



D Y PATIL INTERNATIONAL UNIVERSITY
AKURDI PUNE

“E-Commerce Online Store”

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Under Guidance

Of

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**In partial fulfilment of the requirements for
the award of the degree**

**Bachelor of Technology (CSE) Year
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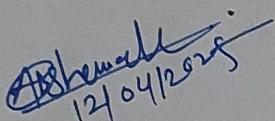


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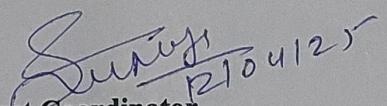
CERTIFICATE OF COMPLETION

This is to certify that the project entitled “E-Commerce (Online Store)” has been completed by **Yash Sharma : 20230802369** and **Prem P Sudhanshu : 20230802371** in partial fulfilment of the Minor Project in the 4th semester B.Tech. (CSE) during the period March - April 2025 as prescribed by **School of Computer Science, Engineering and Applications, D Y Patil International University, Akurdi, Pune.**



12/04/2025

Project Guide
(Mrs. Akansha Shewale),
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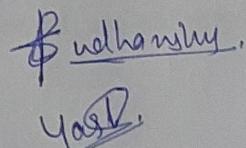
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DECLARATION

I declare that the work contained in this report is original and has been done by me/us under the guidance of my supervisor(s) and the work has not been submitted to any other Institute for any degree or diploma. I have followed the guidelines provided by the **School of Computer Science, Engineering, and Applications, D Y Patil International University** in preparing the report.

Two handwritten signatures in black ink. The top signature appears to read "B. Nethravathi." The bottom signature appears to read "Yash D." Both signatures are written in cursive script.

Signature of the Students

ABSTRACT

This project focuses on the development of a secure and functional E-Commerce Website using PHP, MySQL, HTML, CSS, and XAMPP. The system enables users to register, log in, browse products, add items to the cart, and place orders efficiently. A structured database design ensures proper management of users, products, orders, and cart details. To enhance security, PHP sessions and prepared statements are used, preventing unauthorized access and SQL injection.

During development, challenges such as session management, cart updates, and UI design were encountered and successfully resolved through query optimization, debugging, and styling enhancements. The project follows a two-tier architecture, ensuring scalability and ease of future integration with features like admin controls, payment gateways, and search filters.

This project serves as a strong foundation for e-commerce platforms while providing hands-on experience in web development, database management, and security best practices.

ACKNOWLEDGEMENT

We take this opportunity to express our deepest sense of gratitude and sincere thanks to everyone who helped us to complete this work successfully. We express our sincere thanks to **Director Dr. Rahul Sharma, School of Computer Science, Engineering, and Applications, D Y Patil International University** for providing us with all the necessary facilities and support.

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Finally, I thank my family, and friends who contributed to the successful fulfilment of this project work

Place: Akurdi, Pune

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Chapter 1: INTRODUCTION

1.1 Introduction

This project is a **PHP-based E-Commerce platform** built using **PHP, MySQL, HTML, CSS, and XAMPP**. The platform allows users to **register, log in, browse products, add items to a cart, and place orders**. The development was done using **VS Code** as the primary IDE.

1.2 Objectives

I. Develop a Fully Functional Online Store.

Create a platform where users can browse products, add them to a cart, and complete purchases.

II. Implement Secure User Authentication.

Allow users to register and log in using secure password hashing and session management.

III. Database-Driven Product Management.

Store product details in a MySQL database for easy retrieval and display.

IV. Enable Shopping Cart and Checkout Features.

Provide a seamless shopping experience with an intuitive cart and order placement process.

V. Enhance User Experience (UI/UX).

Use HTML, CSS, and responsive design to ensure a visually appealing and user-friendly interface.

VI. Ensure Secure and Efficient Data Handling.

Implement prepared statements and error handling to prevent SQL injection and data corruption.

VII. Improve Session Management and Security.

Use PHP sessions to maintain login states and protect sensitive routes like checkout.

VIII. Optimize Website Performance.

Use efficient database queries and caching techniques to enhance loading speeds.

IX. Prepare for Future Scalability.

Design a modular structure that allows for easy integration of future enhancements like payment gateways and admin panels.

1.3 Purpose

The main purpose of this project is to design and develop an online shopping platform that provides a seamless and secure shopping experience for users. This project aims to simulate a real-world e-commerce system while helping developers gain practical experience in web development, database management, and security practices.

1.4 Project Scope

1. **User Authentication & Management** – Secure registration, login, and session handling.
2. **Product Management** – Display products from a MySQL database with images and details.
3. **Shopping Cart & Checkout** – Users can add products to the cart and place orders.
4. **Database Integration** – MySQL database with structured tables (users, products, orders, etc.).
5. **Basic UI/UX** – Simple and responsive design using HTML, CSS, and PHP.
6. **Security & Error Handling** – Protection against SQL injection and session-based access control.
7. **Future Enhancements** – Admin panel, payment gateway, search filters, and order tracking.

1.5 Applicability

I. Small & Medium Businesses (SMBs) .

Helps local businesses create an online presence and sell products digitally.

II. Educational & Learning Purposes .

Serves as a practical project for students to learn web development, database management, and security.

III. Startup E-Commerce Platforms .

Can be used as a foundation for startups looking to build an online store with PHP & MySQL.

IV. Freelance & Personal Projects .

Web developers can customize and expand this project for clients or personal business needs.

V. Prototype for Large E-Commerce Systems .

Can be scaled and enhanced with advanced features like payment integration, search filters, and admin dashboards.

VI. Portfolio Development .

A great project to showcase skills in PHP, MySQL, HTML, CSS, and UI/UX for job applications or freelancing.

CHAPTER2 : TECHNOLOGY SURVEY AND SELECTION

The project uses a combination of frontend, backend, database, and development tools to build a functional e-commerce platform. Below is an overview of the technologies surveyed and selected for the project.

1. Backend Development

- **Technology:** PHP (Selected)
Reason: Open-source, widely used for web development, and integrates well with MySQL.
- **Alternative Considered:**
Python (Django/Flask) – More complex for a simple e-commerce site.
Node.js – Requires additional frameworks like Express.js.

2. Database Management

- **Technology:** MySQL (Selected)
Reason: Relational database, supports structured queries, and integrates well with PHP.
- **Alternative Considered:**
MongoDB (NoSQL) – Not ideal for structured data like orders and products.

3. Web Server & Development Environment

- **Technology:** XAMPP (Selected)
Reason: Provides an easy setup for PHP, Apache, and MySQL in a single package.
- **Alternative Considered:**
WAMP/LAMP – Similar functionality, but XAMPP is more user-friendly.

4. Frontend Development

- **Technology:** HTML, CSS (Selected)
Reason: Standard web technologies for creating a user-friendly interface.
- **Alternative Considered:**
React.js or Vue.js – More complex for a basic e-commerce project.

5. Integrated Development Environment (IDE)

- **Technology:** VS Code (Selected)
Reason: Lightweight, supports extensions, and widely used for PHP development.
- **Alternative Considered:** PHPStorm – More powerful but requires a paid license.

CHAPTER 3: REQUIREMENTS AND ANALYSIS

3.1 Problem Definition

Many small businesses struggle to establish an **affordable and scalable e-commerce platform** due to **technical complexity, security concerns, and inefficient cart management**. Existing solutions may be expensive or difficult to use, limiting online presence. Additionally, poor **database management and performance issues** affect the shopping experience. This project aims to develop a **secure, user-friendly, and scalable e-commerce website** using **PHP, MySQL, HTML, and CSS**, ensuring smooth product browsing, cart management, and secure transactions.

3.2 Requirement Specification

This section defines the **functional and non-functional requirements** necessary for developing the E-Commerce Website.

3.2.1 Functional Requirements

These are the core features that ensure the system operates as intended.

I. User Authentication & Management.

- Users can register, log in, and log out securely.
- Passwords are hashed for security.

II. Product Management.

- Display products with name, image, price, and description.
- Store product data in a MySQL database.

III. Shopping Cart & Checkout.

- Users can add, update, or remove items from the cart.
- Checkout process calculates total price and order details.

IV. Order Management.

- Orders are stored in the database with user details and timestamps.
- Users can view their past orders.

V. Session Management.

- Uses **PHP sessions** to maintain user login state.
- Restricted access to cart and checkout for non-logged-in users.

VI. Error Handling.

- Prevents invalid logins, missing product details, and empty carts.

3.3 Software and Hardware Requirements

Software Requirements:

- **Operating System:** Windows, macOS, or Linux
- **Web Server:** Apache (via XAMPP)
- **Backend:** PHP (v7.4 or higher)
- **Database:** MySQL (via XAMPP)
- **Frontend Technologies:** HTML, CSS
- **IDE (Code Editor):** Visual Studio Code (VS Code)
- **Browser:** Google Chrome, Mozilla Firefox, or Microsoft Edge

Hardware Requirements:

- **Processor:** Intel Core i3 (or equivalent)
- **RAM:** 4GB
- **Storage:** 10GB free disk space
- **Internet Connection:** Required for testing and deployment
- **Display:** 1024×768 resolution or higher

3.4 Conceptual Models / Design Documents

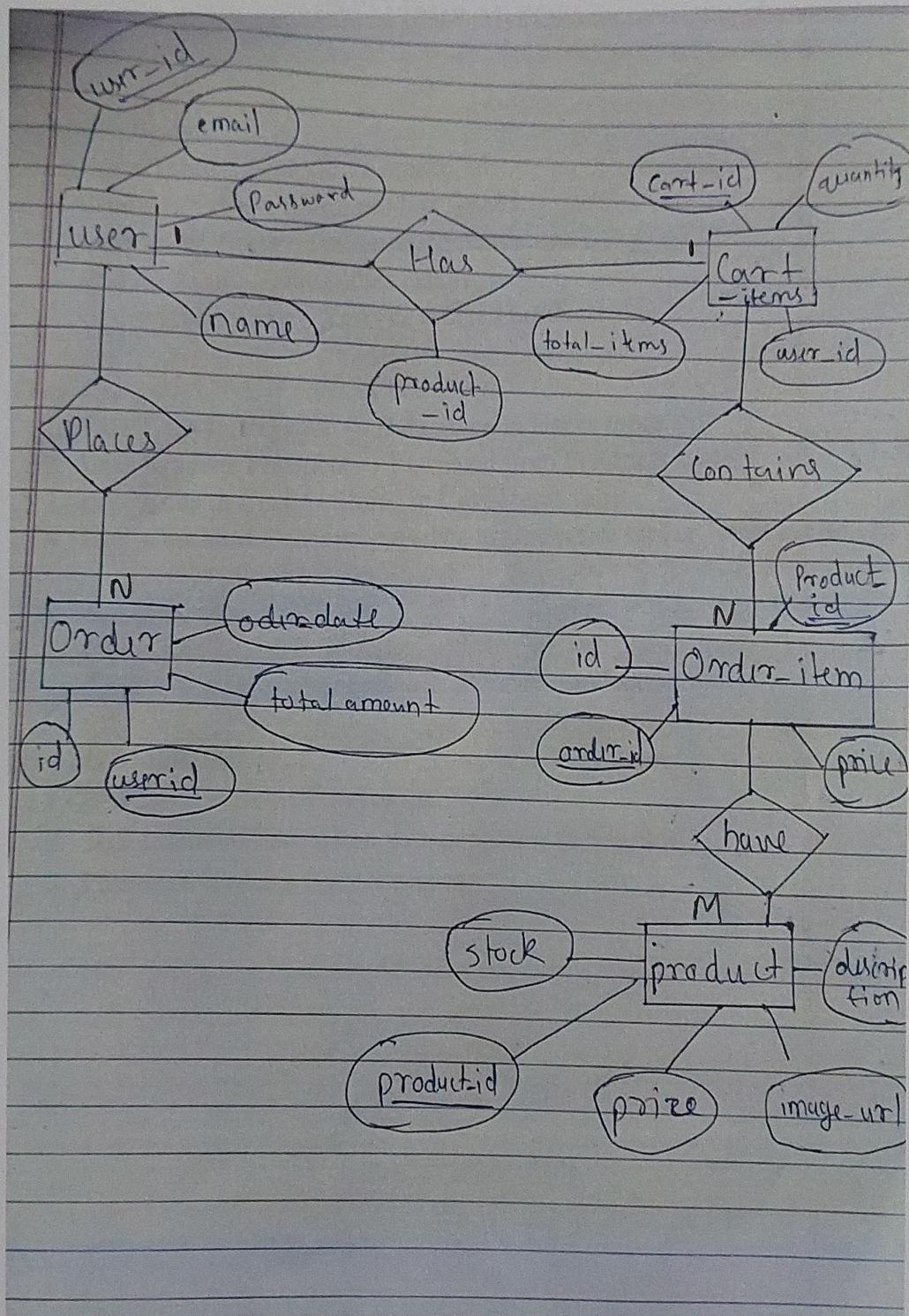
3.4.1 Entity-Relationship Diagram (ERD)

The **ER Diagram** represents the database structure and relationships between key entities.

Entities & Relationships:

- **Users** (**User_ID**, Email, Password, Role) → Can place **Orders**
- **Products** (**Product_ID**, Name, Price, Stock, Image_URL) → Added to **Cart_Items**
- **Cart_Items** (**Cart_ID**, **User_ID**, **Product_ID**, Quantity) → Proceed to **Orders**
- **Orders** (**Order_ID**, **User_ID**, Total_Amount, Created_At) → Contains **Order_Items**

- Order_Items (Order_Item_ID, Order_ID, Product_ID, Quantity, Price)



CHAPTER 4: SYSTEM DESIGN

The E-Commerce Website follows a **two-tier architecture** with a **frontend (HTML, CSS, PHP)** and **backend (PHP, MySQL)** for managing products, users, and orders.

Database Design:

- **Users Table** – Stores login credentials.
- **Products Table** – Stores product details.
- **Cart Items Table** – Tracks added items.
- **Orders Table** – Stores order details.
- **Order Items Table** – Records ordered products.

Data Flow:

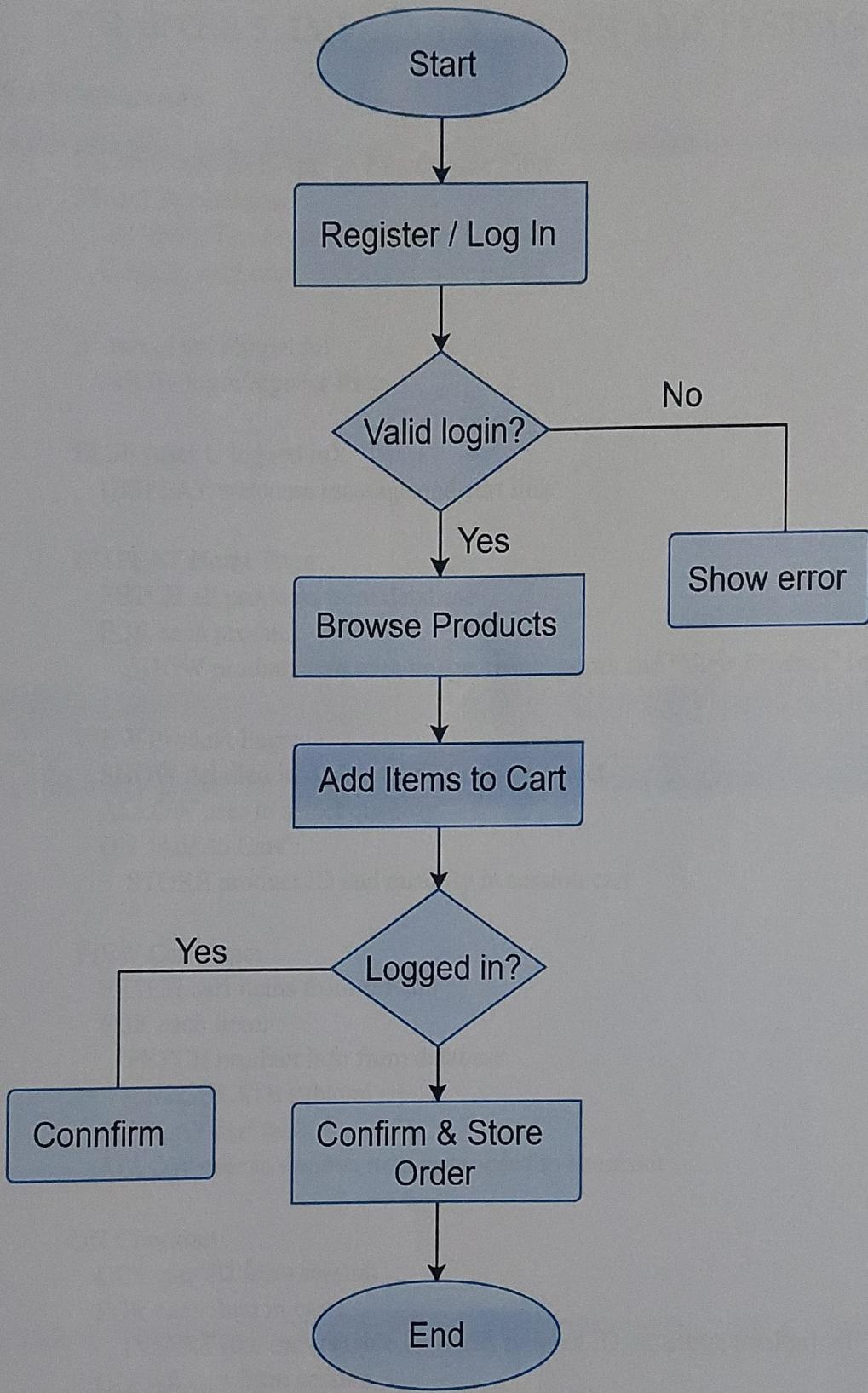
1. **User Logs In/Register** → Data saved in **Users table**.
2. **User Browses Products** → Retrieved from **Products table**.
3. **User Adds to Cart** → Stored in **Cart Items table**.
4. **User Checkout** → Moves cart data to **Orders & Order Items tables**.

Use Case Diagram:

1. **Customer**: Registers, browses, adds to cart, and places orders.
2. **Admin (Future Enhancement)**: Manages products & orders.

Security Measures:

1. **PHP Sessions** for authentication.
2. **SQL Injection Prevention with prepared statements**.
3. **Password Hashing** for user security.



CHAPTER 5: IMPLEMENTATION AND TESTING

5.1 Pseudocode

E-Commerce Web App — Pseudocode Flow

START Application

CONNECT to MySQL database

CHECK user session (logged in or guest)

IF user is not logged in:

SHOW login/register links

ELSE (user is logged in):

DISPLAY welcome message and cart link

DISPLAY Home Page:

FETCH all products from database

FOR each product:

SHOW product card with image, name, price, and "View Product" link

VIEW Product Page:

SHOW detailed info about the selected product

ALLOW user to select quantity

ON "Add to Cart":

STORE product ID and quantity in session cart

VIEW Cart Page:

FETCH cart items from session

FOR each item:

FETCH product info from database

CALCULATE subtotal

DISPLAY cart table

ALLOW user to remove item or proceed to checkout

ON Checkout:

GET user ID from session

FOR each item in cart:

INSERT into orders table (user ID, product ID, quantity, total price)

CLEAR cart from session

SHOW success message

REGISTER:

ON form submit:

VALIDATE email & password

HASH password

INSERT into users table

START session with new user ID

LOGIN:

ON form submit:

CHECK credentials against users table

IF valid:

START session

ELSE:

SHOW error message

LOGOUT:

DESTROY session

REDIRECT to home

END Application

Testing includes:

Unit Testing: - Database connection & queries

- Inserting users, orders

Error Handling: - Missing product images

- Broken links or missing pages

Form Validation: - Empty fields on login/register

- Invalid email/phone formats

Cart Functionality: - Adding/removing items

- Calculating totals correctly

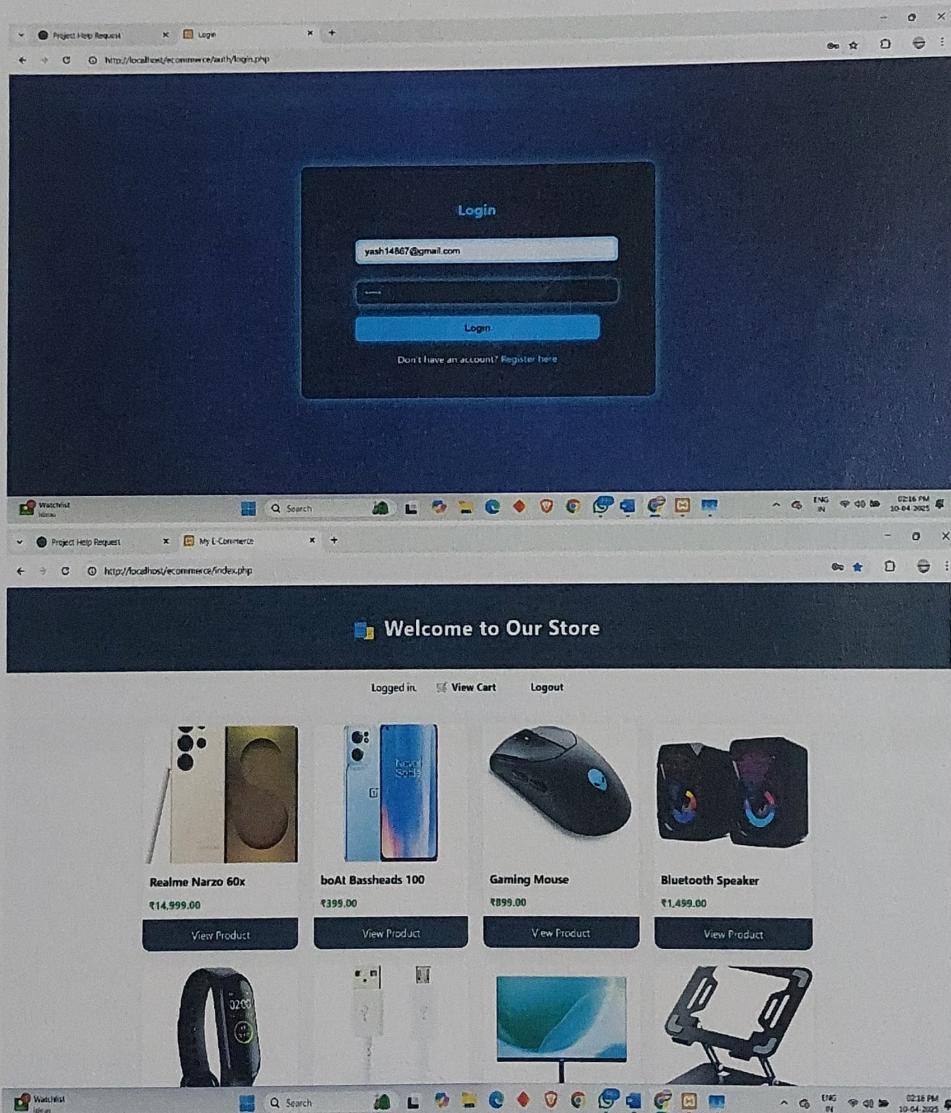
Database Testing: - Successful insertions of users and orders

- Session validation and redirection

CHAPTER 6: RESULT AND DISCUSSION

Output Screens:

- Home Page (index.php)
- Product Details Page (product.php?id=...)
- Cart Page (cart.php)
- Register Page (auth/register.php)
- Login Page (auth/login.php)
- Checkout Confirmation Page (checkout_success.php)



Project Help Request Your Cart +

http://localhost/ecommerce/cart.php

Your Shopping Cart

Image	Product	Price (₹)	Quantity	Subtotal	Action
	Gaming Mouse	₹899.00	1	₹899.00	Remove
	Fitness Band	₹999.00	1	₹999.00	Remove
	Smartwatch	₹2,999.00	2	₹5,998.00	Remove

Total: ₹7,896.00

[Checkout](#)

[Continue Shopping](#)

Project Help Request Gaming Mouse | Product +

http://localhost/ecommerce/product.php?id=5



Gaming Mouse

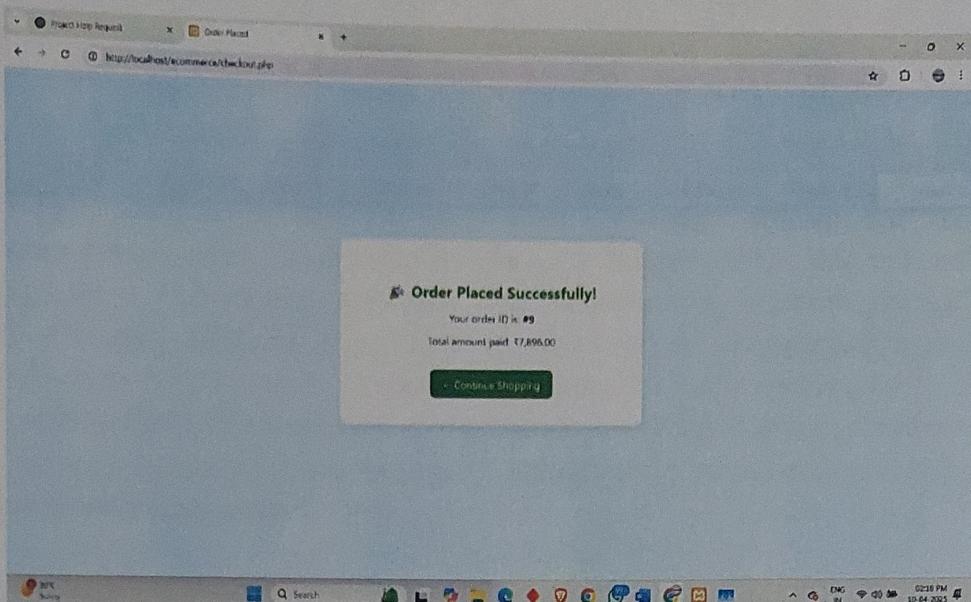
₹899.00

Description: Precision gaming mouse with RGB lighting.

Stock: 25

Quantity: 1 [Add to Cart](#)

[Back to products](#)



Database: ecommerce										
Table	Action	Browse	Structure	Search	Insert	Empty	Drop	Rows	Type	Collation
cart_items	★	Browse	Structure	Search	Insert	Empty	Drop	0	InnoDB	utf8mb4_general_ci
orders	★	Browse	Structure	Search	Insert	Empty	Drop	8	InnoDB	utf8mb4_general_ci
order_items	★	Browse	Structure	Search	Insert	Empty	Drop	17	InnoDB	utf8mb4_general_ci
products	★	Browse	Structure	Search	Insert	Empty	Drop	10	InnoDB	utf8mb4_general_ci
users	★	Browse	Structure	Search	Insert	Empty	Drop	3	InnoDB	utf8mb4_general_ci
5 tables	Sum							38	InnoDB	utf8mb4_general_ci

Discussions:

The E-Commerce Website successfully achieved its core objectives, providing secure user authentication, product browsing, cart management, and order placement. Implementing PHP sessions and prepared statements enhanced security and performance, preventing SQL injection attacks and improving data management. Some challenges, such as session handling, cart updates, and UI limitations, were resolved through query optimization and CSS enhancements. Compared to existing platforms, this system is simpler but scalable, making it a great learning project with potential for future upgrades like admin controls, payment integration, and search filters. Overall, the project demonstrated efficient web development practices and laid a strong foundation for expansion.

CHAPTER 7: CONCLUSION

The E-Commerce Website Project successfully implemented user authentication, product browsing, cart management, and order placement using PHP, MySQL, HTML, and CSS. The system ensures secure transactions, efficient database management, and a user-friendly interface. Challenges such as session handling, cart updates, and UI improvements were effectively resolved, enhancing overall functionality. While the project lacks advanced features like payment integration and admin controls, it provides a scalable foundation for future enhancements. This project offered valuable hands-on experience in web development, database design, and security best practices, making it a strong starting point for more advanced e-commerce application.

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