A MINI-PROJECT REPORT ON

E-Commerce Website

SUBMITTED TO THE SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE, IN THE PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE

THIRD YEAR OF COMPUTER ENGINEERING

SUBMITTED BY

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Academic Year: 2023-2024

FOR THE WEB TECHNOLOGY COURSE

Department of Computer Engineering

P.E.S Modern College of Engineering

Shivaji Nagar, Pune- 05.

Progressive Education Society's

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Shivaji Nagar, Pune- 411005.

Certificate

This is to certify that the project report entitled

E-Commerce Website

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This bonafide work is carried out by the student under the supervision of Prof. Miss.Rucha Alandikar and the Mini-project report of WEB TECHNOLOGY is approved for the partial fulfillment of the requirements for the degree of Bachelor of Engineering (Computer Engineering) of Savitribai Phule Pune University, Pune.

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Abstract

This E-Commerce Web Application is developed with Angular, Spring Boot, and MySQL technologies. The frontend, powered by Angular, delivers a dynamic and intuitive user interface, ensuring a seamless browsing and purchasing experience for customers. Angular's versatility enables responsiveness across devices, enhancing accessibility.

On the backend, Spring Boot provides a robust foundation for efficient server-side operations, handling concurrent user interactions and data processing with ease. MySQL serves as the database management system, ensuring secure and organized storage of product information, user profiles, and transactions. Together, this cohesive ecosystem empowers businesses to establish and manage their online presence effectively, offering a comprehensive solution for thriving in the digital marketplace.

Keywords: E-commerce, Angular ,Spring Boot, MySQL, Web application, Frontend, Backend, User interface, Browsing experience, Server-side operations, Database management, Digital marketplace.

Contents

Chapter 1

Introduction

1.1 Introduction

In the dynamic landscape of E-Commerce, the creation of robust and user-friendly web applications stands as a cornerstone for businesses aiming to flourish in the digital marketplace. This introduction sets the stage for an innovative e-commerce platform meticulously crafted through the seamless integration of Angular, Spring Boot, and MySQL technologies. Through the convergence of Angular for frontend development, Spring Boot for backend operations, and MySQL for database management, this platform embarks on a mission to redefine the online shopping experience, offering a fluid and intuitive interface designed to cater to the needs of both customers and businesses.

As the digital sphere continues to evolve at a rapid pace, the significance of providing an engaging and accessible online shopping experience cannot be overstated. With Angular serving as the driving force behind the frontend development, users are treated to a visually stunning and highly interactive interface that adapts seamlessly to various devices and screen sizes. From sleek product displays to intuitive navigation, every aspect of the user experience is meticulously crafted to ensure maximum engagement and satisfaction.

Meanwhile, behind the scenes, Spring Boot steps in to power the backend operations, facilitating efficient data processing, user authentication, and seamless communication between the frontend and the underlying data layer. Leveraging the modular and lightweight nature of Spring Boot, the platform achieves unparalleled scalability and performance, capable of handling the demands of a bustling online marketplace with ease.

At the heart of it all lies MySQL, the robust database management system that forms the backbone of the platform's data infrastructure. With MySQL, businesses can store and manage product information, user profiles, and transactional data securely and efficiently, ensuring a seamless and reliable experience for both buyers and sellers.

In the pages that follow, we delve deeper into the architecture, features, and capabilities of this cutting-edge e-commerce solution. From its intuitive user interface to its robust backend infrastructure, every aspect of the platform is meticulously designed to empower businesses and elevate the online shopping experience to new heights in the ever-evolving world of e-commerce.

1.2 Problem Statement

This project will focus on designing and implementing an Online Retail Management System to address the challenges, requirements and Improving sales conversion and user experience on our E-Commerce website.

1.3 Scope

- **User-Friendly Website**: A well-designed and user-friendly website that provides a seamless online shopping experience for customers. This includes easy navigation, responsive design for various devices, and fast loading times.
- **Shopping Cart**: An integrated shopping cart that allows customers to add, remove, and update items in their cart. It should also calculate the total cost, including taxes and shipping fees.
- **Secure Payment Processing**: Integration with secure payment gateways to facilitate online transactions. This includes support for various payment methods, such as credit cards, digital wallets, and PayPal.
- **Security**: Implementation of robust security measures to protect customer data and financial information.
- **Reviews and Ratings**: A feature for customers to leave reviews and ratings for products, building trust and providing feedback.
- **Analytics and Reporting**: Tools for tracking and analyzing website traffic, sales, and customer behavior. This can help in making data-driven decisions.
- **Product Catalog**: A comprehensive product catalog with clear product descriptions, images, and pricing. It should support various product categories and filters for easy searching.
- **Order Processing**: Efficient order processing and tracking, including order confirmation emails, invoices, and shipping notifications.
- **Customer Accounts**: User registration and login functionality, allowing customers to create accounts, view order history, and save their payment and shipping information for future orders.

Chapter 2

System Architecture

2.1 Block Diagram of Web Application

Ecommerce Architecture

Creating a use case diagram for an ecommerce website involves identifying key functionalities and interactions within the system, encompassing roles like Customer and Administrator. Customers can browse and search products, view details, add to or remove items from the cart, checkout, view order history, and update account information. Administrators manage products by adding, updating, or removing them, oversee orders, customers, and promotions, generate reports, and handle website settings. This diagram visually represents these roles and actions, showing how customers make purchases and how administrators manage the ecommerce platform, with each action representing a specific use case contributing to the website's functionality.

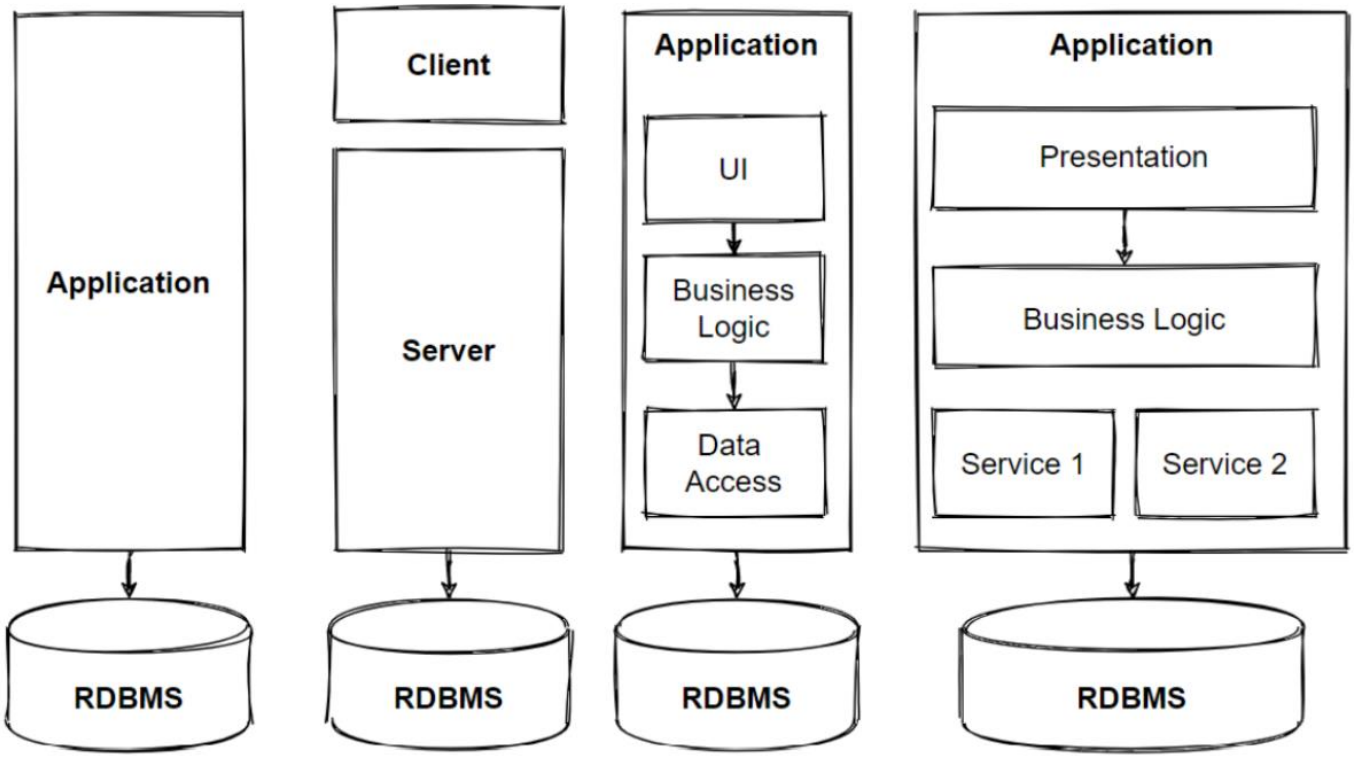


Figure 2.1:Ecommerce Architecture [1]

2.2 Database Details

The database for the Ecommerce system consists of several tables, each serving a specific purpose in storing and managing data related to users, Product, Payment Information, order, order item, and cart. Below are the details of each table along with their respective columns:

1.User Table:

Field Types

#	Field	Schema	Table	Type	Character Set	Display Size	Precision	Scale
1	id	ecommerce	users	BIGINT	binary	20	1	0
2	created_at	ecommerce	users	DATETIME	binary	26	-6	6
3	email	ecommerce	users	VARCHAR	utf8mb4	255	23	0
4	first_name	ecommerce	users	VARCHAR	utf8mb4	255	7	0
5	last_name	ecommerce	users	VARCHAR	utf8mb4	255	11	0
6	mobile	ecommerce	users	VARCHAR	utf8mb4	255	0	0
7	password	ecommerce	users	VARCHAR	utf8mb4	255	60	0
8	role	ecommerce	users	VARCHAR	utf8mb4	255	10	0

2. Product Table:

Field Types

#	Field	Schema	Table	Type	Character Set	Display Size	Precision	Scale
1	id	ecommerce	product	BIGINT	binary	20	3	0
2	brand	ecommerce	product	VARCHAR	utf8mb4	255	8	0
3	color	ecommerce	product	VARCHAR	utf8mb4	255	5	0
4	created_at	ecommerce	product	DATETIME	binary	26	20	6
5	description	ecommerce	product	VARCHAR	utf8mb4	255	158	0
6	discount_persent	ecommerce	product	INT	binary	11	2	0
7	discounted_price	ecommerce	product	INT	binary	11	3	0
8	image_url	ecommerce	product	VARCHAR	utf8mb4	255	133	0
9	num_ratings	ecommerce	product	INT	binary	11	1	0
10	price	ecommerce	product	INT	binary	11	4	0
11	quantity	ecommerce	product	INT	binary	11	2	0
12	title	ecommerce	product	VARCHAR	utf8mb4	255	50	0
13	category_id	ecommerce	product	BIGINT	binary	20	3	0

3.Payment Information Table:

Field Types

#	Field	Schema	Table	Type	Character Set	Display Size	Precision	Scale
1	user_id	ecommerce	payment_information	BIGINT	binary	20	0	0
2	card_number	ecommerce	payment_information	VARCHAR	utf8mb4	255	0	0
3	cardholder_name	ecommerce	payment_information	VARCHAR	utf8mb4	255	0	0
4	cvv	ecommerce	payment_information	VARCHAR	utf8mb4	255	0	0
5	expiration_date	ecommerce	payment_information	DATE	binary	10	0	0

4. Order Table:

Field Types

#	Field	Schema	Table	Type	Character Set	Display Size	Precision	Scale
2	created_at	ecommerce	orders	DATETIME	binary	26	20	6
3	delivery_date	ecommerce	orders	DATETIME	binary	26	-6	6
4	discounte	ecommerce	orders	INT	binary	11	4	0
5	order_date	ecommerce	orders	DATETIME	binary	26	20	6
6	order_id	ecommerce	orders	VARCHAR	utf8mb4	255	0	0
7	order_status	ecommerce	orders	SMALLINT	binary	6	1	0
8	payment_id	ecommerce	orders	VARCHAR	utf8mb4	255	18	0
9	payment_method	ecommerce	orders	SMALLINT	binary	6	0	0
10	razorpay_payment_id	ecommerce	orders	VARCHAR	utf8mb4	255	0	0
11	razorpay_payment_lin...	ecommerce	orders	VARCHAR	utf8mb4	255	0	0
12	razorpay_payment_lin...	ecommerce	orders	VARCHAR	utf8mb4	255	0	0
13	razorpay_payment_lin...	ecommerce	orders	VARCHAR	utf8mb4	255	0	0
14	status	ecommerce	orders	SMALLINT	binary	6	1	0
15	total_discounted_price	ecommerce	orders	INT	binary	11	4	0
16	total_item	ecommerce	orders	INT	binary	11	1	0
17	total_price	ecommerce	orders	DOUBLE	binary	22	-27	31
18	shipping_address_id	ecommerce	orders	BIGINT	binary	20	3	0
19	user_id	ecommerce	orders	BIGINT	binary	20	1	0

5. Order Item Table:

Field Types

#	Field	Schema	Table	Type	Character Set	Display Size	Precision	Scale
1	id	ecommerce	order_item	BIGINT	binary	20	2	0
2	delivery_date	ecommerce	order_item	DATETIME	binary	26	-6	6
3	discounted_price	ecommerce	order_item	INT	binary	11	4	0
4	price	ecommerce	order_item	INT	binary	11	4	0
5	quantity	ecommerce	order_item	INT	binary	11	1	0
6	size	ecommerce	order_item	VARCHAR	utf8mb4	255	1	0
7	user_id	ecommerce	order_item	BIGINT	binary	20	1	0
8	order_id	ecommerce	order_item	BIGINT	binary	20	1	0
9	product_id	ecommerce	order_item	BIGINT	binary	20	2	0

6.Address Table:

Field Types

#	Field	Schema	Table	Type	Character Set	Display Size	Precision	Scale
1	id	ecommerce	address	BIGINT	binary	20	3	0
2	city	ecommerce	address	VARCHAR	utf8mb4	255	5	0
3	first_name	ecommerce	address	VARCHAR	utf8mb4	255	8	0
4	last_name	ecommerce	address	VARCHAR	utf8mb4	255	11	0
5	mobile	ecommerce	address	VARCHAR	utf8mb4	255	10	0
6	state	ecommerce	address	VARCHAR	utf8mb4	255	11	0
7	street_address	ecommerce	address	VARCHAR	utf8mb4	255	12	0
8	zip_code	ecommerce	address	VARCHAR	utf8mb4	255	6	0
9	user_id	ecommerce	address	BIGINT	binary	20	1	0

7. Cart Table

Field Types

#	Field	Schema	Table	Type	Character Set	Display Size	Precision	Scale
1	id	ecommerce	cart	BIGINT	binary	20	1	0
2	discounte	ecommerce	cart	INT	binary	11	4	0
3	total_discounted_price	ecommerce	cart	INT	binary	11	4	0
4	total_item	ecommerce	cart	INT	binary	11	1	0
5	total_price	ecommerce	cart	DOUBLE	binary	22	-27	31
6	user_id	ecommerce	cart	BIGINT	binary	20	1	0

2.3 Web Technology used:

The Ecommerce website was developed using a combination of programming languages, databases, and software tools to ensure efficient functionality and user-friendly interface. The technologies utilized in the development process are as follows:

1. **Programming Languages:**
    - Java was chosen as the primary server-side scripting language for its versatility and compatibility with MySQL databases. It was used to handle server-side logic, database interactions, and dynamic content generation.

2. **Database Management System:**
    - MySQL 5.x: MySQL was selected as the relational database management system (RDBMS) for its reliability, performance, and wide adoption in web development projects. It efficiently stores and manages data related to books, authors, categories, students, and issued book transactions.

3. **User Interface Design:**
    - HTML: HTML (Hypertext Markup Language) was employed for structuring the user interface of the library management system. It defines the layout and content of web pages, ensuring compatibility across different browsers and devices.

    - AJAX (Asynchronous JavaScript and XML): AJAX technology was utilized to create dynamic and interactive user interfaces. It enables asynchronous data exchange between the web browser and the server, allowing for seamless data retrieval and updating without page reloads.

    - Angular is a TypeScript-based front-end web application framework maintained by Google. It simplifies the development of dynamic single-page applications (SPAs) by providing a structured framework and a set of tools for building powerful and interactive user interfaces..

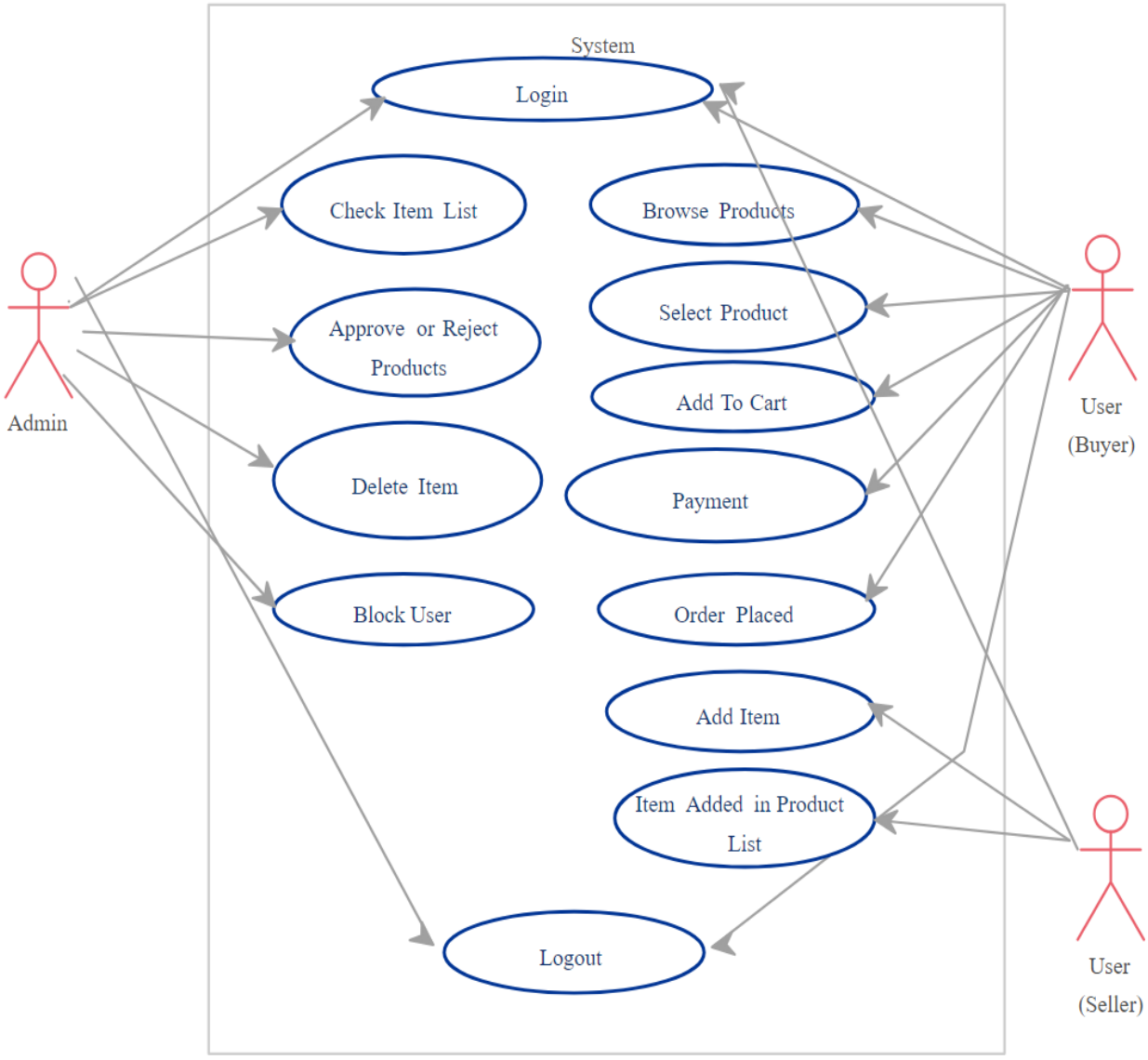
    - JavaScript: JavaScript played a crucial role in adding interactivity and functionality to the user interface. It was used to validate form inputs, implement client-side validation, and enhance user experience with dynamic features.

4. **Development Environment:**
    - Spring Boot: Spring Boot is an open-source Java-based framework built on top of the Spring framework. It simplifies the development of Java applications by providing out-of-the-box configurations and conventions, reducing the need for manual setup and boilerplate code. Spring Boot is often used as a local development environment for building and testing applications before deployment.

Chapter 3

System Specification

3.1 Use case Diagram



3.2 System Requirements

Operating system	Software Required
64/32-bit Windows, Linux, or Ubuntu	Visual Studio Code, Eclipse IDE, MySQL

3.3 Hardware Requirements

Processor	RAM
Intel – i3, i5 or Ryzen 3 Or any model of them	Minimum 2GB RAM

3.4 Programming Language And Tools

Frontend	Backend
HTML, CSS, JavaScript, Angular	MySQL, Spring Boot

Chapter 4

Webpage Screenshots (GUI)

E-Commerce Website (Web Technology)

Ecommerce Men Women swapnil

swapnil shinde

test, Pune, MAHARASHTRA, 431112

Phone Number

9096935921

Women Kurta and Pant Set Art Silk

Size: S, red

Seller: WOXEN

~~₹2899~~ **₹699** 75% off

PRICE DETAILS

Price 3 item	**₹5798**
Discount	**-₹4400**
Delivery Charges	**Free**
Total Amount	**₹1398**

Payment

Ecommerce Men Women swapnil

product/clothes/women/saree

WOXEN

Women Kurta and Pant Set Art Silk

₹699 ~~₹2899~~ 75% off

Size

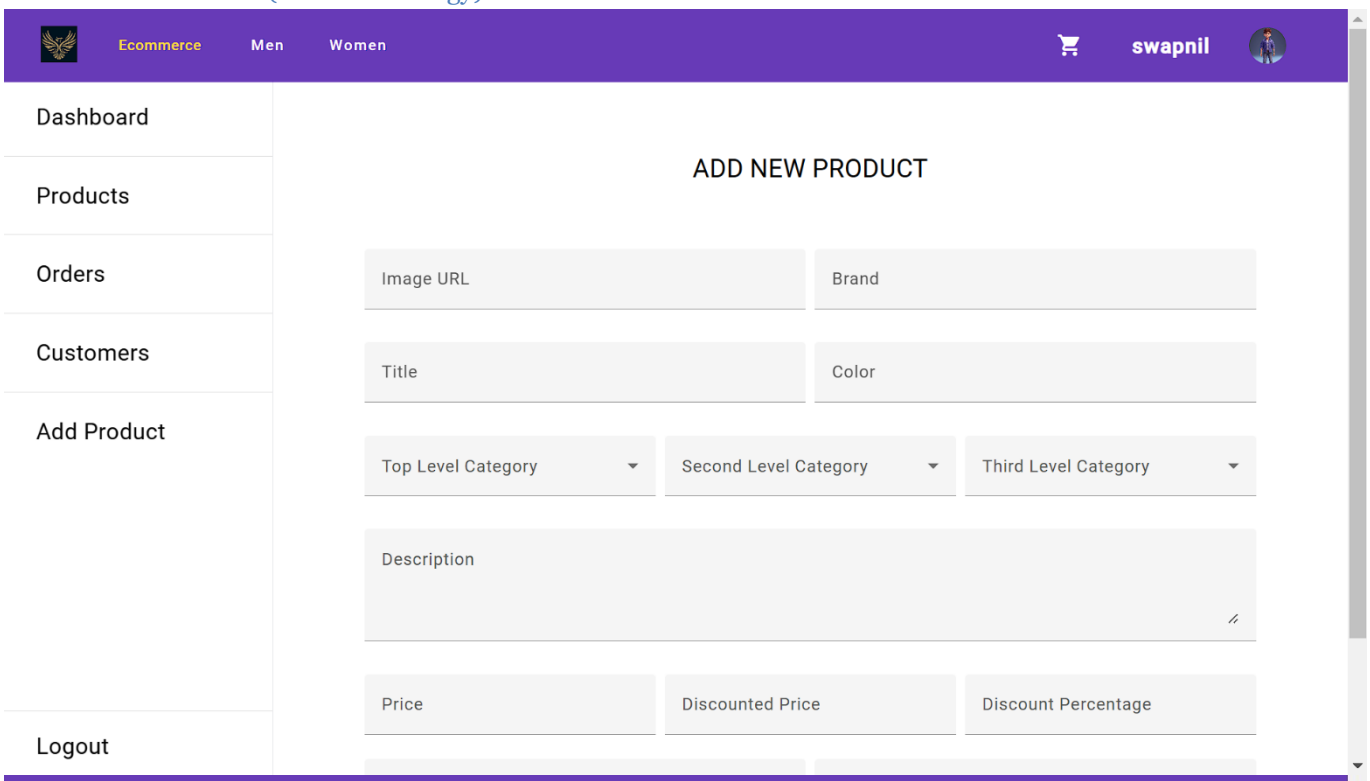
S M L XL

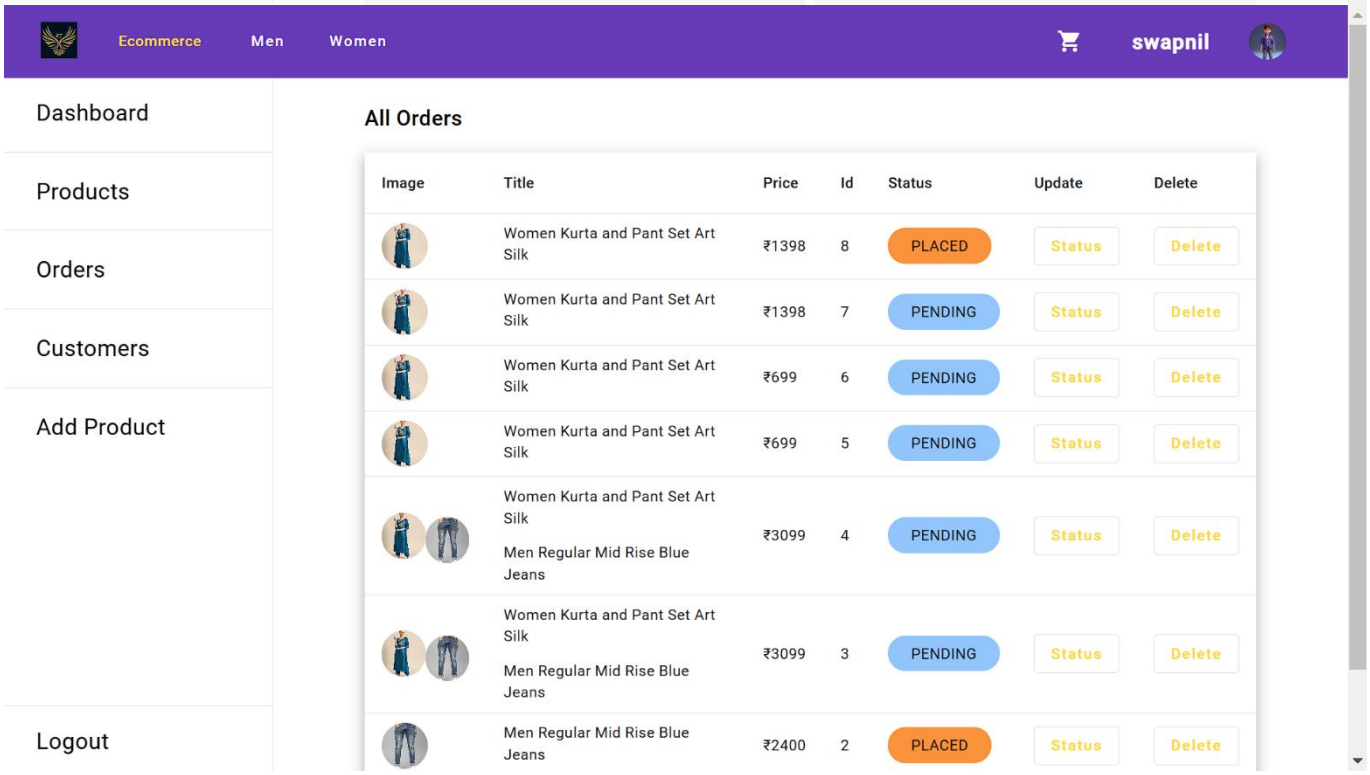
Add To Cart

test

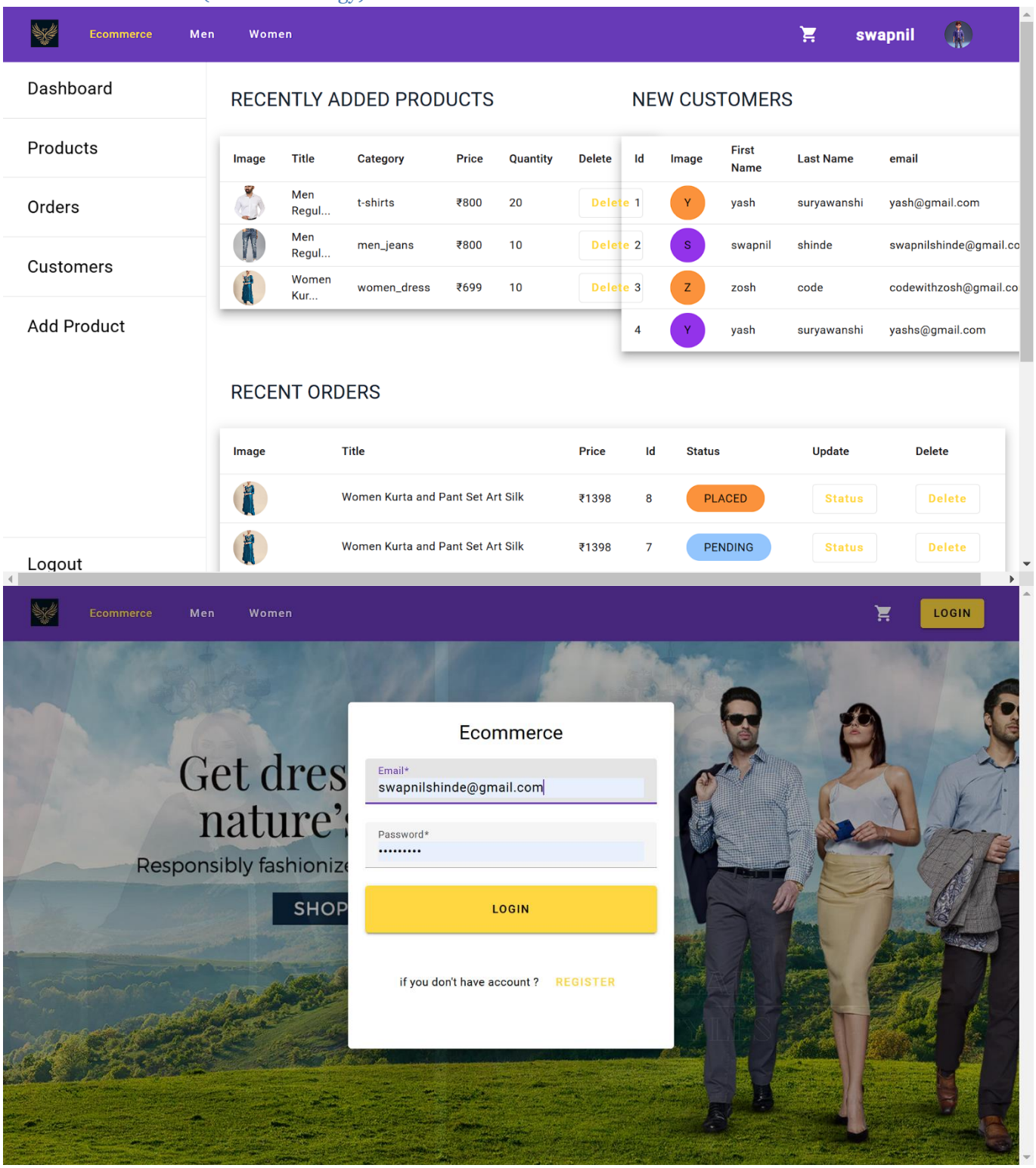
Indulge in the timeless beauty of Lengha Cholis for women and make a lasting impression with our exquisite designs. Experience the epitome of elegance and celebrate your femininity with our stunning collection.

E-Commerce Website (Web Technology)





E-Commerce Website (Web Technology)



Men's Kurta

Majestic Man

Men Printed Pure Cotton Straight Kurta

SG LEMAN

Men Embroidered Jacquard Straight Kurta

FUBAR

Men Printed Cotton Blend Straight Kurta

Chapter 5

Conclusion

In conclusion, the successful launch of the ecommerce system marks a significant milestone in the realm of modern retail solutions. With the project now operational, its attainment of set objectives stands as a testament to the dedication and expertise of the project team. Through meticulous planning, development, and implementation, a robust and high-quality system has been delivered, poised to revolutionize the retail landscape.

As we embark on this new phase, ongoing support and a commitment to continuous improvement will be paramount. By staying attuned to user feedback and market trends, we can ensure that the system remains not just relevant but indispensable. The journey towards excellence does not end with the project's completion; rather, it evolves into a journey of refinement and enhancement.

The benefits of the ecommerce system extend beyond mere efficiency gains. For retailers, it represents an opportunity to embrace innovation, streamline operations, and ultimately drive profitability. By leveraging the system's capabilities, businesses can cultivate deeper connections with their customers, delivering personalized experiences that inspire loyalty and advocacy.

Moreover, for consumers, the system promises a more seamless and enjoyable shopping experience. With features designed to anticipate and fulfill their needs, such as intuitive navigation and personalized recommendations, it fosters satisfaction and loyalty in equal measure.

In closing, the development and implementation of the ecommerce system represent not just a technological achievement but a transformative force within the industry. By embracing innovation and prioritizing the needs of both retailers and customers alike, we can chart a course towards sustained growth and prosperity.

Chapter 6

References

Mini-project Title(Web Technology)

1. Angular Documentation: The official Angular documentation provides comprehensive guides, tutorials, and examples for building web applications with Angular. You can find it at https://angular.io/docs.

2. Spring Boot Documentation: The official Spring Boot documentation offers detailed information on how to build backend applications using Spring Boot. It covers topics such as getting started, configuration, data access, security, and more. You can access it at https://spring.io/projects/spring-boot.

3. MySQL Documentation: The MySQL documentation provides extensive documentation on how to install, configure, and use MySQL as a relational database management system. It includes guides, tutorials, and references for SQL queries, database administration, and more. You can find it at https://dev.mysql.com/doc/.

4. Online Courses and Tutorials: Platforms like Udemy, Coursera, and Pluralsight offer online courses and tutorials on Angular, Spring Boot, and MySQL. These resources often provide hands-on projects and practical exercises to help you learn and apply these technologies effectively.

5. GitHub Repositories: Explore open-source projects on GitHub that use Angular, Spring Boot, and MySQL. Studying the source code of existing projects can provide valuable insights into best practices, project structure, and implementation details.