ SQL query validation

➢ UI responsiveness across devices

➢ Edge case handling (empty cart, invalid login, duplicate entries)

Challenges Faced

➢ Ensuring modularity and reusability in PHP

➢ Handling session timeouts and redirects

➢ Designing a normalized yet flexible schema

➢ Responsive UI across screen sizes and browsers

Future Scope

- Integrate payment gateway (Stripe, PayPal)
- Add product reviews and ratings
- Implement RESTful API for mobile apps
- Enhance security with CSRF tokens and CAPTCHA
- Add analytics dashboard for admin

Conclusion

This project demonstrates a complete e-commerce workflow with robust backend logic, secure authentication, and responsive design. It reflects practical application of web development principles and database design, making it suitable for real-world deployment and academic evaluation.