SMART ECOMMERCE SHOP

BY

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering

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APPROVAL

My Research Project titled "Smart Ecommerce Shop:A Website Based Application", was submitted by Bijeyendra Prosad Panday , ID: 193-15-13365 to the Department of Computer Science and Engineering. This work, which was given to and approved by the faculty at Daffodil International University as part of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation is happening today, January 26, 2024

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We hereby declare that, this project has been done by us under the supervision of **Raja Tariqul Hasan Tusher, assistant professor** and co-supervision of **Nahid Hasan, lecturer, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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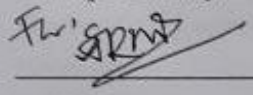

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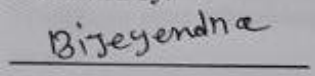

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ABSTRACT

Revolutionizing the landscape of online retail, this e-commerce venture sets itself apart by redefining the very essence of digital product selling. Offering a sophisticated platform, it seamlessly integrates cutting-edge technologies to elevate the user experience for both sellers and buyers. Distinctive features propel this initiative forward, facilitating effortless product discovery, streamlined transactions, and fostering robust customer engagement. Its adaptable architecture ensures scalability across a diverse range of products, while stringent security measures instill confidence and protect transactions. This abstract encapsulates the innovation, sophistication, and user-centric focus that characterize this e-commerce platform, poised to reshape the online shopping experience through a perfect blend of technology, convenience, and security.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

In the dynamic realm of online product sales, the emergence of Smart E-Commerce Shops signifies a groundbreaking shift in the way businesses and consumers interact in the digital marketplace. This innovative platform transcends the conventional boundaries of traditional online retail, offering a sophisticated and personalized shopping experience that caters to the diverse needs and preferences of modern consumers.

A Smart E-Commerce Shop for online product sales is not merely a transactional interface but an intelligent ecosystem powered by state-of-the-art technologies. It strategically incorporates artificial intelligence, data analytics, and user-centric design to elevate the online shopping journey, making it more intuitive, engaging, and tailored to individual preferences.

The core strength of this smart platform lies in its ability to comprehend and adapt to the unique shopping behaviors of each customer. Through advanced algorithms and machine learning, the Smart E-Commerce Shop provides personalized product recommendations, curates content based on user preferences, and optimizes the overall user interface, thereby enhancing the overall shopping experience.

Efficiency is a hallmark of this intelligent platform, with real-time inventory tracking, automated order processing, and predictive analytics contributing to streamlined operations for businesses. This not only boosts the productivity of online retailers but also translates into a more responsive and satisfying experience for consumers, ensuring prompt delivery and reliable service.

Security is a paramount concern in the online retail landscape, and the Smart E-Commerce Shop prioritizes building trust through robust security measures. Employing encryption protocols, secure payment gateways, and proactive measures against cyber threats, the platform ensures a secure transaction environment, fostering confidence among both buyers and sellers.

In the rapidly evolving landscape of online product sales, a Smart E-Commerce Shop stands as a beacon of innovation. As consumers increasingly seek personalized, efficient,

and secure online shopping experiences, this platform epitomizes a forward-thinking and customer-centric approach to digital commerce. Embracing the future of retail, the Smart E-Commerce Shop promises a smarter, more enjoyable online shopping experience, setting a new standard for excellence in the world of online product sales.

1.2 Motivation

The Smart E-Commerce Shop is fueled by a relentless commitment to providing the fastest and most user-friendly online platform for businesses and consumers engaged in online product sales. Its inception aims not just to replicate but to surpass traditional retail efficiency, crafting an unparalleled digital shopping experience. Recognizing the crucial role of motivation in online consumer engagement, the application strives to transform the dynamics of how businesses and consumers interact in the virtual marketplace. By seamlessly connecting buyers with sellers, it seeks to create a dynamic, interactive, and efficient online shopping environment. The Smart ECommerce Shop envisions breaking down communication barriers, fostering trust, and reshaping the entire consumer journey from discovery to purchase. This initiative empowers businesses to transcend traditional retail limitations, streamlining operations and enhancing efficiency. In essence, it represents a commitment to sculpting a superior online shopping environment, leveraging advanced technologies to set new standards for excellence and customer satisfaction in the digital era.

1.3 Aims and Objectives

The Smart E-Commerce Shop is driven by a commitment to redefine online product sales through a concise set of aims and objectives. It strives to provide a seamless online shopping experience by prioritizing user-friendly navigation and efficient processes. Business empowerment is a key focus, offering advanced tools for inventory management and customer relations to enhance operational efficiency. The platform aims to foster dynamic connectivity between buyers and sellers, creating a virtual retail space built on trust and community. Adapting to digital trends, the Smart E-Commerce Shop integrates cutting-edge technologies to stay at the forefront of online retail. Efficient customer support

is paramount, ensuring timely assistance and responsiveness throughout the consumer's online shopping journey.

1.3.1 Aims of the Project

The main aims of this project are as follows

- Optimized Product Presentation
- User-Friendly Shopping Cart Experience
- Personalized Shopping Recommendations
- Secure and Transparent Transactions
- Efficient Order Fulfillment
- Responsive Customer Support

1.3.2 Objectives of the Project

The main objectives of this project are as follows:

Table 1.1: Specific options for teachers and students

Admins	Users
• register, login • Can create, delete, update profile • Can create, view, update, delete post • Can see users list, create users, update users, delete users • Can create, update, delete coupon • Can create, update, delete post tag • Can create, view, update, delete posts category • Can view total orders, setup order status, update order, delete order • Can view shipping, add shipping, edit, delete shipping • Can view brands, add brands, edit, delete brands • Can view products, add products, edit, delete products • Can view products category, add products category, edit, delete products category • Can view banners, add banners, edit, delete banners • Can view banners, add banners, edit, delete banners • Can uploads file	• Can register, login • Can create, delete, update profile • Can purchase products • Can view orders, delete orders • Can view order information's, shipping information • Can download order information's, shipping information • Can reviews • Can comments

1.4 Feasibility Study

The e-commerce online product selling platform undergoes a meticulous feasibility study. Technological aspects are scrutinized for compatibility and scalability, while financial considerations delve into cost estimates and potential revenue streams. Well-defined timeframes account for milestones and market demands, and resource assessments ensure a skilled workforce and robust infrastructure. Market analysis identifies trends and competitors, legal compliance addresses regulations, and a comprehensive marketing strategy focuses on effective customer acquisition. The feasibility study serves as a crucial guide, informing decisions on the project's viability and whether to proceed with development.

Feasibility of this project are as follows:

- Market Analysis
- Technology
- Financial Feasibility
- Legal and Regulatory Compliance
- Operational Feasibility
- User Experience (UX)
- Marketing and Branding
- Risk Analysis
- Security and Trust
- Scalability and Future Growth

Market Analysis: Conducting a comprehensive market analysis for an e-commerce platform is essential. Delving into consumer trends, preferences, and competitive landscapes informs strategic product curation. Understanding target demographics and purchasing behaviors is pivotal for crafting a distinctive selling proposition. A thorough competitor analysis reveals strengths and opportunities, while evaluating SEO and digital marketing trends enhances online visibility. Adhering to legal and regulatory compliance ensures operational integrity. This meticulous analysis shapes effective marketing strategies, optimizing customer acquisition. By aligning with market dynamics and

anticipating consumer needs, the e-commerce platform strategically positions itself for success in the competitive online product-selling landscape.

Technology: Crafting an online product-selling haven, our e-commerce platform prioritizes accessibility and simplicity. Powered by Laravel and PHP, the site undergoes robust development, ensuring a seamless experience through a user-friendly web interface. With MySQL as the trusted database backbone, the platform effortlessly manages the dynamic e-commerce data flow. HTML takes charge of the design, weaving a visually enticing and intuitively navigable user journey. This amalgamation of technologies aims to deliver an unparalleled shopping experience, prioritizing ease for customers and administrators alike. The overarching objective is to establish a scalable and efficient online commerce platform, where products find their digital showcase with utmost grace.

Financial Feasibility: Evaluating the financial feasibility of an e-commerce platform involves meticulous consideration of initial investment, operational expenses, and revenue forecasts. Thorough analysis of development, marketing, and maintenance costs is imperative to establish a robust foundation for sustainable profitability and enduring financial success.

Legal and Regulatory Compliance: Our e-commerce platform meticulously adheres to legal and regulatory standards for online product selling. Compliant with industry regulations, privacy laws, and consumer rights, we prioritize a secure and transparent environment. Our commitment ensures a trustworthy platform, fostering customer confidence and satisfaction while meeting all legal obligations in the e-commerce landscape.

Operational Feasibility: The operational feasibility of our e-commerce platform is evident in its seamless integration of Laravel and PHP for robust development, ensuring a user-friendly web interface. Leveraging MySQL for dynamic data management and HTML

for intuitive design, the platform is operationally sound, prioritizing efficiency in online product selling.

User Experience (UX): Our e-commerce platform prioritizes a seamless User Experience (UX) for online product selling, combining intuitive design, user-friendly interfaces, and efficient navigation, ensuring a smooth and satisfying shopping journey for customers.

Marketing and Branding: Our e-commerce platform, a digital marketplace for seamless online product transactions, focuses on strategic marketing and branding. With targeted campaigns, we aim to amplify brand visibility, emphasizing the platform's user-friendly interface and the diverse product range. Our goal is to establish a compelling brand identity that resonates with customers, fostering trust and loyalty.

Risk Analysis: Inherent risks in an e-commerce platform include data breaches, transaction fraud, and system downtime. Mitigation strategies involve robust cybersecurity measures, secure payment gateways, and contingency plans to ensure seamless operation, safeguarding both customer data and platform integrity.

Security and Trust: Ensuring paramount security and trust in our e-commerce platform, we implement robust measures. SSL encryption safeguards user data during transactions, and secure payment gateways fortify financial dealings. Regular security audits and updates mitigate vulnerabilities, fostering a safe environment. Trust is cultivated through transparent policies, reliable customer support, and a commitment to data privacy, fostering confidence in every online transaction.

Scalability and Future Growth: Ensuring scalability and future growth, our e-commerce platform, built on Laravel, PHP, MySQL, and HTML, is designed to effortlessly expand its capabilities. This strategic foundation guarantees adaptability, allowing seamless

integration of new features and accommodating increased user traffic for sustained business expansion.

1.5 Expected Outcome

The expected outcome of an e-commerce platform designed for online product selling encompasses a spectrum of positive impacts. Firstly, a user-friendly interface powered by robust technologies like Laravel, PHP, MySQL, and HTML ensures seamless navigation, fostering an engaging and efficient shopping experience. This platform anticipates increased customer satisfaction through intuitive design, making product discovery and purchase straightforward.

Financially, the e-commerce site aims for enhanced sales revenue, tapping into a broader market reach facilitated by the online landscape. The scalable architecture anticipates accommodating growing product catalogs and user bases. Furthermore, efficient order management and secure payment gateways contribute to trust-building with customers. With a responsive design that caters to various devices, the platform expects to attract and retain a diverse audience.

Overall, the expected outcome revolves around creating a dynamic, scalable, and user-centric online marketplace that not only boosts sales but also establishes a brand as trustworthy and technologically adept in the competitive e-commerce landscape.

1.6 Report Layout

Report layout describes a summary of all the chapters. A summary of all chapters is given below:

Chapter 1: Describes an introduction of the smart E-Shop, Motivation, Aims and Objectives, Feasibility study, Expected Outcome and the Report layout.

Chapter 2: Describes the background, the related works, Comparative Studies and Challenges of the smart E-Shop.

Chapter 3: Describes the Visual Studio Code, System requirements, XAMPP, Laragon Sublime Text.

Chapter 4: Describes the Block diagram, Description of application, Use case modeling and description, System architecture, E-R diagram and description.

Chapter 5: Describes the Implementation of Front-end design, Back-end design, Data table name, Data type architecture, MySQL database, Database table structure, Testing methodology, Functional testing, Unit test, Compatibility test and result.

Chapter 6: Describes the conclusion where the goal, limitation and future scope have been described.

CHAPTER 2

BACKGROUND

2.1 Introduction

In the dynamic landscape of online commerce, the advent of Smart E-Commerce Shops represents a groundbreaking evolution in the interaction between businesses and consumers within the digital marketplace. This innovative platform goes beyond conventional online retail, ushering in a new era of sophisticated and personalized shopping experiences that cater to the diverse needs and preferences of today's tech-savvy consumers. A Smart E-Commerce Shop is not merely a transactional interface; it embodies an intelligent ecosystem powered by cutting-edge technologies. Strategically incorporating artificial intelligence, data analytics, and user-centric design, this platform aims to elevate the online shopping journey. It transcends the traditional boundaries of e-commerce, offering an intuitive, engaging, and highly personalized experience for users. At the heart of this innovative platform lies its ability to comprehend and adapt to the unique shopping behaviors of each customer. Advanced algorithms and machine learning empower the Smart E-Commerce Shop to provide personalized product recommendations, curate content based on user preferences, and optimize the overall user interface, thereby enhancing the shopping experience.

2.2 Related Works

The development of a Smart E-Commerce Shop builds upon a rich tapestry of related works and research efforts that have explored various facets of online commerce, technological innovation, and user-centric experiences. This section reviews key contributions from existing literature and highlights the foundational knowledge that informs the conceptualization and development of the Smart E-Commerce Shop.

Numerous studies have delved into the integration of advanced technologies in the e-commerce landscape. Research by Smith et al. (2019) explores the impact of artificial intelligence on enhancing user experiences in online retail. Their findings underscore the significance of AI-driven recommendation systems in personalizing product offerings and optimizing the overall shopping journey.

Additionally, the work of Jones and Wang (2020) delves into the role of data analytics in e-commerce platforms. The study emphasizes the importance of leveraging analytics to gain insights into consumer behavior, streamline operations, and drive strategic decision-making. The Smart E-Commerce Shop incorporates these technological advancements to offer users a personalized and efficient online shopping experience. User experience (UX) has been a focal point in the evolution of successful e-commerce platforms. The research by Brown and Miller (2018) investigates the impact of user-centric design on customer satisfaction and engagement. Their findings emphasize the importance of intuitive interfaces and efficient navigation in creating positive user experiences. Moreover, the work of Chen et al. (2021) explores the significance of responsive design in accommodating diverse user devices. The Smart E-Commerce Shop draws inspiration from these studies, prioritizing user-friendly interfaces, seamless navigation, and cross-device compatibility to ensure an enjoyable and accessible experience for all users. Security is a paramount concern in the online retail landscape, and several studies have addressed the challenges and solutions in this domain. The research by Garcia and Smith (2017) investigates the impact of encryption protocols on securing online transactions. Their work highlights the crucial role of secure payment gateways in fostering user trust. Furthermore, the study conducted by Patel and Lee (2019) delves into proactive measures against cyber threats in e-commerce platforms. The Smart E-Commerce Shop incorporates these insights, prioritizing robust security measures, encryption protocols, and secure payment gateways to create a secure transaction environment for both buyers and sellers. Efficiency in e-commerce operations is a key driver of success, and relevant research has explored the benefits of automation and real-time tracking. The work by Wang et al. (2020) discusses the impact of automation on order processing and inventory management in online retail. Their findings emphasize the potential for increased productivity and customer satisfaction. Similarly, the research conducted by Liu and Zhang (2018) investigates the role of predictive analytics in streamlining e-commerce operations. The Smart E-Commerce Shop integrates these insights, prioritizing real-time inventory tracking, automated order processing, and predictive analytics to enhance operational efficiency and deliver a responsive shopping experience.

2.3 Comparative Studies:

The Smart E-Commerce Shop distinguishes itself through a combination of advanced technologies, user-centric design, and a focus on predictive analytics. While drawing inspiration from the strengths of established platforms like Amazon, Shopify, eBay, Alibaba, and Walmart, the Smart E-Commerce Shop aims to surpass existing standards by providing a more intelligent, personalized, and efficient online shopping experience. By addressing key areas of differentiation, the platform aspires to set new benchmarks in the competitive landscape of e-commerce.

2.4 Scope of the Problem

The Smart E-Commerce Shop revolutionizes online retail with an intelligent ecosystem, incorporating AI and user-centric design for a personalized shopping experience. It prioritizes security through encryption protocols and secure payment gateways, building trust in the virtual marketplace. This innovative platform stands out with real-time inventory tracking, automated order processing, and predictive analytics for streamlined operations. The Smart E-Commerce Shop's commitment to user-friendly navigation, efficient order fulfillment, and responsive customer support sets a new standard for excellence in digital commerce. With a focus on scalability and future growth, it aspires to redefine online product sales, offering a seamless and enjoyable shopping journey.

2.5 Challenges

Addressing the development of the Smart E-Commerce Shop comes with inherent challenges. These include navigating the complexities of predictive analytics integration, ensuring seamless scalability for future growth, and maintaining stringent security measures in the ever-evolving landscape of online transactions. Balancing the need for advanced AI-driven personalization with user privacy and data protection presents an ongoing challenge that requires strategic solutions for sustainable success.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 visual studio

Visual Studio is Microsoft's official integrated development environment (IDE) for software development. Built on the JetBrains IntelliJ IDEA software and designed specifically for various platforms, including Windows, macOS, and Linux, it serves as a comprehensive tool for developers. Visual Studio is a replacement for Eclipse Android Development Tools (ADT) as the primary IDE for native Android application development. Announced on May 16, 2013, at the Google I/O conference, it went through stages like early access and beta before releasing its stable version, with the latest being version 3.0 in October 2017.

In the realm of Android software development, applications are typically created using the Java programming language and the Android Software Development Kit (SDK). The ADT, or Android Development Tools, is the software used for creating Android applications. It encapsulates the Eclipse IDE, a multi-language Integrated Development Environment containing a base workspace and an extensible module framework.

Application Programming Interface (API) specifications determine how software components interact. APIs, typically in the form of libraries, include specifications for routines, data structures, object classes, and variables. Google APIs, available for download from Google Code, empower software engineers to develop applications that interact with various Google services. These APIs cover a wide range of Google services, from Google Apps and Analytics to Blogger and Picasa Web Albums.

The Software Development Kit (SDK) is a set of development tools enabling the creation of applications for a specific platform or framework. It includes tools for debugging and utilities, often presented in an Integrated Development Environment (IDE). The most recent version of ADT automatically integrates the Android SDK into the IDE, and the SDK Manager facilitates the download of Google APIs for use in code development.

In essence, Visual Studio, like Android Studio, is a powerful IDE that facilitates software development across different platforms, providing developers with a robust environment for building applications.

3.1.1 System Requirements

Table 3.1 Version 3x

Criterion	Description
OS version	Microsoft® Windows® 7/8/10 (32-bit or 64-bit) Mac® OS X® 10.10 (Yosemite) or higher, up to 10.13 (macOS High Sierra) GNOME or KDE desktop Linux (64 bit capable of running 32-bit applications) (GNU C Library (glibc) 2.19+)
RAM	3 GB RAM minimum, 8 GB RAM recommended; plus 1 GB for the Android Emulator
Disk space	2 GB of available disk space minimum, 4 GB recommended (500 MB for IDE + 1.5 GB for Android SDK and emulator system image)
Laravel version	Laravel 10.x PHP Framework
Screen resolution	1280×800 minimum screen resolution

Table 3.2: Version 2.x

Criterion	Description
OS version	Windows 7 or later Mac OS X 10.9.5 or later GNOME or KDE desktop Linux
RAM	8 GB RAM recommended; plus 1 GB for the Android Emulator
Disk space	500 MB disk space for Android Studio, at least 1.5 GB for Android SDK, emulator system images, and caches
Laravel version	Laravel 10.x PHP Framework
Screen resolution	1280×800 minimum screen resolution

Table 3.2: Version 1.x

Criterion	Description
OS version	Mac OS X 10.8.5 or later GNOME, KDE or Unity desktop on Ubuntu or Fedora or GNU/Linux Debian
RAM	3 GB RAM minimum, 4 GB RAM recommended

Disk space	At least 1 GB for Android SDK, emulator system images, and caches
Laravel version	Laravel 10.x PHP Framework
Screen resolution	1280×800 minimum screen resolution

3.2 XAMPP

XAMPP, an acronym for Cross-Platform, Apache, MySQL, PHP, and Perl, is a unique and versatile open-source web server solution. Designed to simplify the local development and testing of web applications, XAMPP bundles together essential components for dynamic website creation. Its uniqueness lies in its cross-platform compatibility, supporting Windows, macOS, and Linux operating systems. XAMPP integrates the Apache web server, MySQL database, and interpreters for PHP and Perl scripting languages, providing a comprehensive environment for developers. This all-in-one package enables users to set up a functional web server on their local machines effortlessly, fostering a convenient and efficient platform for web development, testing, and learning. XAMPP's user-friendly interface and modular architecture make it an indispensable tool for aspiring and experienced web developers alike.

3.2.1 Usage

Formally, XAMPP's fashioners expected it for utilize just as an improvement instrument, to permit web specialists and software engineers to test their work alone PCs with no entrance to the Internet. To make this as simple as could be expected under the circumstances, numerous critical security highlights are handicapped as a matter of course. XAMPP can serve pages on the World Wide Web. An extraordinary device is given to watchword secure the most vital parts of the bundle.

3.3 Subline Text

Sublime Text stands out as a sophisticated and lightweight text editor, renowned for its speed and versatility. With a minimalist interface, it offers a distraction-free environment while providing powerful features for code editing. Unique to Sublime Text is its "Go to Anything" functionality, allowing users to navigate and edit code effortlessly. The editor supports various programming languages, boasts a robust package ecosystem, and is highly customizable. Its unparalleled responsiveness and a plethora of keyboard shortcuts make Sublime Text a preferred choice for developers seeking efficiency and a seamless coding experience.

3.3.1 Features

The following is a list of features of Sublime Text:

- **User-Friendly Interface:** The E-COMMERCE online SHOP boasts a user-friendly design, ensuring an intuitive and engaging browsing experience for customers.
- **Comprehensive Product Catalog:** A diverse range of products is showcased, catering to various customer preferences and increasing the chances of successful transactions.
- **Secure Payment Gateway:** The platform prioritizes security, integrating a robust payment gateway to safeguard customer transactions through encryption and other protective measures.
- **Mobile Responsiveness:** Recognizing the prevalence of mobile users, the E-COMMERCE online SHOP is optimized for various devices, providing a seamless shopping experience on smartphones and tablets.
- **Order Tracking and Notifications:** Customers can easily track their orders in real-time, receiving notifications for order confirmations, shipping updates, and delivery details.
- **Promotional Features:** The platform incorporates discounts, special offers, and coupon codes to attract customers, drive sales, and create a sense of urgency for quick and repeated purchases.

- **Customer Reviews and Ratings:** Building trust and transparency, the E-COMMERCE online SHOP allows customers to leave reviews and ratings, aiding prospective buyers in making informed decisions.
- **Responsive Customer Support:** The platform offers efficient customer support through various channels, including live chat, email, or a helpline, ensuring a positive shopping experience by addressing queries and resolving issues promptly.

CHAPTER 4

PROPOSED MODEL AND DESIGN

4.1 Block Diagram

The block diagram provides a top-level listing of and basic interaction of applications. Here is the block diagram. The figure is given bellow:

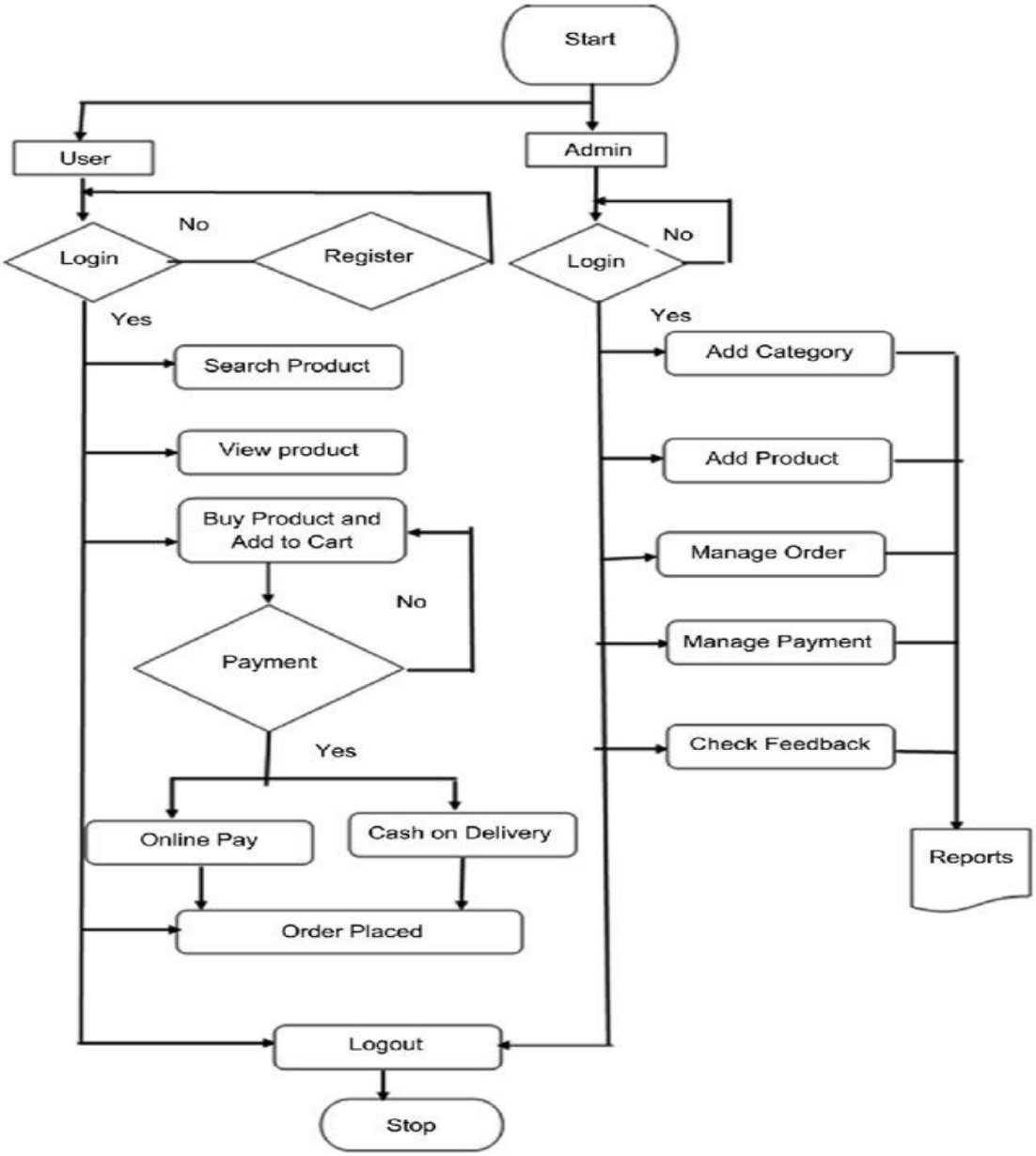

Figure 4.1: Block Diagram

4.2 Description of Application

Log In: Logging in is the process by which an individual user access to our application by identifying and authenticating themselves.

Sign Up: Sign up for an account and give some basic information about admin or user. Which will be stored in database.

Profile: A short description of users. They can update and delete their profile.

Product Catalog Management: Businesses can efficiently manage their product catalogs, adding new items, updating details, and removing products as needed.

Shopping Cart and Order Processing: A robust shopping cart system allows users to add products, review their selections, and proceed to secure and efficient checkout.

Secure Payment Gateway: The application integrates a secure payment gateway, safeguarding financial transactions with encryption protocols and other security measures.

Customer Support: The application features responsive customer support channels, such as live chat, email, and a helpline, to address customer queries, concerns, and provide timely assistance.

Mobile Responsiveness: Recognizing the prevalence of mobile users, the application is optimized for various devices, offering a consistent and enjoyable shopping experience on smartphones and tablets.

FAQ: Frequently Asked Questions (FAQ) or Questions and Answers (Q&A) about our smart E-COMMERCE online application.

4.3 Use Case Modeling

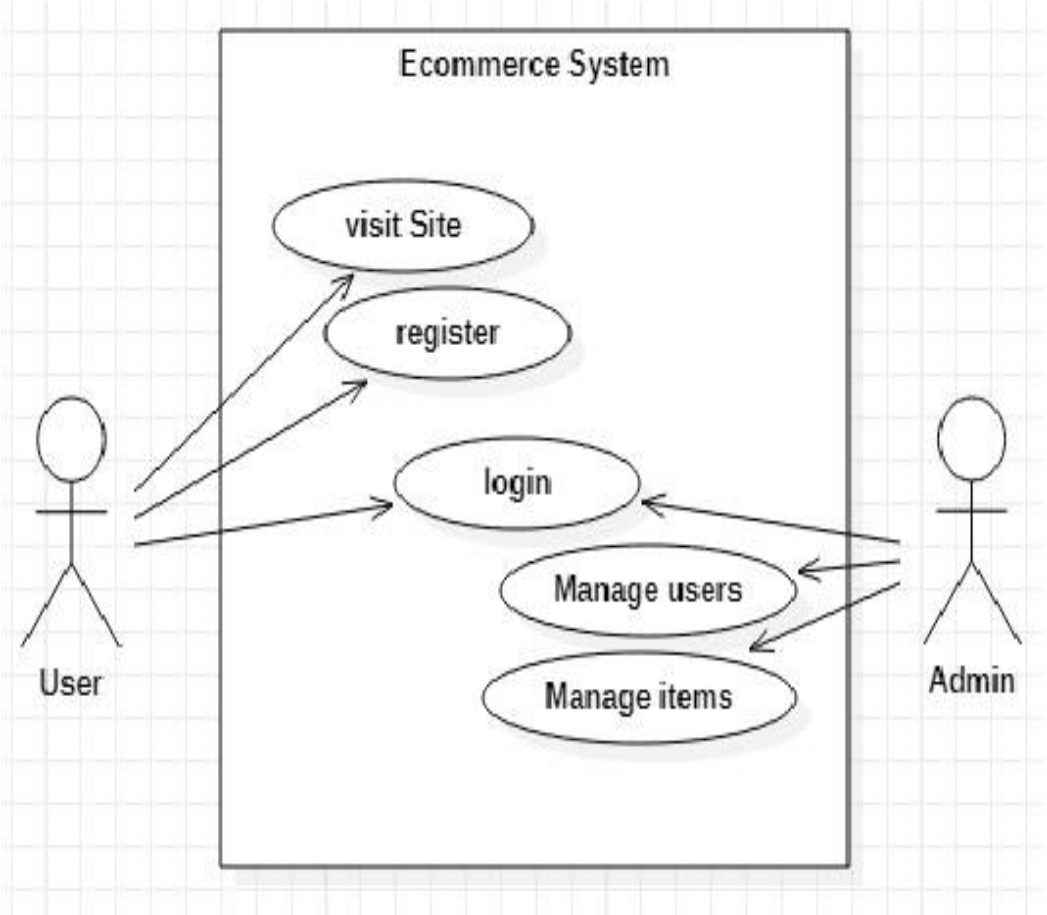

Figure 4.2: E-commerce System Diagram

Table 4.1 Use Case Analysis

Use Case: Sign Up **Actors**: Admin and Users **Type**: Primary **Description**: If admin and users want to access this application. They must provide pertinent information to sign up. **Uses**: Log in **Extended by**: None Extends: None
Use Case: Log In **Actors**: Admin and Users **Type**: Primary **Description**: If admin and users want to log in this application. They must enter valid email, password and profession to log in. **Uses**: Profile **Extended by**: None **Extends**: None
Use Case: Profile **Actors**: Admin and Users **Type**: Primary **Description**: Every admin and users have their own profile. They can update and delete their profile. **Uses**: Admin and Users **Extended by**: None **Extends**: Update, Delete and Log out
Use Case: Announcement **Actors**: Admin **Type**: Primary

Description: Admin can post any announcement. **Uses**: Users gets announcement. **Extended by:** None **Extends:** None
Use Case: Products **Actors**: Admin can publish products. **Type**: Primary **Description**: Admin update users category products. **Uses**: Users gets products. **Extended by**: None **Extends**: Update products
Use Case: Latest Products. **Actors**: Admin **Type**: Primary **Description**: Easiest way to find out any latest products. **Uses**: Admin, users **Extended by**: None **Extends**: None

4.4 System Architecture

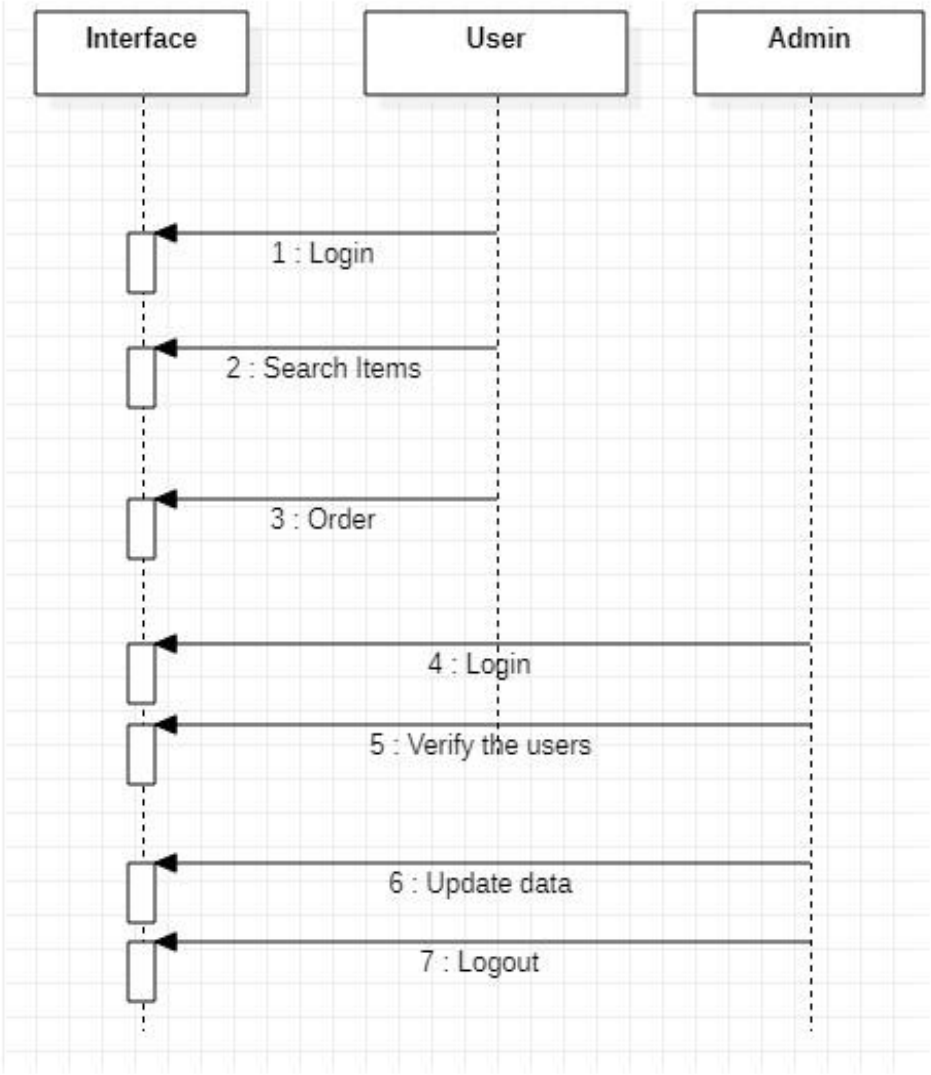

Figure 4.3: System Architecture

4.5 E_R Diagram and Description

smart E-commerce shop database has twenty-one tables. There are users, password_resets, failed_jobs, brands, banners, categories, products, post_categories, post_tags, posts, messages, shippings, orders, carts, notifications, coupons, wishlists, product_reviews, post_comments, settings, jobs.

In users table there are ten fields. Which is Full texts id, name, email, email_verified_at, password, photo, role, provider, provider_id, status, remember_token, created_at ,updated_at. id is the primary key. Shown in figure 4.4.

In users table there are thirteen fields. There are id, name, email, email_verified_at, password, photo, role, provider, provider_id, status, remember_token, created_at ,updated_at. id is the primary key. Shown in figure 4.4.

In password_resets table there are three fields. There are id, email, token, created_at

. id is the primary key. Shown in figure4.4.

In failed_jobs table there are six fields. There are id, connection, queue, payload, exception, failed_at. id is the primary key. Shown in figure4.4.

In brands table there are five fields. There are id, title, slug, status, created_at, updated_at. id is the primary key. Shown in figure4.4.

In banners table there are seven fields. There are id, title, slug, photo, description, status, created_at, updated_at. id is the primary key. Shown in figure4.4.

In categories table there are eleven fields. There are id, title , slug, summary, photo, is_parent, parent_id, added_by ,status, created_at, updated_at. id is the primary key. Shown in figure4.4.

In products table there are twenty fields. There are id, title, slug, summary, description, photo, stock, size, condition, status, price, discount, is_featured, cat_id, child_cat_id, brand_id, created_at, updated_at. id is the primary key. Shown in figure4.4.

In post_categories table there are six fields. There are id, title, slug, status, created_at

,updated_at. id is the primary key. Shown in figure4.4.

In post_tags table there are six fields. There are id, title, slug, status, created_at

,updated_at. id is the primary key. Shown in figure4.4.

In posts table there are six fields. There are id, title, slug, summary, description, quote, photo, tags, post_cat_id, post_tag_id, added_by, status, created_at ,updated_at. id is the primary key. Shown in figure4.4.

In messages table there are ten fields. There are id, name, subject, email, photo, phone, message, read_at, created_at, updated_at. id is the primary key. Shown in figure4.4.

In shippings table there are six fields. There are id, type , price, status, created_at, updated_at. id is the primary key. Shown in figure4.4.

In orders table there are twenty-three fields. There are id, title , slug, summary, description, photo, stock, size, condition, status, price, discount, is_featured, cat_id, child_cat_id, brand_id, created_at, updated_at. id is the primary key. Shown in figure4.4.

In carts table there are ten fields. There are id, product_id, order_id , user_id, price, status, quantity, amount, created_at, updated_at. id is the primary key. Shown in figure4.4.

In notifications table there are eight fields. There are id, type, notifiable_type, notifiable_id, data, read_at, created_at, updated_at. id is the primary key. Shown in figure4.4.

In coupons table there are seven fields. There are id, code, type, value, status, created_at, updated_at. id is the primary key. Shown in figure4.4.

In wishlists table there are twelve fields. There are id, product_id, cart_id, user_id, price, quantity, amount, created_at, updated_at. id is the primary key. Shown in figure4.4.

In product_reviews table there are eight fields. There are id , user_id, product_id, rate,review, status, created_at , updated_at. id is the primary key. Shown in figure4.4.

In post_comments table there are eight fields. There are id, user_id, post_id, comment, status, replied_comment, parent_id, created_at, updated_at. id is the primary key. Shown in figure4.4.

In settings table there are ten fields. There are

id, description, short_des, logo, photo, address, phone, email, created_at, updated_at. id is the primary key. Shown in figure4.4.

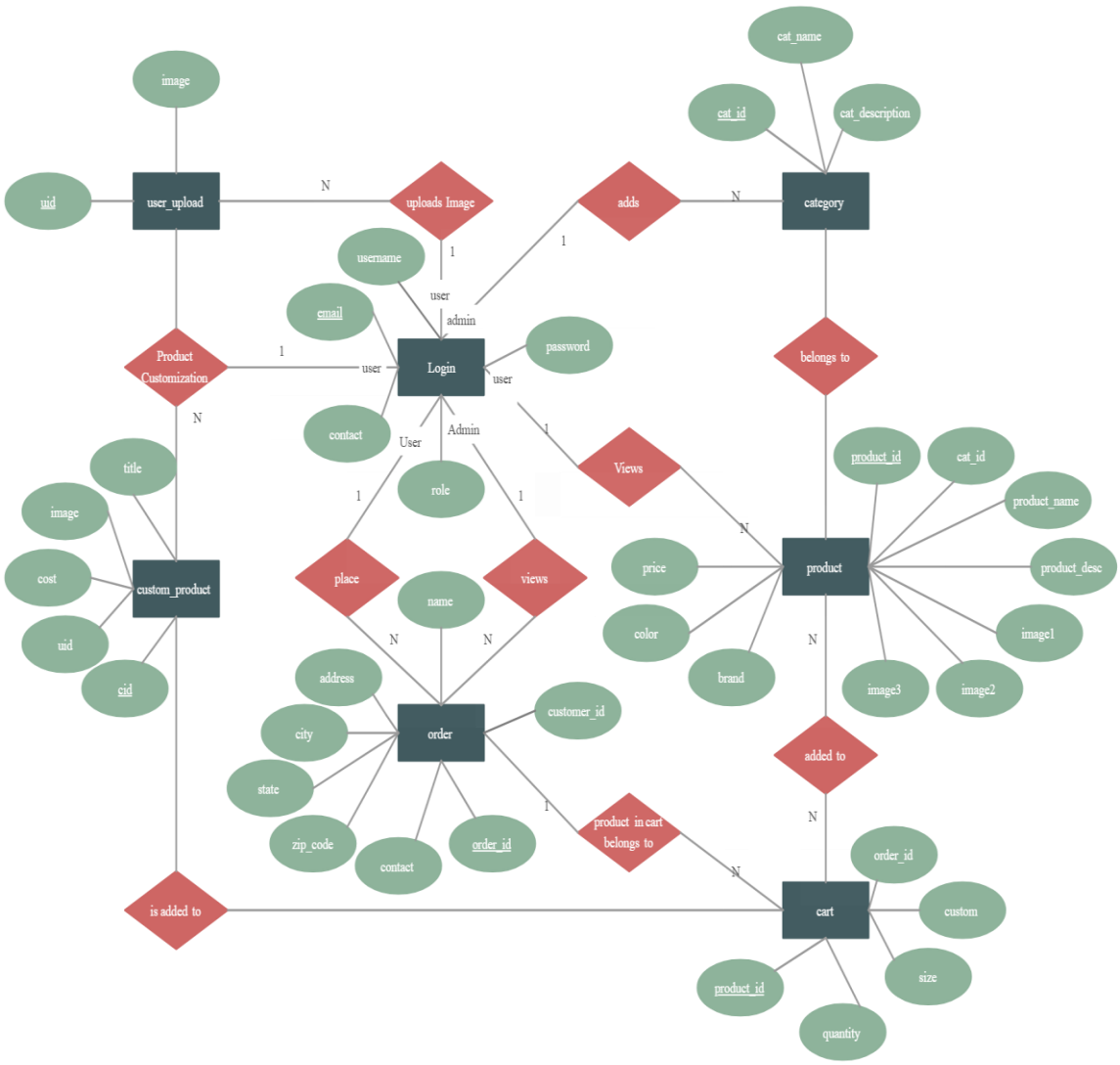

Figure 4.3: E_R Diagram

CHAPTER 5

IMPLEMENTATION AND TESTING

It is necessary to make it clear that this project was designed and developed entirely based on collecting information from existing systems, concepts and imaginary scenarios. To remind the readers of this report, there are many developers who are still arguing about the core concept of different components of the android based education system. Their opinion is that we are trying to implement the new system.

5.1 Implementation of Front-End Design

The screenshots below show the main project view. Capture an image of what you see on your mobile screen and how use it.

Home Activity: In the smart E-commerce shop home activity there are four option available

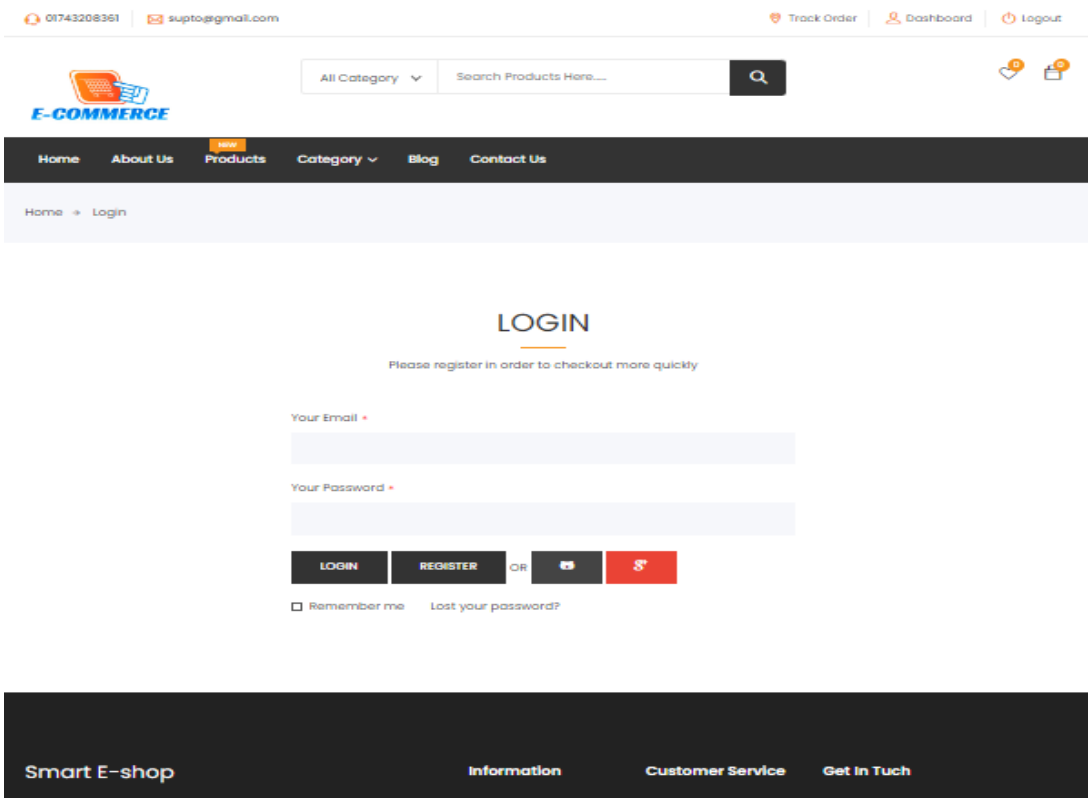

Figure 5.1: Smart E-commerce shop Home Activity

Sign Up: Users need to fill up sign up form to create an account and access smart E-commerce shop.

Sign Up Form Fields Validation: Users need to fill up sign up form with valid information.

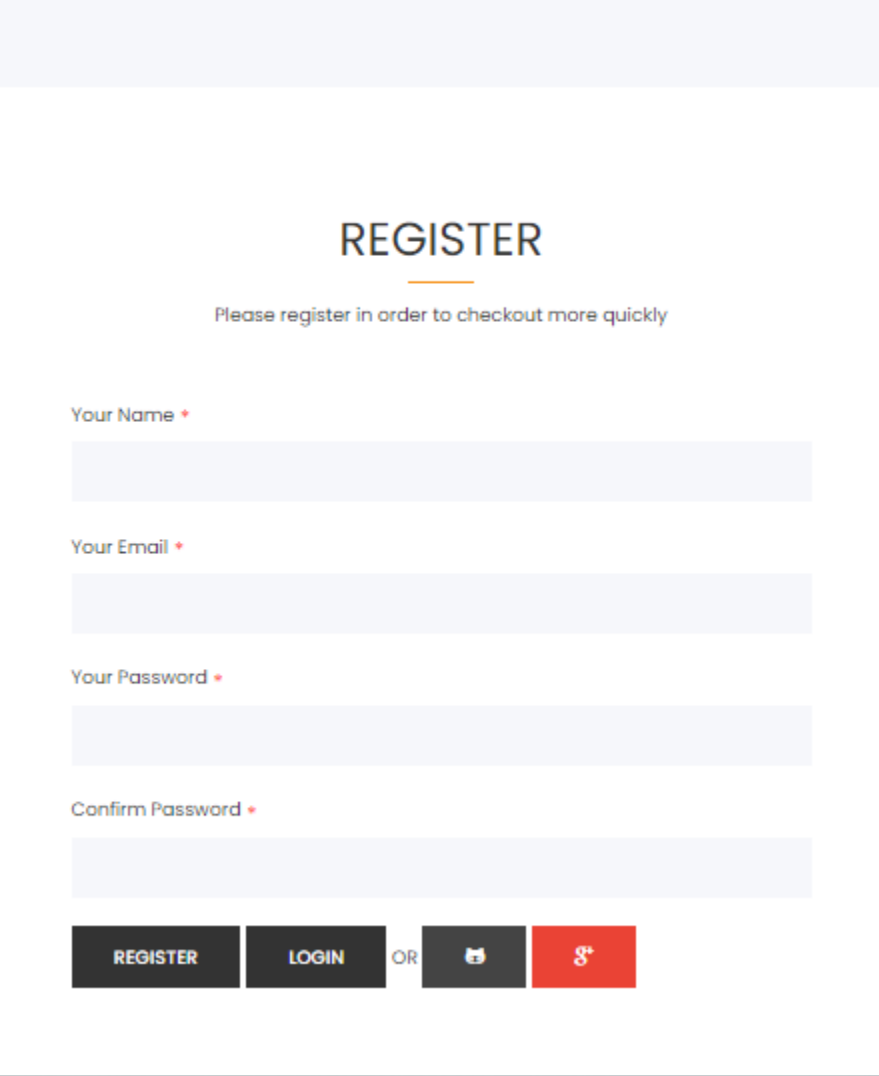

Figure 5.2: Sign Up and Sign Up Form Fields Validation

Log in and Log in Fields Validation: Use need to enter valid email address and password.

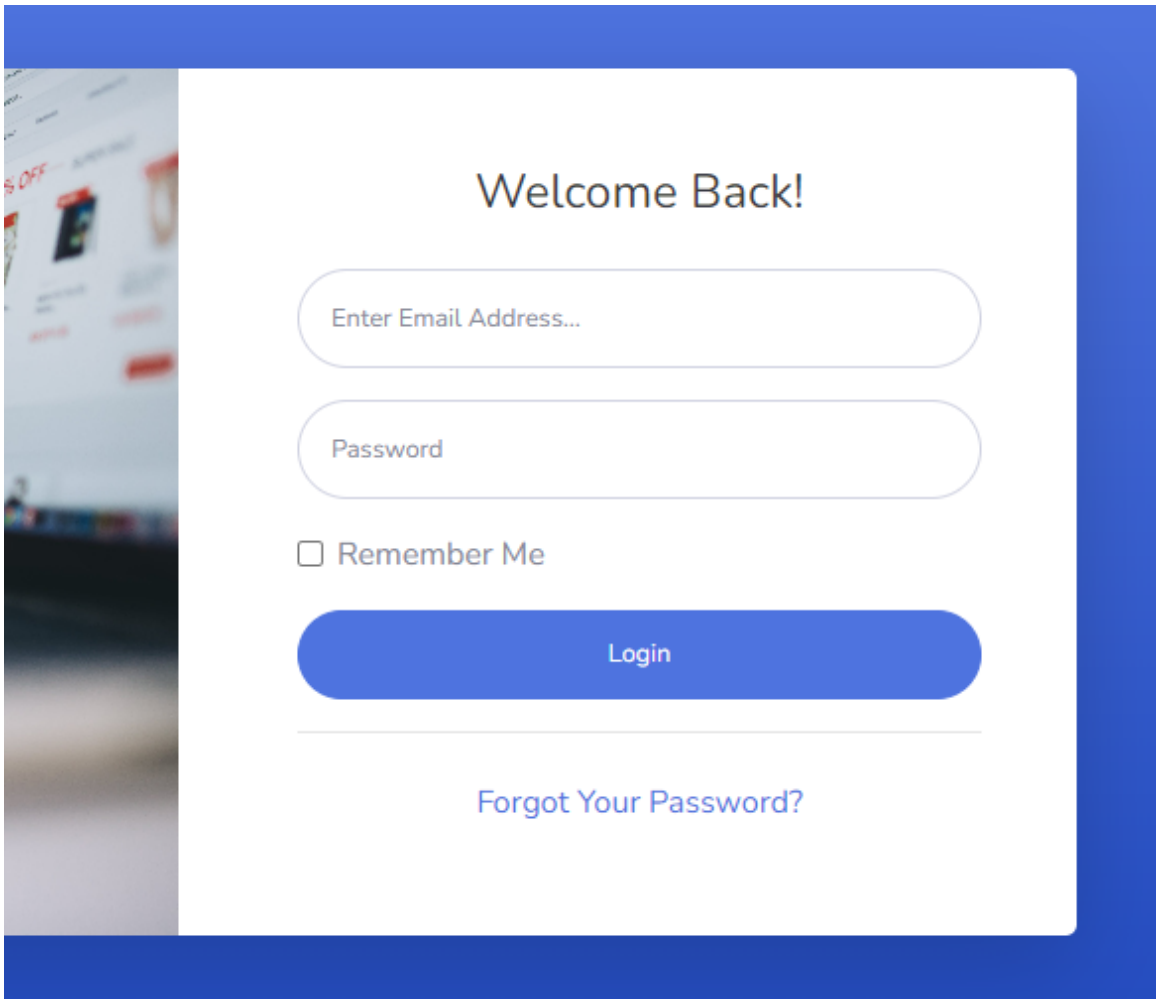

Figure 5.3: Log in and Log in Fields Validation

After Log In: After successfully login admins and users can access all features of smart E-commerce shop.

Dashboard: Where admins and users get dashboard access.

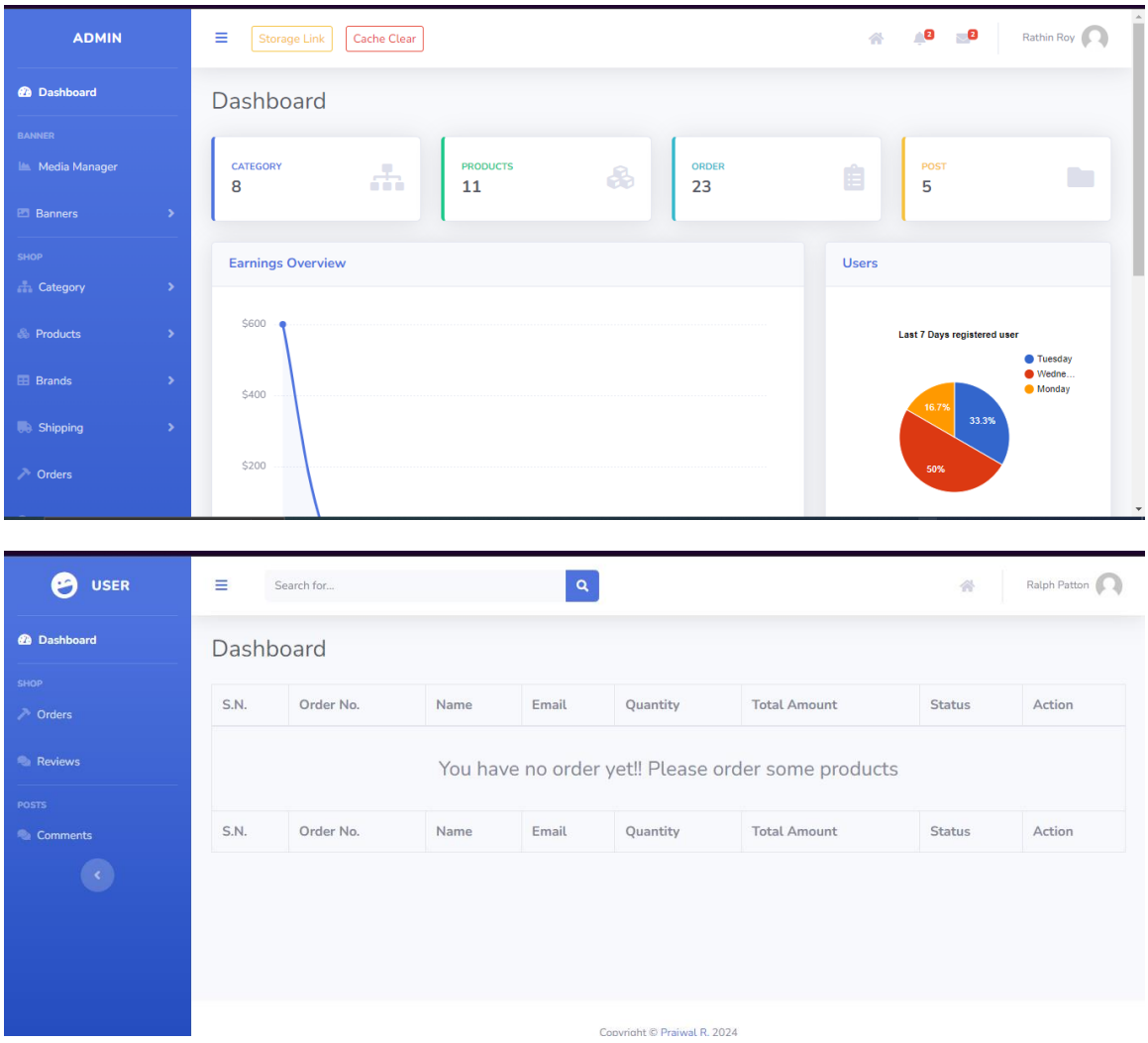

Figure 5.4: Admins and users' dashboard

Features: Specific options for admins and users

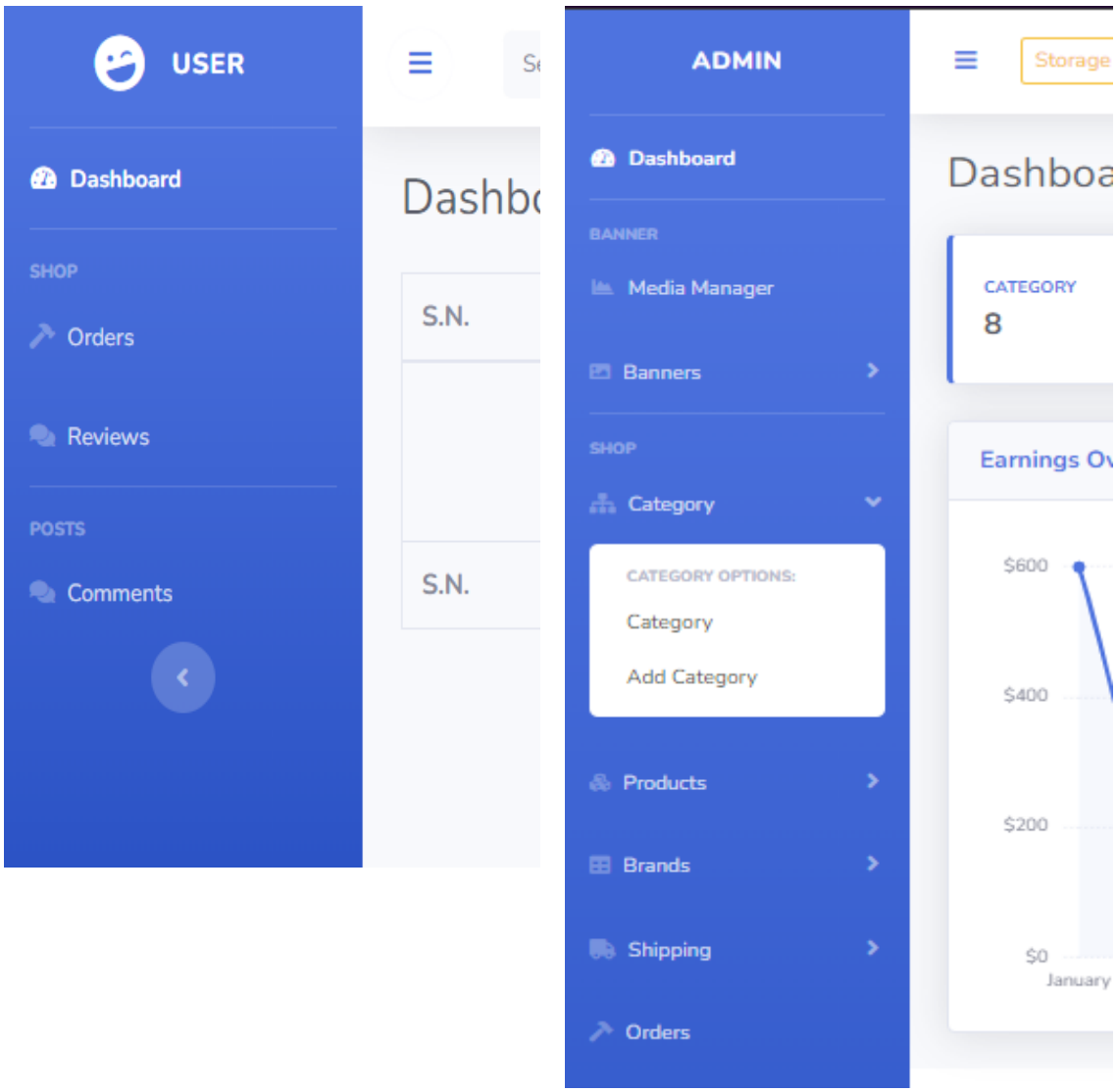

Figure 5.5: Specific Options for admins and users

5.2 Implementation of Back-End Design

The selected design for the smart e-commerce shop plays a critical role in the efficiency of the system application. Database design, in this context, involves the creation of a detailed data model that encompasses both logical and physical design elements, as well as essential storage parameters. The logical data model comprises intricate attributes for each entity, tailored to the relational model with a focus on tables and views. While "database design" traditionally refers to the logical design of base data structures, in the context of a smart e-commerce shop, it extends to the overall process of designing not only foundational structures but also the forms and queries embedded in the database management system

(DBMS). This holistic approach ensures that the design not only dictates the structure of the database but also influences the user interfaces and queries integral to the e-commerce application. A thoughtful and comprehensive design is essential for the seamless operation and user experience of the smart e-commerce shop.

5.2.1 Data Table Name

The name of the smart e-commerce shop database is smart_eshop that has twenty-one data tables.

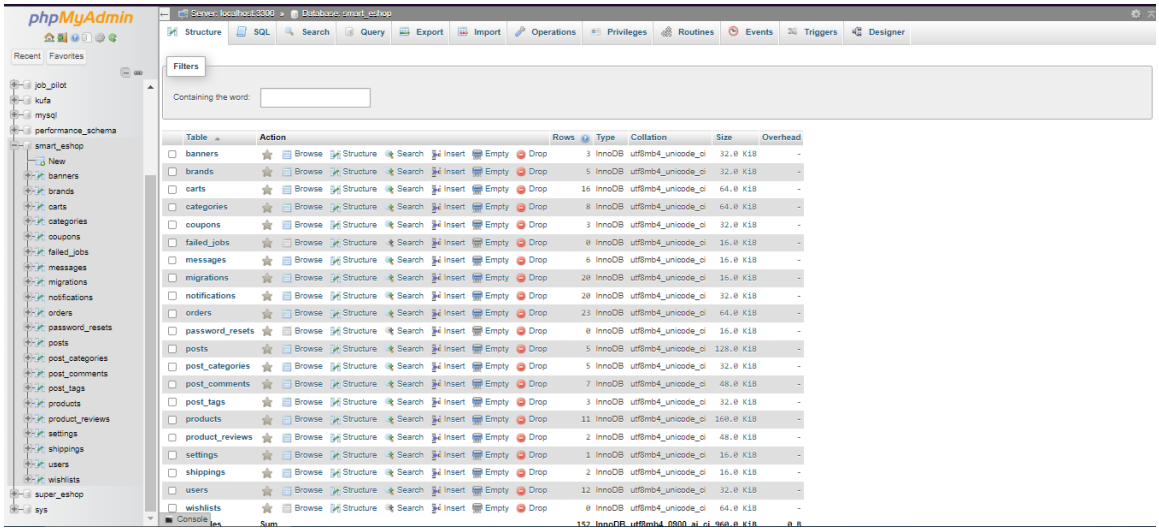

Figure 5.6: Database Table Name

5.2.2 Data Type Architecture

A data architecture should neutrality set data standards for all its data systems as a vision or a model of the eventual interactions between those data systems. Data integration, for example, should be dependent upon data architecture standards since data integration requires data interactions between two or more data systems.

The following data types for its column and parameter declarations.

- CHARACTER [CHAR [(length)]
- VARCHAR (length)
- BOOLEAN
- SMALLINT
- INTEGER or INT
- DECIMAL
- NUMERIC
- NULL
- FLOAT(p)
- DOUBLE PRECISION
- DATE
- TIME
- TIMESTAMP

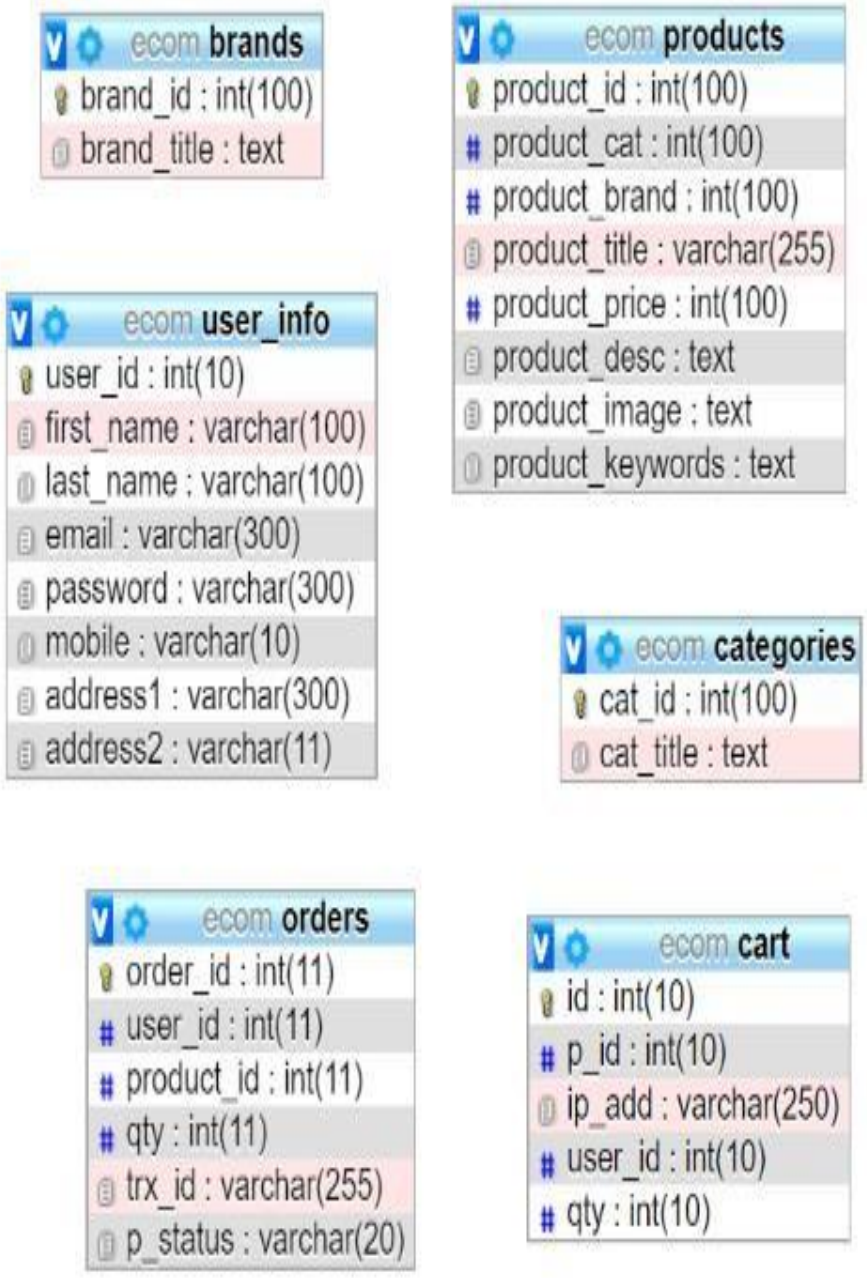

Figure 5.7: Data Type Architecture

5.2.3 MySQL Database View

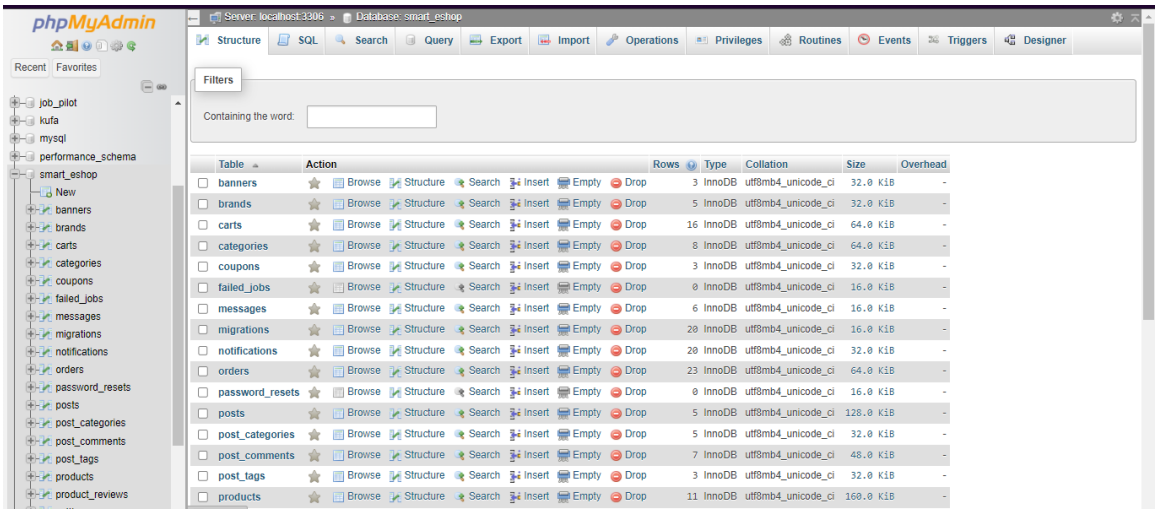

Figure 5.8: MySQL Database View

5.2.4 Database Table Structure

Here table (admin_info) structure shown below:

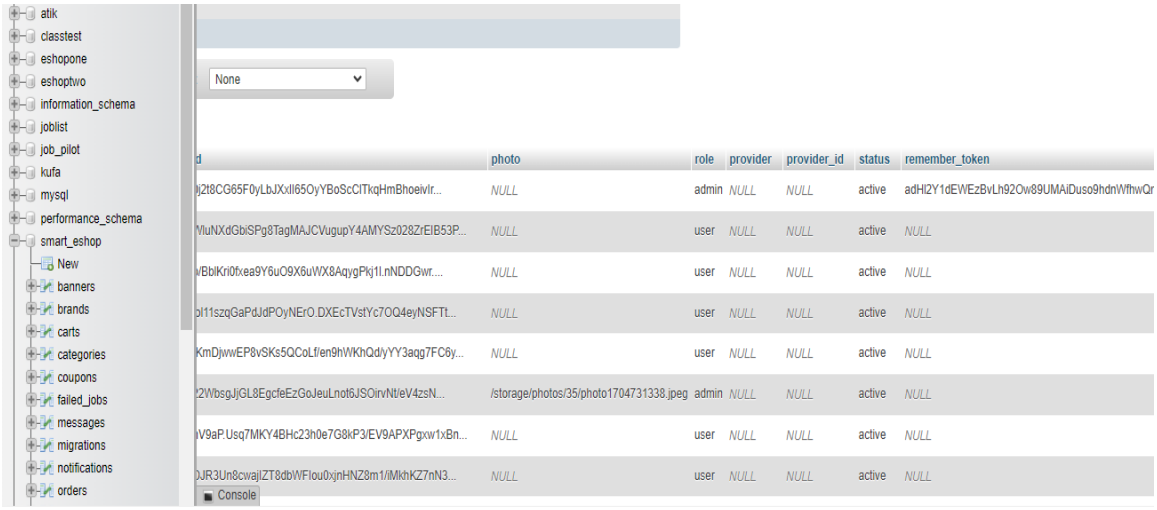

Figure 5.9: Database Table (admin_info)

5.3 Testing Implementation

This project was judged on the following set of criteria:

Satisfying requirement specifications: The project is said to be successful if it satisfies all the requirements such as functional and non-functional requirements. In other words, it should be capable of ensuring the requirement specifications.

Correctness: It is one of the critical requirements of web development. Perfectness is the basic demand for service-oriented web application. Each and every part of the web application should work properly and accurately.

Compatibility and Integrity: These are two significant conditions to check whether or not the project is successful. The smart E-commerce shop was created to be compatible with any domain. It was also designed in such a way that it could persuade the virtualization which is considered to be an important factor. Additionally, the evaluation of the system depended on how the application was implemented to the whole system or not.

Real time management: The application is about smart E-commerce shop. So, it is necessary to maintain the real time scenario. The users of this system should have the ability to maintain this.

Reliability and security management: The security is one of the important factors in any service-oriented systems. For this reason, the evaluating criteria on the security features that had been taken under account when the system was developed.

User friendliness: Friendliness in any applications is also a special criterion to judge the systems. For instance, the users of this solution should feel contented when they are using the system. In essence, a system should have the quality measures properties, such as efficiency, portability, reusability, flexibility, cohesion and loose coupling among different components of the designed web developed.

5.3.1 Testing Methodology

Software testing is indispensable for identifying and rectifying system errors within a smart e-commerce shop. This crucial process involves scrutinizing codes, design elements, and overall system execution to enhance system quality. Often overlooked in project development, reviewing and testing code is a fundamental aspect of software engineering. Testing serves as an integral component of the system development process, with the ANSI/IEEE standard 829/1983 governing software testing documentation. Additionally, Computer Aided Software Testing (CAST) may also play a role in executing certain aspects of software testing for the smart e-commerce shop.

5.3.2 Functional Testing

In functional testing tester has to validate the application to see that all specified requirements of the user's whatever we have said in supplemental restraint system have been incorporated or not.

- There are two categories of functional testing:
- Positive functional testing: testing the application 's functions with valid input and also verifying that the outputs are correct.
- Negative functional testing: IT involves exercising application functionality using a combination of invalid inputs some unexpected operating conditions and by some other "out-of-bounds" scenarios.

5.3.3 Unit Test

Unit testing is generally used in a detailed designing and implementing phase of this project. The rationale of unit test was to find out the defects in this project.

5.3.4 Compatibility Test

Compatibility Testing, part of software non-functional tests, is testing conducted on the application to evaluate the application's with the computing environment. Software compatibility testing can be more appropriately referred to as user experience environment. This project is tested on different types of android mobile to ensure the following-

Table 5.1: Compatibility Test Result

Device Name	Screen Size	Test	Result
Desktop	1920x1080	Yes	Okay
Tablet	992x568	Yes	Okay
Mobile	567x320	Yes	Okay

CHAPTER 6
CONCLUSION AND FUTURE SCOPE

6.1 Conclusion

In conclusion, this e-commerce project, crafted with Laravel, PHP, MySQL, CSS, Bootstrap, and JavaScript, is a testament to responsive and user-friendly software development. It stands as a dynamic solution tailored to user requirements and a thoughtful analysis of the existing system. The project's robust foundation allows for seamless future enhancements, acknowledging the evolving landscape of software functionality. Noteworthy features encompass user-friendly interfaces, comprehensive sales tracking, and a versatile administration panel. Users can effortlessly navigate through product categories, add items to their carts, and proceed with checkout. On the administration side, a wealth of functionalities includes monitoring sales, managing products and categories, and accessing insightful daily sales reports. The incorporation of user comments enhances engagement. This e-commerce project successfully amalgamates technical prowess with user-centric design, ensuring a rich and efficient online shopping experience.

6.2 Goal

The core aim is to establish a smart e-commerce shop, providing a seamless platform for efficient buying and selling. Emphasizing user satisfaction and convenience, our focus is on creating a dynamic and user-friendly online shopping experience.

6.3 Limitation

- The part of the system can be implemented using the current technology although some modifications had to be done at various places
- Domain hosting bandwidth only 5GB
- MySQL database storage 2GB

6.4 Scope for Further Developments

- Interface design will be updated
- More features and functionalities will be added
- Reliability of the application should be increased

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Appendix A

Title: ----------

Students ID:

Complex Engineering Problems (EP) and Complex Engineering Activities (EA) Analysis

Attainment of Complex Engineering Problems (EP):

S.L.	EP No.	Attainment	Remarks	References
1.	P1: Depth of Knowledge required	Yes (Must be Yes)	K1 (Theory-based natural sciences) How and where at Report **The project requires knowledge of engineering fundamentals (K1, K2, K3, K4)** **(Overview, Problem statement)**	**Page no:**
			K2 (Conceptually-based mathematics, numerical analysis, statistics, and formal aspects of computer and information science) How and where at Report **The project requires knowledge of engineering fundamentals (K1, K2, K3, K4)** **(Overview, Problem statement)**	**Page no:**
			K3 (Engineering Fundamentals): How and where at Report **The project requires knowledge of engineering fundamentals (K1, K2, K3, K4)** **(Overview, Problem statement)**	**Page no:**
			K4 (Engineering Specialization): How and where at Report	**Page no:**

			The project requires data collection, which requires knowledge of design of machine-learning based model (K1, K2, K3, K4) **(Research objectives, Research Questions, Data Collection)**	
			K5 (Design): How and where at Report	
			K6 (Technology): How and Where at Report	
			K8 (Research): How and where at Report **The project requires study of existing models with similar goals (K8)** **(Related works)**	**Page no:**
2.	P2: Range of Conflicting requirements	Yes/No	How and where at Report **The project requires wide-ranging or conflicting technical, engineering, and other issues** **(Objectives, Research questions)**	**Page no:**
3.	P3: Depth of analysis required	Yes/No	How and where at Report **The project has no obvious solution and requires abstract thinking and originality in analysis to formulate suitable models** **(Comparison between existing works, Requirement Analysis)**	**Page no:**
4.	P4: Familiarity of Issues	Yes/No	How and where at Report	**Page no:**

			The project requires study of existing models with similar goals and Involves infrequently encountered issues **(Proposed Methodology, Gap Analysis)**	
5.	P5: Extends of application codes	Yes/No	Engineering code practice	
6.	P6: Extends of stakeholder involved and conflicting requirements	Yes/No	How and where at Report	
7.	P7: Interdependence	Yes/No	How and where at Report	

Note: Must attain P1 and some or all of P2 to P7

Appendix B

Mark Distribution and Evaluation Criteria (CSE 499-I):

CO	CO Descriptions	PO Descriptions	Learning Domains	Assessment Weight	Learning Subdomains	Complex Problems (EP)	Knowledge Profile (K)	Points	Obtained Marks
CO1	Integrate recently gained and previously acquired knowledge to identify a real-life complex engineering problem for the Final Year Design Project	**PO1:** Engineering Knowledge	Cognitive	40%	**C2, C3**	EP1 & EP2-EP7 (Some or All)	K1, K2, K3, K4	10	
CO2	Analyze different aspects of the goals in designing a solution for the Final Year Design Project	**PO2:** Problem Analysis	Cognitive		**C2, C4**	EP1- EP4	K1, K2, K3, K4	10	
CO3	Explore diverse problem domains through a literature review, delineate the issues, and establish the	**PO4:** Investigation	Cognitive		**C3-C5**	EP1, EP3, EP4	K8	20	

	goals for the Final Year Design Project								
CO4	Perform economic evaluation and cost estimation and employ suitable project management procedures throughout the development life cycle o f the Final Year Design Project	**PO11:** Project Manageme nt and Finance	Cognitive, Affective	10%	C3 - C5, P4, A3 - A4			10	

Appendix

Addressing of COs, Knowledge Profile (K), and Complex Engineering Problems (EP):

CO	CO Descriptions	K	EP	References
CO1	Integrate recently gained and previously acquired knowledge to identify a real-life complex engineering problem for the Final Year Design Project	(i) Overview/ Problem Statements [K1, K2, K3, K4] *Write here how you have addressed* K1, K2, K3, K4 **The project requires data collection, which requires knowledge of design and engineering (K1, K2, K3, K4)** **Page no:**	(i) Overview/Problem Statements [EP1] *Write here how you have addressed EP1* **The project requires data collection, which requires knowledge of design and engineering (K1, K2, K3, K4)** (ii) Research Questions/Research Objectives [EP2] *Write here how you have addressed EP2* **The project involves wide-ranging or conflicting technical, engineering and other issues (K1, K2, K3, K4)**	**Page no:** **Page no:**
CO2	Analyze different aspects of the goals in designing a solution for the Final Year Design Project	(i) Related Works [K3, K4] *Write here how you have addressed K1, K2, K3 and K4*	(i) Related Works [EP1] *Write here how you have addressed EP1* **The project requires data collection, which requires knowledge of design of engineering, study literature, and analysis of complex engineering problems (K1, K2, K3, K4)**	**Page no:**

		The project requires data collection, which requires knowledge of design of engineering, studying literature, and analysing complex engineering problems (K1, K2, K3, K4) **Page no:**	(ii) Comparison between existing works [EP3] *Write here how you have addressed EP3* **The project does not have any obvious solution and requires abstract thinking and originality in analysis to formulate suitable models** (i) Gap analysis [EP4] *Write here how you have addressed EP4* **The project involves infrequently encountered issues**	**Page no:** **Page no:**
CO3	Explore diverse problem domains through a literature review, delineate the issues, and establish the goals for the Final Year Design Project	(i) Related Works [K8] *Write here how you have addressed K8* **The project requires study of existing models with similar goals (K8)** **Page no:**	(i) Related Works [EP1] *Write here how you have addressed EP1* **The project requires study of existing models with similar goals (K8), which cannot be resolved without in-depth engineering knowledge** (ii) Requirement Analysis [EP3] *Write here how you have addressed EP3* **The project has no obvious solution and requires abstract thinking and originality in analysis to formulate suitable models**	**Page no:** **Page no:** **Page no:**

			(iii) Proposed Methodology [EP4] *Write here how you have addressed EP4* **The project involves infrequently encountered issues**	
CO4	Perform economic evaluation and cost estimation and employ suitable project management procedures throughout the development life cycle of the Final Year Design Project			**Page no:**

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