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|  | | E-Commerce Web Application | | | | |  | |
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|  | | | | Muzahidur Rahman Saim |  | | | |
|  | | | | 23rd August, 2025—Database Management System—Dr. Rafiqul Islam [RIS] |  | | | |
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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

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| **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

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| --- | --- |
| **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.

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