

SEP490_G6_Report7_Final Project Report.pdf

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Submission date: 08-Aug-2024 01:55AM (UTC-0700)

Submission ID: 2428962381

File name: SEP490_G6_Report7_Final_Project_Report.pdf (15.79M)

Word count: 27051

Character count: 175133



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Capstone Project Document

Smart online electronics sales system

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Capstone Project code	SEP490

– Can Tho, August 2024 –

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Acknowledgement

First off, we want to give a big thanks to Mr. Vo Hoang Tu, a lecturer at FPT University, for guiding and supporting us throughout our project, 'Smart Online Electronics Sales System.' His help was super valuable, giving us both the knowledge we needed and some real-world experience. His feedback and suggestions really helped us make our work better.

We also want to say a huge thank you to our families and friends. Their support and encouragement kept us going, especially when things got tough. We couldn't have done it without their love and belief in us.

Even though we did our best, we know our project isn't perfect and might still have some mistakes. We're looking forward to the jury's feedback so we can learn and make it better. Once again, thank you to everyone who helped make our project a success.

Definition and Acronyms

Acronym	Definition
CRUD	Create, Read, Update, Delete
1 AWS	Amazon Web Services
BA	Business Analysis
BR	Business Rule
ERD	Entity Relationship Diagram
WBS	Work Breakdown Structure
CSS	Cascading Style Sheets
48 HTML	HyperText Markup Language
RDBMS	Relational Database Management System
SQL	Structured Query Language
UI	User Interface
UC	Use Case
API	Application Program Interface
AI	Artificial Intelligence
ORM	Object-Relational Mapping

1

I. Project Introduction

1. Overview

1.1 Project Information

- Project name: Smart online electronics sales system (Electric store)
- Vietnamese project name: Website bán đồ điện tử trực tuyến
- Project code: SEP490
- Group name: If-else
- Software type: Website

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1.2 Project Team

Table 1 – Project Team

Full Name	Role	Email	Mobile
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2. Product Background

My electric store has been a traditional business. Before, we used office tools such as Notebook and Excel to manage orders. We will receive the orders through by phone. Initially, the situation was quite good, but over the past few years, we have realized the development of technology expanding daily like Shopee, Lazada, etc. The number of our customers is less day by day, therefore our revenue daily decreasing quickly, It makes us cannot compete with them. Recently, we want to transfer the business model. We want to create a website to attract customers. On the other hand, we want to manage orders, revenue monthly, new list products, and so on. To reach customers better and save time and cost for our business.

Technologies are used to develop the system including:

- Frontend: ReactJS
- Library UI: TailwindCSS and Antd
- Backend: Node JS
- Database: Firebase
- AI: Recommendation (Algolia)
- Payment: VNPay/Paypal
- ChatBot: AWS Lex
- Source Code Management: GitHub
- Deploy server: Vercel

2.1. ReactJS 6

Description: React is a free and open-source JavaScript front-end library for building user interfaces based on individual UI components. It is developed and maintained by Meta and its community of individual developers and companies.

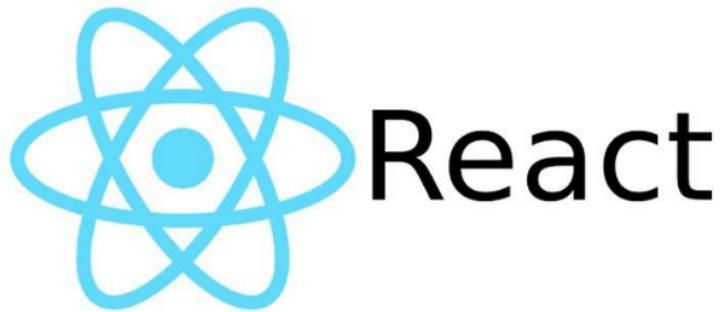


Figure 1. Product background - ReactJS Framework

2.2. TailwindCSS 16

Description: Tailwind CSS is a utility-first CSS framework for rapidly building modern websites without ever leaving your HTML.



Figure 2 - TailwinCSS

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2.3. Ant Design

Description: An enterprise-class UI design language and React UI library with a set of high-quality React components, one of the best React UI libraries for enterprises.



Figure 3 - Ant Design

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2.4. Node JS

Description: Node.js® is a JavaScript runtime built on Chrome's V8 JavaScript engine.



Figure 4 – Node JS

2.5. NextJS

Description: Next.js is not only a front-end framework but also provides robust back-end capabilities, enabling developers to create full-stack applications. With Next.js, you can build server-side rendered applications, manage API routes, and handle server-side logic seamlessly. It supports serverless

functions, allowing you to deploy scalable and cost-effective back-end services. The framework integrates easily with databases, authentication services, and other back-end tools, making it versatile for various use cases. Next.js empowers developers to build complete, high-performance web applications with both front-end and back-end functionalities within a single framework.



Figure 5 – Next.JS

2.6. Database [Postgresql](#)

Description: PostgreSQL is an advanced, open-source relational database management system (RDBMS) that provides robust data storage and management solutions for applications. It supports both SQL for relational queries and JSON for non-relational queries. With features like ACID compliance, complex queries, foreign keys, triggers, and views, PostgreSQL ensures data integrity and reliability. It's highly extensible, supporting custom functions and extensions, and is known for its performance, scalability, and security. PostgreSQL is suitable for a wide range of applications, from single-machine applications to large, web-based applications with many concurrent users.



Figure 6 - PostgreSQL

2.7. Model AI: [Recommendation \(Algolia\)](#)

Description: Recommend is a JavaScript UI library, available on GitHub, for Algolia Recommend with components for displaying recommendations on your site. Recommendations encourage users to discover more of your catalog based on what they're already interested in.



Figure 7 - Algolia

2.8. Pay: VNPay

Description: VNPay is a leading digital payment platform in Vietnam, offering secure and convenient payment solutions since its establishment. VNPay provides a wide range of services including online money transfers, bill payments, and mobile top-ups. With VNPay, users can easily and safely manage their transactions through various channels such as mobile banking apps, QR code payments, and e-wallets. VNPay is widely accepted across numerous merchants and service providers, making it a trusted choice for digital payments in Vietnam.



Figure 8 - VNPay

2.9. Chatbot: AWS Lex

Description: AWS Lex is an artificial intelligence service from Amazon. It is designed to create a smart and easy-to-use automated chat application



Figure 9 – AWS Chatbot

2.10. Kommunicate

Description: Kommunicate is a comprehensive chatbot platform designed to streamline customer support and engagement. It enables businesses to build, deploy, and manage AI-powered chatbots that can handle customer inquiries, provide instant responses, and automate routine tasks. With Kommunicate, you can integrate chatbots into your website, mobile apps, and social media platforms, ensuring a seamless and consistent customer experience across all channels. The platform supports both rule-based and AI-driven bots, allowing for flexibility in addressing various customer needs. Additionally, Kommunicate offers features like live chat handover, real-time analytics, and multi-language support, making it an effective solution for enhancing customer communication and improving service efficiency.



Figure 10 – Kommunicate

2.11. ORM: Prisma

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Description: Prisma is a modern, open-source ORM (Object-Relational Mapping) tool that simplifies database management and operations for developers. With Prisma, you can interact with your database using a type-safe and intuitive query language, reducing the complexity and errors associated with traditional SQL queries. It supports multiple databases, including PostgreSQL, MySQL, SQLite, and MongoDB. Prisma offers features like data modeling, migrations, and real-time capabilities, making it easier to manage and scale your database. Its seamless integration with modern frameworks and languages, such as Node.js and TypeScript, allows developers to build robust and maintainable applications efficiently.



Figure 11 – Prisma

2.12. VPS: Digital Ocean(VPS)

Description: DigitalOcean is a cloud infrastructure provider that offers scalable and easy-to-use Virtual Private Servers (VPS), known as Droplets. Established in 2011, DigitalOcean provides developers with cloud services to deploy and scale applications running simultaneously on multiple computers. Its user-friendly control panel and API enable seamless management of infrastructure, including creating,

resizing, and destroying¹² VPS instances. DigitalOcean's robust performance, reliable uptime, and straightforward pricing make it an ideal choice for developers and businesses looking to host web applications, databases, and other services in the cloud.



Figure 12 – DigitalOcean

13. Authentication: NextAuth

⁵⁷ **Description:** NextAuth.js is a complete open-source authentication solution for Next.js applications. It provides a flexible and easy-to-use framework for implementing secure user authentication with support for various authentication providers, including OAuth (e.g., Google, Facebook), email/password, and custom authentication methods. NextAuth.js seamlessly integrates with Next.js, allowing you to add authentication to your application with minimal configuration. It supports features like JWT (JSON Web Tokens), session management, and database adapters, ensuring robust security and scalability. With NextAuth.js, developers can quickly set up and manage authentication, enabling secure access control for their Next.js applications.

⁸⁹

Figure 13- NextAuth

2.14. Github¹⁶

Description: GitHub is a web-based interface that uses Git, the open source version control software that lets multiple people make separate changes to web pages at the same time.



Figure 14 - GitHub

3. Existing Systems

3.1 DienMayXanh

- Description: The Điện Máy Xanh website offers a comprehensive range of electronic appliances from reputable global brands such as TVs, refrigerators, washing machines, air conditioners, air purifiers, rice cookers, gas stoves, tablets, smartphones, and more, catering to every customer's need. Customers can easily compare products of the same type in terms of price, features, and technical specifications before making a purchase, and can also refer to the opinions of previous buyers. Additionally, they can easily track the status of their orders on the website.

The link website: <https://www.dienmayxanh.com/> (access date 03/05/2024)



Figure 15. Existing system – DienMayXanh 01

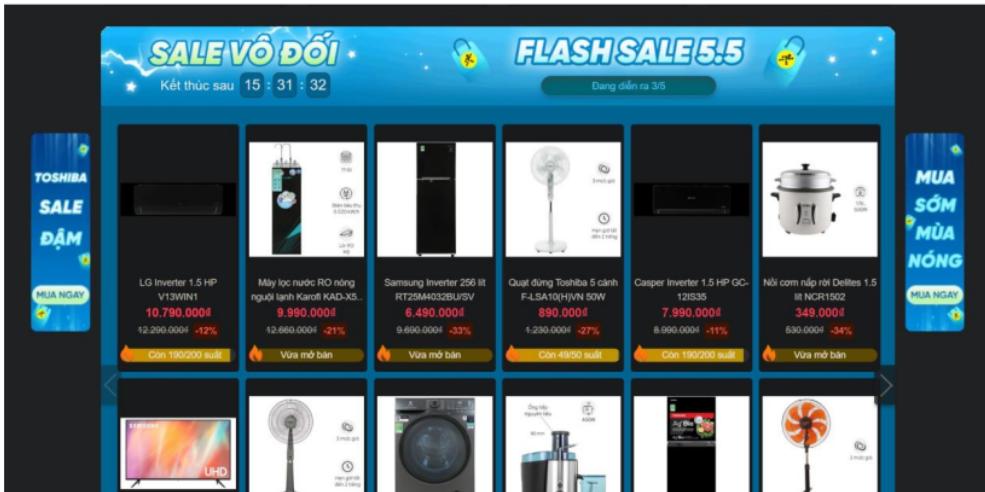


Figure 16. Existing system – DienMayXanh 02

Main Features: Điện Máy Xanh website offers a convenient and diverse online shopping experience, allowing easy search, comparison, and filtering of products. Flexible payment support and free nationwide shipping are provided. Quality assurance through return and warranty policies is guaranteed. Additionally, it provides information through blogs and promotional programs, loyalty point redemption, and enthusiastic customer support.

Advantages: The Điện Máy Xanh website has numerous advantages. It features an attractive and user-friendly interface, offering a full range of electronic and home appliances from reputable brands worldwide. Detailed product information including images, videos, customer reviews, and price

comparisons helps users make informed purchasing decisions. Competitive pricing, attractive promotions, and support for various payment methods are available. The delivery service is fast and secure, with flexible return policies, genuine warranties, and a dedicated team of enthusiastic and attentive customer service representatives.

- **Disadvantage:** The website may experience slowdowns during peak hours due to high traffic, some products may be priced higher than the market, shipping costs can be high for low-value orders or deliveries to distant areas, an abundance of promotions may confuse customers, and the website is not fully optimized for mobile devices.

3.2 NguyenKim

- **Description:** The Nguyễn Kim electronics supermarket website offers a convenient and diverse online shopping experience. The website is designed to be clean and user-friendly, allowing users to easily browse and purchase electronic and furniture products. The homepage showcases featured items and attractive promotions. Users can search for products by category or keywords. Each product is described in detail, accompanied by images and technical specifications for users to evaluate before making a purchase.

The link website: <https://www.nguyenkim.com/> (access date 03/05/2024).

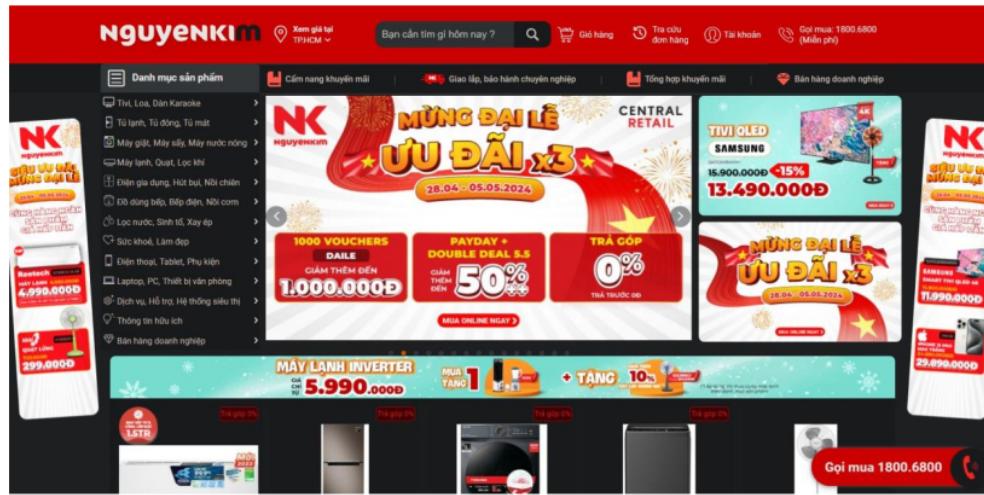


Figure 17. Existing system – NguyenKim 01

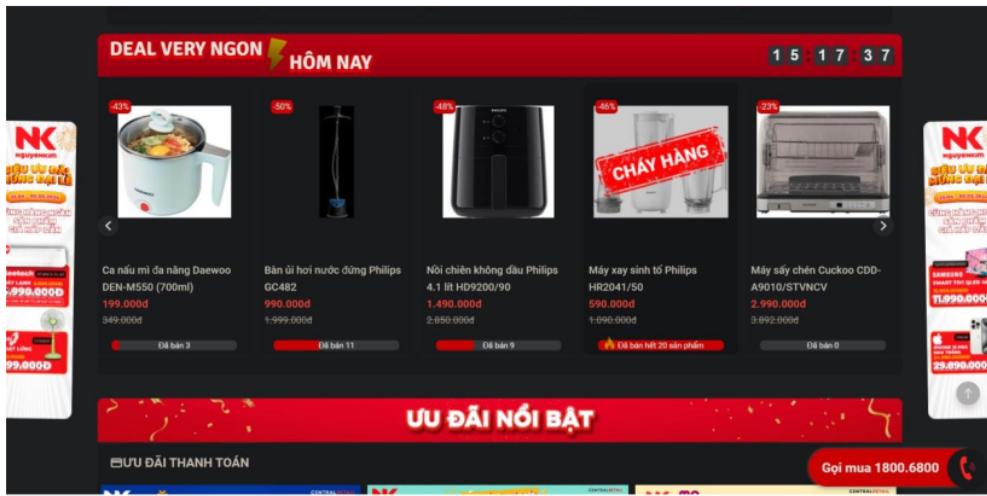


Figure 18. Existing system – NguyenKim 02

- Main Features: Nguyễn Kim's website offers a seamless online shopping experience with efficient search, comparison, and filtering options for products based on various criteria. It supports multiple secure payment methods and provides free or subsidized shipping for qualifying orders. With a 7-day return policy and genuine warranties, it ensures customer satisfaction. Round-the-clock customer support is available, and the website features a Blog with valuable insights and frequent promotions. Additionally, it offers membership rewards and project-based shopping services for comprehensive solutions.

- Advantages: Nguyễn Kim takes pride in its modern, user-friendly, and appealing website interface, designed to attract users. They offer a wide range of electronic and home appliance products from reputable brands worldwide. Detailed product information, accompanied by images, 360-degree videos, price comparisons, and customer reviews, helps users make purchasing decisions effortlessly. With regular promotional programs, Nguyễn Kim ensures the most competitive prices. They provide various secure payment methods and fast delivery services, along with a flexible 14-day return policy and genuine manufacturer warranties, fostering customer trust. Their professional advisory team and 24/7 customer service across multiple support channels, along with enticing membership programs and convenient project-based shopping services, further enhance the overall customer experience.

- Disadvantage: The website may experience slowdowns during peak hours due to high traffic volume. Some products on the website may have higher prices compared to the market, especially newly released items. Shipping costs can be high, particularly for low-value orders or deliveries to remote areas. The abundance of promotional programs might confuse and complicate the decision-making

process for customers. Additionally, the multitude of features may overwhelm new users. The installment payment feature is not optimized, with a potentially convoluted and complex process.

3.3 Midea mart

- **Description:** The MediaMart website features a modern and user-friendly interface, facilitating easy product navigation. It offers a diverse selection of electronic and household items from well-known brands, with competitive pricing maintained through regular promotions. With various payment options and nationwide delivery, customers enjoy convenient shopping experiences. MediaMart's reliable warranty policy and attentive customer service team further contribute to its reputation as a trusted and quality online platform for electronics shopping. The link website: <https://mediamart.vn/> (access date 03/05/2024)



Figure 19. Existing system – Midea mart 01



Figure 20. Existing system – Midea mart 02

- **Main Features:** The website provides ¹¹ diverse and convenient online shopping experience. Customers can easily search for products based on various criteria such as name, category, brand, price, and compare them before adding to cart and checking out. Multiple payment methods including online and cash on delivery are available, along with nationwide delivery and a 7-day return policy. Customers also benefit from frequent promotions, special offers, and free consultation services, installment purchasing, installation, and home warranty services. Additionally, the website's community forum allows users to share experiences, and product reviews, and ask questions.

- **Advantages:** The Media Mart website features an attractive, modern, and user-friendly interface. Product categories are organized systematically, aiding users in easily finding the items they need. Moreover, the website offers various useful features such as online shopping, online payment, and product return services. Detailed product information is provided extensively, allowing customers to compare and select suitable products. Finally, Media Mart's customer service is highly praised, with dedicated and enthusiastic staff always ready to assist customers.

- **Disadvantage:** Media Mart has limitations in terms of product variety compared to other major e-commerce platforms. The delivery time is also a concern, as Media Mart may take longer than its larger competitors. Additionally, Media Mart's product return policy is perceived as inflexible and may not meet the needs of some customers.

4. Business Opportunity

There is a significant opportunity in the market for an online platform that allows users to purchase electronic goods, akin to the model employed by popular retailers like Nguyễn Kim. Currently, consumers face various challenges when buying electronics, including the inconvenience of visiting physical stores, limited product availability, and the inability to compare prices easily.

²³ By introducing an online platform, customers can browse a wide range of electronic products from the comfort of their homes or offices, thereby saving time and effort. Additionally, the platform can provide detailed product descriptions, specifications, and customer reviews, facilitating informed purchasing decisions.

⁷¹ One of the key advantages of this online platform is its ability to streamline the purchasing process. Customers can place orders for electronic devices, accessories, and gadgets online, selecting their preferred delivery option, whether it's home delivery or pickup from a designated location. This not only enhances convenience for customers but also optimizes the logistics chain, leading to improved operational efficiency.

Furthermore, the platform can leverage data analytics to anticipate customer preferences and trends, thereby optimizing inventory management and reducing wastage. Insights into consumer behavior can also inform strategic decisions regarding product offerings and marketing initiatives, ensuring that the platform remains competitive in the rapidly evolving electronics market.

Incorporating features such as secure payment gateways and reliable customer support will further enhance the attractiveness of the platform to consumers, fostering trust and loyalty.

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Overall, the proposed online platform for electronic goods addresses the growing demand for convenient and efficient shopping experiences in the digital age. By aligning with market trends towards online retail and digital transformation, the platform is well-positioned to capitalize on the burgeoning e-commerce landscape and establish itself as a market leader in the electronics sector.

5. Software Product Vision

Just like Nguyen Kim or Dien May Xanh. Smart selling conducts the buying and selling of electronic goods across various operating networks from phones, TVs, etc. Smart selling to develop an easy-to-operate and user-friendly interface. The variety of products.

In the future, Smart selling targets customers looking for electronic items that will not be counterfeited because they do not need to go to a place of sale. Instead, customers can refer to the catalogs and items available on the web. Smart selling always continuously updates products to ensure users' essential needs for electronic products.

One more convenience when shopping online is that you will still receive dedicated advice, with pictures and video descriptions. Goods will be shipped quickly thanks to the development of the logistics supply chain. The item will arrive to the user quickly and intact. Highest satisfaction guaranteed.

Furthermore. Smart selling will guarantee that items and products have production documents and clear origins. To be able to give customers an experience of always being assured of the electronics they will and are using.

6. Project Scope & Limitations

6.1 Major Features

Smart online electronics sales system is a smart sales system combined with product suggestions based on customer behavior and habits, with the following main functions:

6.1.1 Guest / Customer

- FE-01: Register
- FE-02: Login/Logout
- FE-03: Manage personal profile: View profile, Update profile (personal information, interest), Change password.
- FE-04: Search product, View detail product, and Filter all products.
- FE-05: Add products to cart, Edit cart information, View cart information, and Cart Payment.
- FE-06: Make Q&A.
- FE-07: Recommendations for Products.

6.1.2 Staff

- FE-08: Login/Logout
- FE-09: Manage personal profile: View profile, Update profile, Change password.
- FE-10: Manage order: View orders information, Cancel Order, Filter orders by date, and Export excel file.
- FE-11: Manage Product: View all products, Add new product, Edit product.

- FE-12: Manage statistics: Statistics on orders and products, and export Excel files.
- FE-13: Manage Blog: View all blogs, Add new blog and Edit blog

6.1.3 Admin

- FE-14: Login/Logout
- FE-15: Manage personal profile: View profile, Update profile, Change password.
- FE-16: Manage User: View all users information, Add new Staff, Edit user information
- FE-17: Manage order: View orders information, Filter by date, Order statistics, and Export excel file.
- FE-18: Manage Product: View all products, Add new product, Edit product.
- FE-19: Manage statistics: Statistics on orders and products, and export Excel files.
- FE-20: Manage Revenue: View all revenue in year/month/day and View list statistic.

6.1.4 Payment Provider

- FE-21: Integrate with the payment provider to make transactions convenient for the customer.

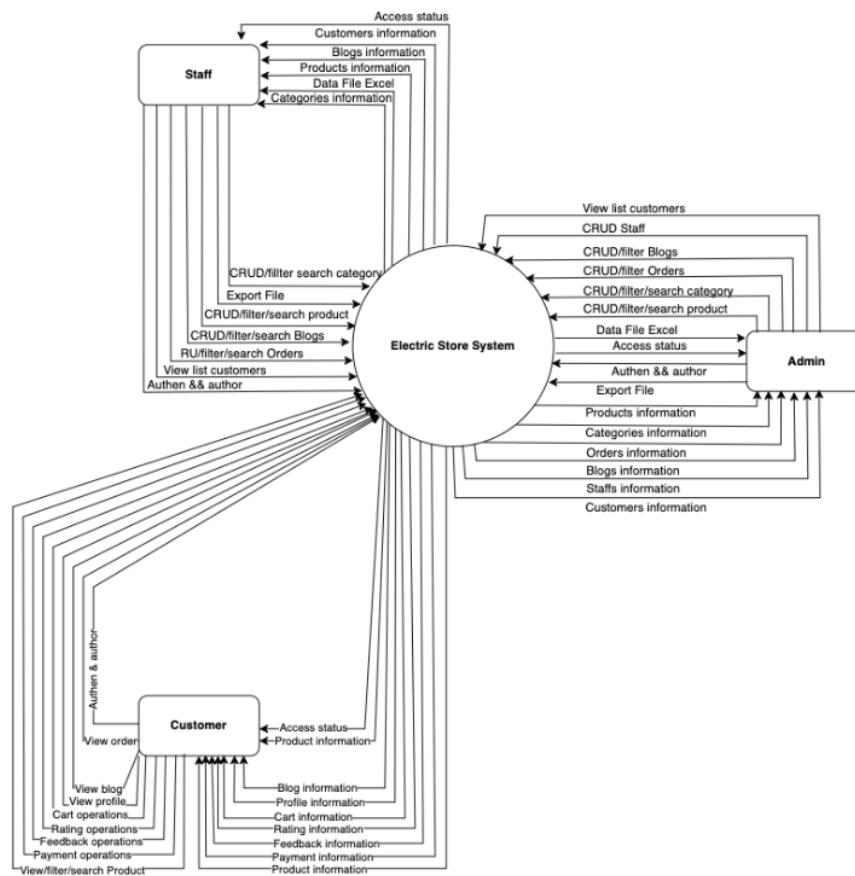


Figure 21 – Electric Store System

6.2 Limitations & Exclusions

- LI-01: No need for additional delivery services. Because there are currently many fast delivery applications that are very complete in this field. Furthermore, the rental cost is very low. We just need to hire their app to track our orders. This will be more convenient.
- LI-02: To simplify and make it more convenient for shoppers. This application is only developed on the website, it is optional to launch on the App Store or CHPlay.
- LI-03: Features are still limited because there is not much time to add more features.
- LI-04: Language: Currently our application is newly released and is exclusively for people who know English, but in the future, this feature will definitely be released for everyone.

II. Project Management Plan

1. Overview

1.1 Scope & Estimation

20
Table 2- Scope & Estimation

#	WBS Item	Complexity	Est. Effort (man-days)
1	Research background knowledge		107
1.1	Website Programming	Medium	10
1.2	IDE Tool	Easy	2
1.2.1	Visual Studio Code	Easy	1
1.2.2	Knowledge dev tool on Browser(Chrome,..etc)	Easy	2
1.3	Programming Language		45
1.3.1	Frontend(HTML/CSS/JS, ReactJS/NextJS, Ant, TailwindCSS)	Complex	10
1.3.2	Backend(NodeJS, VNPay)	Complex	10
1.3.3	AI(AWS Lex, Algolia)	Complex	10
1.4	Resource Management - Git version control(Github)	Medium	3
1.5	Deploy on Vercel	Medium	2
1.6	UI/UX Design (Figma)	Medium	12
2	Initial Project		30
2.1	Analyze user requirements	Complex	1

#	1 WBS Item	Complexity	Est. Effort (man-days)
2.2	Define project goal	Complex	2
2.3	Define project scope	Medium	2
2.4	Define project risk	Medium	2
2.5	Choose Technology	Medium	3
2.6	Provide Report 1 - Project Introduction	Medium	3
2.7	Provide Report 2 - Project Management Plan	Complex	17
3	Design		65
3.1	Design Prototype	Complex	3
3.2	Design Database	Complex	12
3.3	Design Website	Complex	20
3.4	Provide Report 3 - Software Requirement Specification	Complex	30
4	Implementation		62
4.1	Sign In	Easy	1
4.2	Sign up	Easy	1
4.3	Sign out	Easy	2
4.4	View all products	Medium	5
4.5	View product detail	Easy	1
4.6	View orders history	Complex	5
4.7	View all blogs	Easy	1
4.8	Suggestion and search by keyword	Medium	4
4.9	Recommendations by behavior	Easy	3
4.10	Manage Cart (CRUD)	Complex	3
4.11	Check out	Easy	1

#	WBS Item	Complexity	Est. Effort (man-days)
4.12	Feedback	Medium	2
4.13	Rating	Easy	1
4.14	Filter	Medium	5
4.15	Manage Profile (RU)	Medium	7
4.16	Manage Blogs (CRUD)	Medium	6
4.17	Manage Orders (RU)	Easy	1
4.18	Manage Product (CRUD)	Complex	2
4.19	Manage Staff (CRUD)	Easy	1
4.20	Manage Customer (R)	Easy	1
4.21	Dashboard Statistics	Complex	3
4.22	Export File	Easy	2
4.23	Manage Category (CRUD)	Easy	2
4.24	View blog detail	Easy	2
5	Testing		36
5.1	Unit Testing	Medium	10
5.2	System Testing	Medium	11
5.3	Integrated Testing	Medium	11
5.4	Fix bug	Complex	2
5.5	Provide Report 5 - Test Documentation	Medium	2
6	Closing		26
6.1	Provide Report 6 - Software User Guide	Medium	5
6.2	Deliver Report 7 - Final Project Report	Complex	14
6.3	Prepare Thesis presentation	Medium	7

#	WBS Item	Complexity	Est. Effort (man-days)
20			
Total Estimated Effort (man-days)			314

1.2 Project Objectives

Table 3- Project Objectives

#	Testing Stage	Test Coverage	No. of Defects	% of Defect	Notes
1	Reviewing	100%	0	0	
2	Unit Test	100%	0	0	
3	Integration Test	100%	0	0	
4	System Test	100%	0	0	
5	Acceptance Test	100%	0	0	
Total		100%	0	0	

1.3 Project Risks

Table 4- Project Risks

#	Risk Description	Impact	Possibility	Response Plans
1	The problems with member's health.	Medium	Medium	- Assign that task to the other members of the team. - Perform Overtime to complete tasks.
2	The member is leaving the project	High	Low	- Recruitment of new members - Duplicate tasks to the members of the team.
3	Lack of resources for the research.	Easy	Low	Organize classes for the member of the team to improve their knowledge
4	The machinery does not meet the requirements and has a weak configuration. When there are	High	Medium	Equipped with modern, highly configured machinery, it can withstand the load when there are too many access requests at the same time. Buy a battery to store electricity in case of unexpected power outages

#	Risk Description	Impact	Possibility	Response Plans
	too many access requests, the connection will be disconnected, overloading the system or power off			

2. Management Approach

The project management process for the e-commerce website is being conducted following the Scrum framework. This approach is adopted to ensure timely completion of tasks and continuous improvement after each Sprint Cycle. Scrum, derived from the Agile methodology, embodies the core principles of the Agile Manifesto. It serves as a robust process and management framework facilitating the resolution of intricate challenges while upholding efficiency, fostering creativity, and delivering products of utmost value. This implementation of Scrum encourages teams involved in developing the e-commerce website to engage in learning through experimentation. It promotes self-organization when tackling issues and encourages reflection upon achievements and shortcomings. This reflective process enables iterative development, allowing the project to evolve gradually toward its desired outcome.



Figure 22- The Scrum Process

2.1 Project Process

Sprints: In Scrum, a product is constructed through a series of iterative cycles, dividing the project into sections known as Sprints. Each Sprint is a fixed time frame during which a team completes a specific task. Within Scrum, the development team is segmented into three

distinct roles with clear responsibilities: Product Owner, Scrum Master and Development Team.

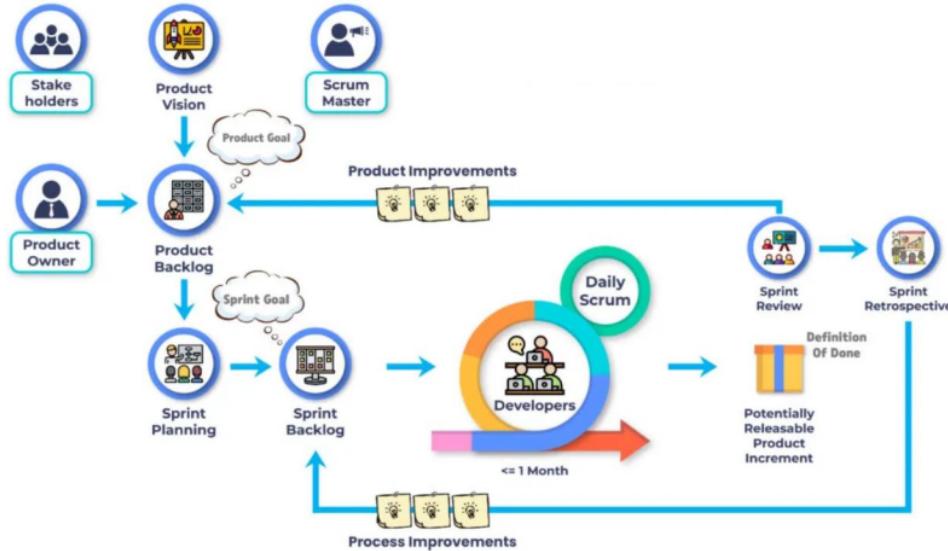


Figure 23- Scrum Methodology

2

- ❖ **Product Owner:** This individual bears the responsibility for the project's success, defining requirements and ultimately evaluating the output of software developers. The Product Owner must accept all requests and establish work streams. This is crucial as clear priorities and guidance lead to enhanced team efficiency.
- ❖ **Scrum Master:** A person well-versed in Scrum principles guides knowledge and ensures the team functions effectively within the Scrum framework.
- ❖ **Development Team:** A self-managing, cross-functional group that transforms organised requirements in the Product Backlog into system capabilities. The development team encompasses not only software engineers but all stakeholders involved in the project development process, including designers, programmers, and editors.

2

Sprint Planning: The development team convenes with the Product Owner to plan out the upcoming Sprint. This involves outlining development requirements and conducting analysis to identify necessary tasks, as well as estimating the time needed to accomplish them within the Sprint.

Daily Scrum: A daily meeting designed for team members to stay informed about the team's progress and individual contributions. During the Daily Scrum, the Development Team shares updates on work progress and discusses any challenges encountered in software development within the current Sprint.

Sprint Review: Assess completed tasks, gather feedback from stakeholders, and suggest necessary adjustments and changes to the product.

Sprint Retro: Aids the team in understanding what has been accomplished and what hasn't, thereby identifying methods for improvement, development plans, and action steps.

Product Backlog: This is the prioritised list of work for the development team, including the roadmap and requirements. The Product Owner organises tasks based on their importance for the team to understand which parts need to be completed and delivered first.

Sprint Backlog: The plan for a Sprint is formed after the Sprint planning meeting. Tasks are divided according to priority and presented in the form of a To-Do List.

Growth Segment: The Growth Segment encompasses all completed product backlogs in one Sprint and the growth value of all previous sprints.

Scrum Operational Process

To begin, the Product Owner curates a detailed Product Backlog outlining project requirements and prioritised items. Subsequently, the Production team iteratively brings these requirements to fruition in collaboration with the Product Owner, with each iterative cycle termed a Sprint. The Product Backlog serves as the input, while the output is fully functional software ready for deployment. Before commencing each Sprint, the Production team collaborates with the Product Owner in a meticulous planning session to strategize and outline objectives. This planning session culminates in the creation of a Sprint Backlog, detailing the tasks to be accomplished during the Sprint.

Throughout the development phase, the team consistently updates the Sprint Backlog and convenes for daily meetings, known as the Daily Scrum, to share progress and troubleshoot any encountered challenges. At the conclusion of the Sprint, the team assembles a comprehensive software package showcasing complete functionality, poised for customer delivery.

The Sprint Review meeting marks the conclusion of the Sprint, providing an opportunity to evaluate deliverables and identify areas for refinement or enhancement. Following the Sprint review, the Scrum Master and the team engage in a Sprint Improvement meeting, seeking avenues for optimization before embarking on the subsequent Sprint. This iterative process fosters continuous learning and development with each Sprint iteration.

2.2 Quality Management

In this project, to improve project quality, we use the following method:

- **Defect Prevention:** Defect prevention in software quality management means stopping mistakes before they happen. Teams do this by following strict rules for writing code, checking each other's work carefully, and using special tools to test the software automatically. This way, they catch problems early, make better software, and save time and money in the long run.¹³

- **Reviewing:** Throughout the project development process, the team will regularly review the code to detect errors and anomalies promptly. These assessments ensure our software meets all established requirements.
- **Unit Testing:** Each member is responsible for writing a unit test to ensure correct functionality and operation.
- **Integration Testing:** After completing coding a module, integration testing needs to be performed to ensure the module can operate smoothly from the client side to the server side.
- **System Testing:** After completing writing code for the entire system, all team members need to retest all functions and modules to ensure the system operates stably.

2.3 Training Plan

Table 5- Training Plan

Training Area	Participants	When, Duration	Waiver Criteria
Git desktop, GitHub	Tran Gia Cuong Tran Chi Do Tran Quoc Thai Quach Dang Khoa	Week 1 - 1 day	Mandatory
Next.js	Tran Gia Cuong Tran Chi Do Tran Quoc Thai Quach Dang Khoa	Week 1 – 2 days	Mandatory
Posgress	Tran Gia Cuong Tran Chi Do Tran Quoc Thai Quach Dang Khoa	Week 1 –1 day	Mandatory
Web API	Tran Gia Cuong Tran Chi Do Tran Quoc Thai Quach Dang Khoa	Week 1 - 2 days	Mandatory
AWS	Tran Gia Cuong Tran Chi Do Tran Quoc Thai Quach Dang Khoa	Week 1 –1 day	Mandatory

3. Project Deliverables

Table 6- Project Deliverables

#	Deliverable	Due day	Notes
1	Project Plan Document	05/05/2024	Creating a plan for each specific part.
2	Report 1_Project Introduction	11/05/2024	
3	Report 2_Project management plan	18/05/2024	
4	Report 3_Software Requirement Specification	25/05/2024	
5	Report 4_Software Design Document	01/06/2024	
6	Code Backend	20/06/2024	Code & System test cases
7	Code Frontend	20/07/2024	Code & System test cases
8	Report 5_Test Document	27/07/2024	
9	Report 6_Software User Guides	03/08/2024	
10	Report 7_Final Project Report	09/08/2024	
11	Final Product, Final presentation slide	09/08/2024	

4. Project Organization

4.1 Team & Structures

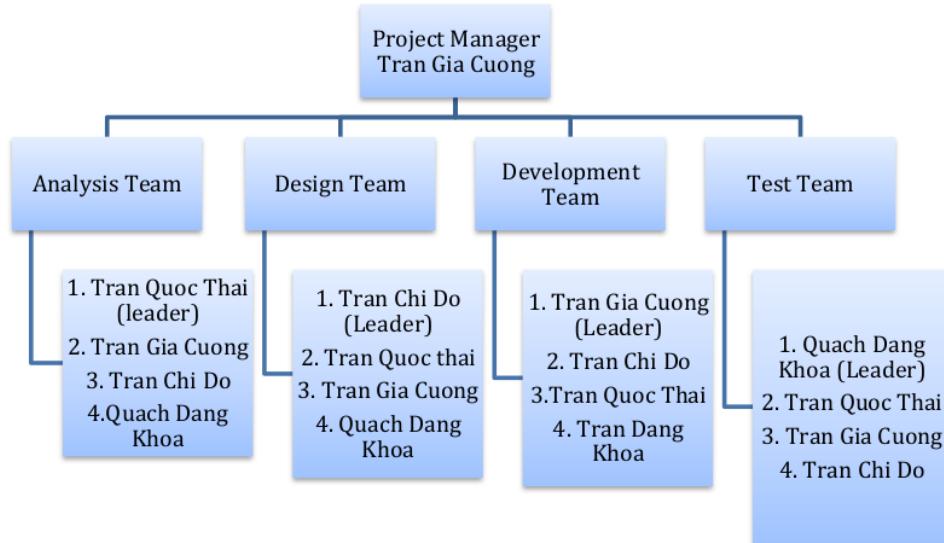


Figure 24- Team & Structures

4.2 Roles & Responsibilities

Table 7 - Roles & Responsibilities

Role	Responsibility
Project Manager	Tran Gia Cuong
Analysis Leader	Tran Quoc Thai
Analysis Member	Tran Gia Cuong, Tran Chi Do, Quach Dang Khoa
Design Leader	Tran Chi Do
Design Member	Tran Gia Cuong, Tran Quoc Thai, Quach Dang Khoa
Development Leader	Tran Gia Cuong
Development Member	Tran Quoc Thai, Tran Chi Do, Quach Dang Khoa
Test Leader	Quach Dang Khoa
Test Member	Tran Gia Cuong, Tran Chi Do, Tran Quoc Thai

5. Project Communications

5.1 Communication Plan

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Table 8- Communication Plan

Communication Item	Who/ Target	Purpose	When, Frequency	Type, Tool, Method(s)
Daily Scrum	Tran Gia Cuong Tran Chi Do Tran Quoc Thai Quach Dang Khoa	- Raise problem - Review source code - Evaluate progress and result	Every day	- Face to face - Google Meet - Zalo
Sprint Review Meetings	Tran Gia Cuong Tran Chi Do Tran Quoc Thai Quach Dang Khoa Mentor	- Review documentation - Demonstrate features - Evaluate progress and result	Every weekend	Offline/ Google Meet

5.2 External Interface

a. FU Contacts

20

Table 9- FU Contacts

Function	Contact Person (Name, position)	Contact address (Email, telephone)	Responsibility
Supervisor	Vo Hoang Tu	TuVH6@fe.edu.vn	<ul style="list-style-type: none"> - Provide document template 2 <ul style="list-style-type: none"> - Give instruction to project team - Review deliverables - Supervise project status

6. Configuration Management

6.1 Document Management



Figure 25—Google Drive

To manage project documents and their changes/versions, we will implement a systematic approach using version control and documentation tools. All project documents, including requirements, design documents, user manuals, and any other relevant materials, will be stored in a centralized repository accessible to the project team. We will utilize Google Drive for collaborative editing and sharing of documents. Each document will have a designated owner responsible for maintaining its accuracy and relevance.

Any changes to documents will follow a formalized process:

- Document owners or authorized personnel will initiate change requests.
- Changes will be reviewed by relevant stakeholders, ensuring alignment with project objectives and requirements.
- Approved changes will be implemented, and document versions will be updated accordingly.
- Previous versions will be archived for reference and version history tracking.

6.2 Source Code Management

For managing project source codes and their changes/versions, we will leverage GitHub as our version control system. GitLab provides robust features for code collaboration, version tracking, and continuous integration/continuous deployment (CI/CD) pipelines. All source code repositories will be hosted on GitHub, allowing developers to collaborate effectively and track changes seamlessly.

The source code management process will include:

- Developers will work on feature branches, ensuring isolation and parallel development.
- Regular code reviews will be conducted to maintain code quality and ensure adherence to coding standards.
- Changes will be merged into the main branch following successful reviews and testing.
- Continuous integration pipelines will automate build, test, and deployment processes, ensuring code stability and reliability.



Figure 26- GitHub

6.3 Tools & Infrastructures

Table 10– Tools & Infrastructures

Category	Tools / Infrastructure
Technology	ReactJS, TailwindCSS, Ant Design (FrontEnd), NextJS, Web, Node JS (BackEnd), AI (Recommendation(Algolia)), AWS Lex, Kommunicate.
Database	Postgres
IDEs/Editors	Visual Studio Code
Diagramming	Diagrams.net
Documentation	MS Office, Google Docs/Sheets/Slides
Version Control	GitHub (Source Codes), Google Drive (Documents)
Deployment server	Vercel
Project management	ProjectLibre (Schedule), GitHub (Tasks, Defects)

III. Software Requirement Specification

1. Product Overview

Electronic store is an e-commerce website, specializing in providing electronic devices, helping customers place online orders quickly and conveniently. Customers can register as members to shop and pay conveniently with VNPay. In addition, the Website also suggests products that users often buy to help customers choose quickly, saving time searching. The website will support users 24/7 with an extremely fast Chatbot chat feature supported by AWS Lex, providing a good experience for customers.

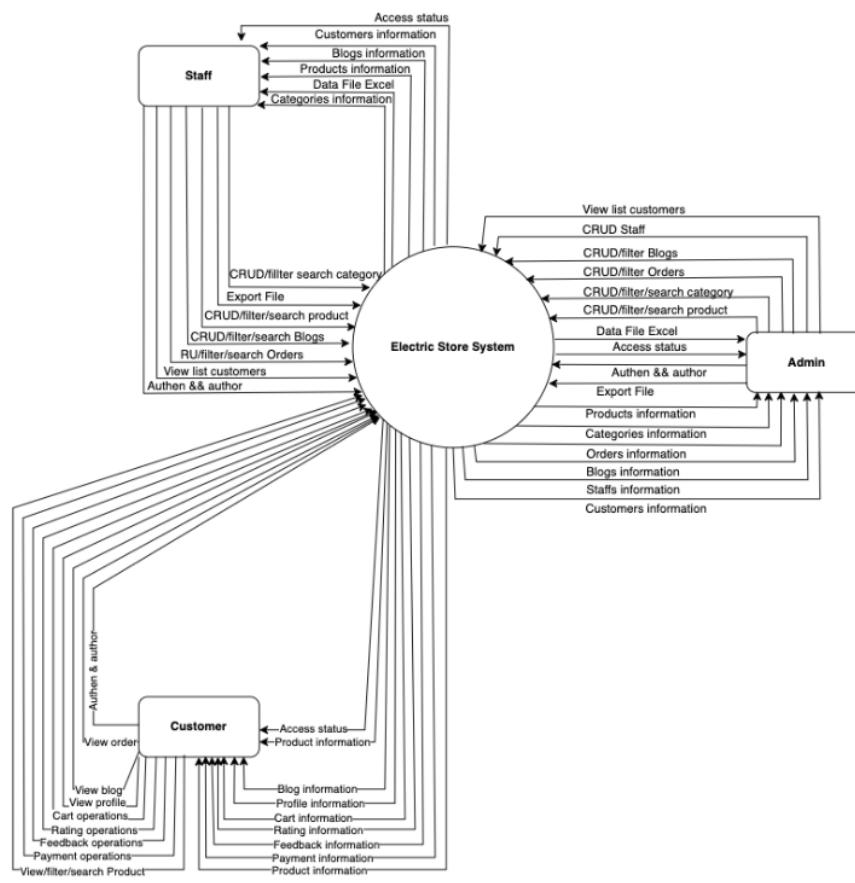


Figure 27- Product Overview

2. User Requirements

2.1 Actors

Table 11- Actors list and description

#	Actor	Description
1	Administrator	The Administrator holds the highest authority and is responsible for overseeing the entire system. Their duties include managing user data, employee accounts, product management, and revenue statistics.
2	Staff	Staff members operate under the authority of the Administrator. Their responsibilities include processing user orders, managing products, handling orders, maintaining blogs, and editing product information.
3	Customer	Customers are buyers who need to register an account to make purchases.
4	Guest	Guests are visitors who can view the prices of available items in the store without registering an account.
5	VNPay	VNPay is a payment service provider that facilitates easier payment processing.
6	AWS Lex	AWS Lex is a chatbot service provider that enhances customer service efficiency by providing quick and convenient responses to customer inquiries.
7	Kommunikate	Kommunikate is another chatbot service provider that helps staff respond to customer inquiries quickly and efficiently.
8	DigitalOcean	DigitalOcean provides scalable virtual machines, known as Droplets, for web hosting and VPS hosting, including managed PostgreSQL databases..

2.2 Use Cases

2.2.1 Diagram(s)

8 Use Case Diagram - Admin:



Figure 28- Use Case Diagram - Admin

Use Case Diagram - Staff:



Figure 29- Use Case Diagram - Staff

Use Case Diagram - Customer:

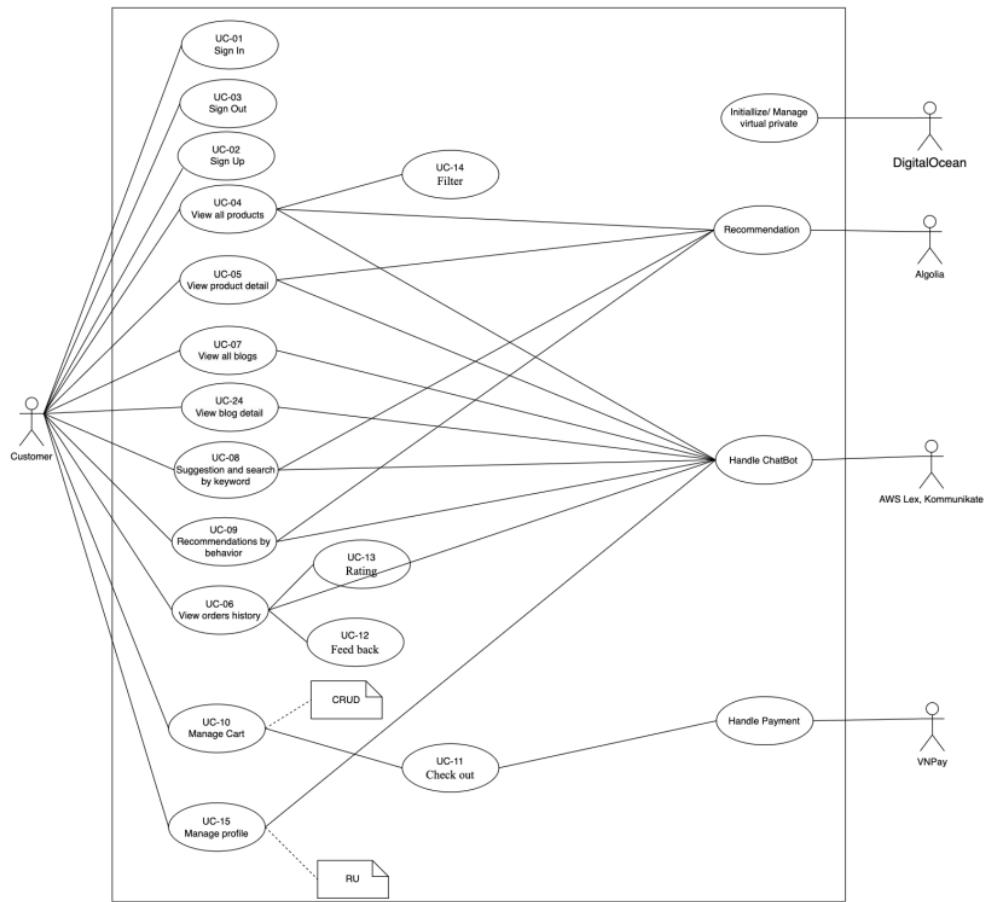


Figure 30- Use Case Diagram - Customer

Use Case Diagram - Guest:

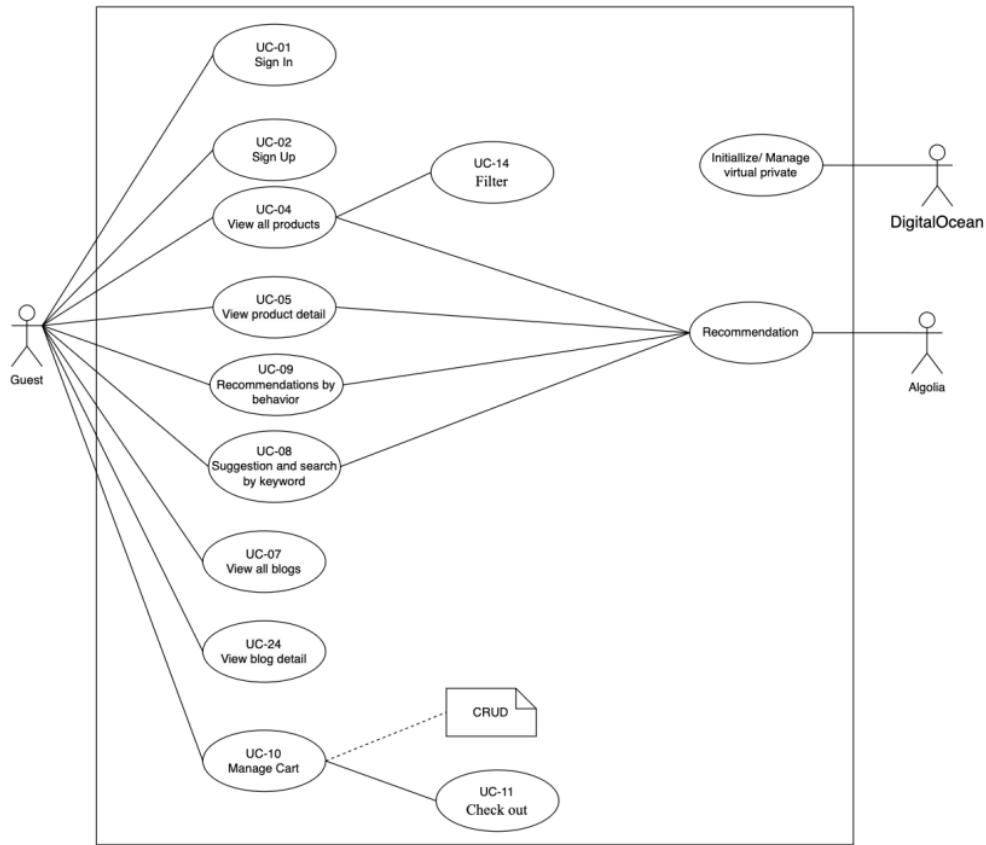


Figure 31- Use Case Diagram - Guest

2.2.2 Descriptions

27

Table 12 – Use Case Description

ID	Use Case	Actors	Use Case Description
UC - 01	Sign in	Guest, Customer, Staff, Admin	This feature allows all users log in to the system to verify their roles and provide them with access to features allowed in the system.

ID	Use Case	Actors	Use Case Description
UC - 02	Sign up	Guest, Customer, Staff	This features allows users register for account
UC - 03	Sign out	Customer, Staff, Admin	After the user has logged in to the system, this features allows user can log out of the system
UC - 04	View all products	Guest, Customer	Allows users to browse all available products.
UC - 05	View product detail	Guest, Customer	Provides detailed information about a specific product.
UC - 06	View orders history	Customer	Displays a list of past orders made by the user.
UC - 07	View all blogs	Guest, Customer	Shows all blog posts available on the platform.
UC - 08	Suggestion and search by keyword	Guest, Customer	Enables users to search for items and get suggestions based on keywords.
UC - 09	Recommendations by behavior	Guest, Customer	Suggests products based on user behavior and preferences.
UC - 10	Manage Cart (CRUD)	Customer	Allows users to create, read, update, and delete items in their cart.
UC - 11	Check out	Customer	Facilitates the process of purchasing items in the cart

ID	Use Case	Actors	Use Case Description
UC - 12	Feedback	Customer	Enables users to provide feedback on products or services.
UC - 13	Rating	Customer	Allows users to rate products.
UC - 14	Filter	Guest, Customer, Staff, Admin	Helps users to filter products based on various criteria.
UC - 15	Manage Profile (RU)	Customer, Staff, Admin	Users can read and update their profile information.
UC - 16	Manage Blogs (CRUD)	Staff, Admin	Allows users to create, read, update, and delete blog posts
UC - 17	Manage Orders (RU)	Staff, Admin	Allows users to read and update order information.
UC - 18	Manage Product (CRUD)	Staff, Admin	Admins can create, read, update, and delete product information.
UC - 19	Manage Staff (CRUD)	Admin	Admins can create, read, update, and delete staff information.
UC - 20	Manage Customer (R)	Admin	Admins can read customer information.
UC - 21	Dashboard Statistics	Staff, Admin	Provides statistical data and insights on platform usage.

ID	Use Case	Actors	Use Case Description
UC - 22	Export File	Staff, Admin	Allows users to export data files.
UC - 23	Manage Category (CRUD)	Staff, Admin	Admins can create, read, update, and delete product categories.
UC - 24	View blog detail	Guest, Customer	Guest and Customer can read blog detail.

2.2.3 Use Case Description

2.2.3.1 Sign in

Table 13—Sign In use case description

ID and Name:	UC - 01 Sign in		
Created By:	Tran Gia Cuong	Date Created:	21/5/2024
Primary Actor:	Guest, Customer, Staff, Admin	Secondary Actors:	
Trigger:	User wants to log in to the system. ³ User clicks the “Sign In” button on the homepage.		
Description:	This feature allows all users log in to the system to verify their roles and provide them with access to features allowed in the system.		
Preconditions:	1. User not login yet. 2. User already has account		
Post-conditions:	Success: Actor will be redirected to Homepage of the system. Failed: System inform “Sign in failed. Check the details you provided are correct.”.		
Normal Flow:	³ 1. User accesses the homepage. 2. Hover user icon on Navigation bar.		

	<p>3. Click on Log In button.</p> <p>4. System open the login page of Google.</p> <p>5. User enters email and password into the input fields on the Google form.</p> <p>6. User clicks Sign in to submit the sign in form</p> <p>7. System ²checks account information. If the account exists in the system, the system will notify "Successful login" and return to the Home page.</p>
Alternative Flows:	Step 5: User choose any Google account available in Google form
Exception:	<p>Step 5: If the input field is empty, invalid Information or in the wrong format, the system will display an error message "Sign in failed. Check the details you provided are correct.".</p> <p>³⁴ Step 7: If the account information does not exist on the system, the system will display an error message "Sign in failed. Check the details you provided are correct.".</p> <p>Step 6: The system cannot authenticate the account The system notifies "Sign in failed. Check the details you provided are correct.".</p>
Priority:	Medium
¹ Frequency of Use:	High
Business Rules:	BR-18
Other Information:	N/A
Assumptions:	Internet connection is available.

Screen:

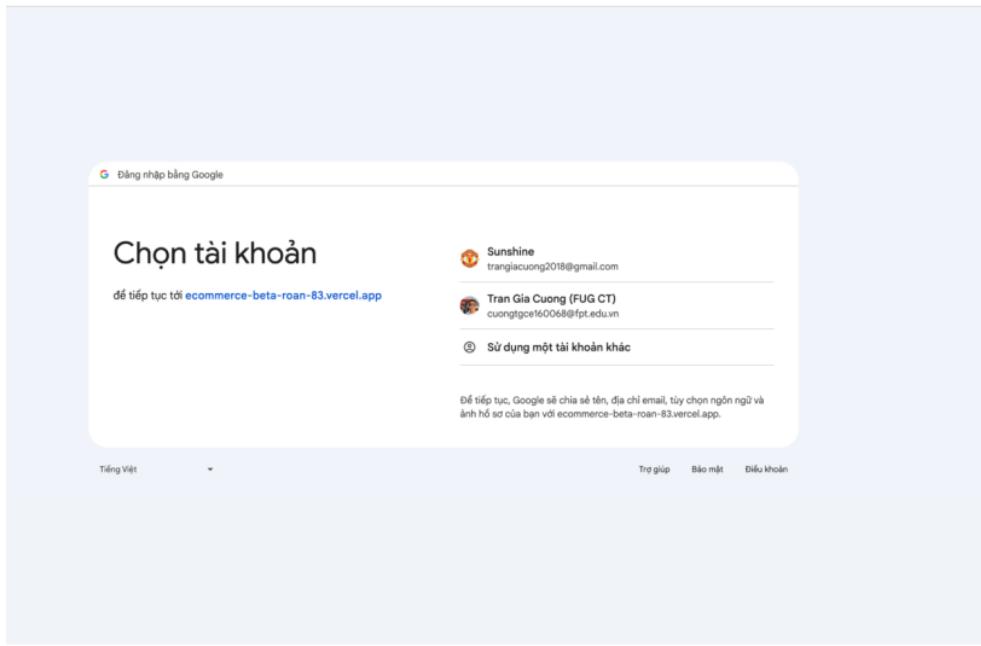


Figure 32 - Sign in

21
2.2.3.2 Sign up

Table 14– Sign up use case description

ID and Name:	UC - 02 Sign up		
Created By:	Tran Gia Cuong	Date Created:	21/5/2024
Primary Actor:	Guest, Customer	Secondary Actors:	N/A
Trigger:	Actor wants to register as a member of the system. User clicks the "Sign Up" button on the homepage		
Description:	This feature allows users to register as members of the system		
Preconditions:	1. User must have access to the sign-up page. 2. User does not have an account. 3. User not login yet		
Post-conditions:	Success: The user's account is created, and they will be redirected to the home page of the system		

	Failed: System inform "Registration failed".
Normal Flow: ³	<ol style="list-style-type: none"> 1. User accesses the homepage. 2. Hover user icon on Navigation bar. 3. Click on Log In button. 4. System open the login page of Google. 5. User enters email and password into the input fields on the Google form. 6. User clicks Sign in to submit the sign in form 7. System checks account information. If the account exists in the system, the system will notify "Successful login" and return to the Home page.
Alternative Flows:	Step 5: User choose any Google account available in Google form
Exception:	<p>Step 5: If the input field is empty, invalid Information or in the wrong format, the system will display an error message "Sign in failed. Check the details you provided are correct.".</p> <p>Step 6: The system cannot authenticate the account The system notifies "Sign in failed. Check the details you provided are correct.".</p> <p>Step 7: If the account information does not exist on the system, the system will display an error message "Sign in failed. Check the details you provided are correct.".</p>
Priority:	Medium
Frequency of Use: ¹	High
Business Rules:	BR-18
Other Information:	N/A
Assumptions:	Internet connection is available.

Screen:

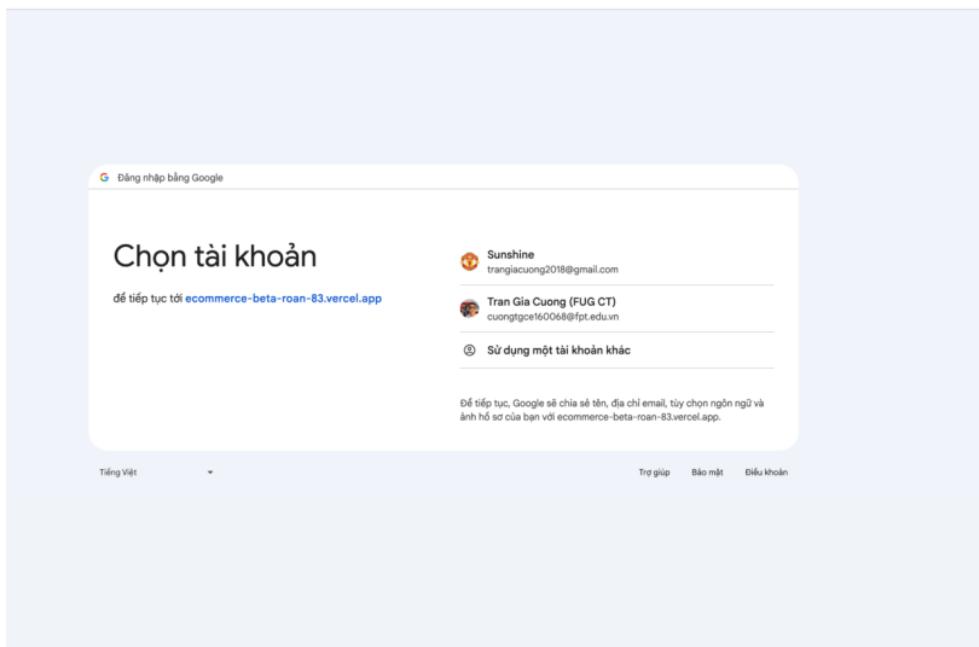


Figure 33 – Sign Up

2.2.3.3 Sign out

Table 15- Sign out use case description

ID and Name:	UC - 03 Sign out		
Created By:	Tran Gia Cuong	Date Created:	21/5/2024
Primary Actor:	Customer, Staff, Admin	Secondary Actors:	
Trigger:	Click on Sign Out button		
Description:	After the user has logged in to the system, this feature allows the user to log out of the system.		
Preconditions:	6. The user must be currently logged in to the system.		
Post-conditions:	Success: 14. The user is logged out of the system. The user is redirected to the system's home page.		

Normal Flow:	<ol style="list-style-type: none"> 1. The user navigates to the sign-out functionality within the system 2. The user hovers over user icon 3. Click on the sign-out option 4. The system processes the sign-out request 5. The user is logged out of the system 6. The system redirects the user to the home page
Alternative Flows:	Step 1: If the user's session has expired due to inactivity, the system may automatically log them out and redirect them to the login page.
Exception:	Step 3. If there is a technical problem during the logout process (e.g. server, database error), the system may display an error message "An error occurred during processing, please try again"
Priority:	Medium
Frequency of Use:	High
Business Rules:	N/A
Other Information:	N/A
Assumptions:	Internet connection is available.

Screen:

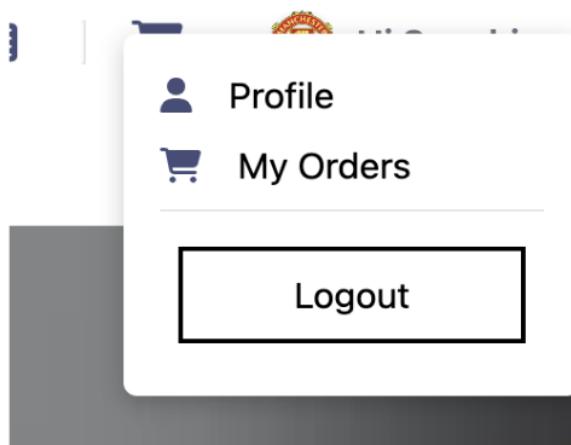


Figure 34 – Sign Out

2.2.3.4. View All Product

Table 16– Show product description

ID and Name:	UC - 04 View All Products		
Created By:	Tran Chi Do	Date Created:	21/5/2024
Primary Actor:	Guest, Customer, Staff, Admin	Secondary Actors:	
Trigger:	Users are navigated to the product section by visiting the home page or through other features.		
Description:	This feature allows users to view the list of products available in the system including: images, prices, product categories.		
Preconditions:	1. The system must be operational and able to retrieve product information from the database. 2. The product must have information in the database.		
Post-conditions:	Success: 1. The system displays a list of products available in the system. 2. The Users can continue to view additional details or adding it to the shopping cart. Failed: 1. The system displays the message "No products to display"		
Normal Flow:	1. The user navigates to the product catalog section within the system. 2. The system retrieves product data from the database. 3. The system displays a list of products, including relevant details such as name, description, and price.		
Alternative Flows:	Step 3: If the user applies additional filters (e.g., category, price range), the system refines the search results accordingly. Step 3: If the system has no products: The system displays the message "No products to display"		
Exception:	Step 2: If there is a technical problem during the logout process (e.g. server, database error), the system may display an error message "An		

	<p>error occurred during processing, please try again"</p> <p>Step 2: The system is down or unreachable: The user will not be able to access the product management interface.</p> <p>Step 3: Insufficient permissions: The user tries to edit a product without the necessary permissions and will be denied access.</p>
2	Priority: High.
	Frequency of Use: Frequency.
	Business Rules: BR - 01, BR - 09, BR - 10.
	Other Information:
	Assumptions: Internet connection is available.

Screen:

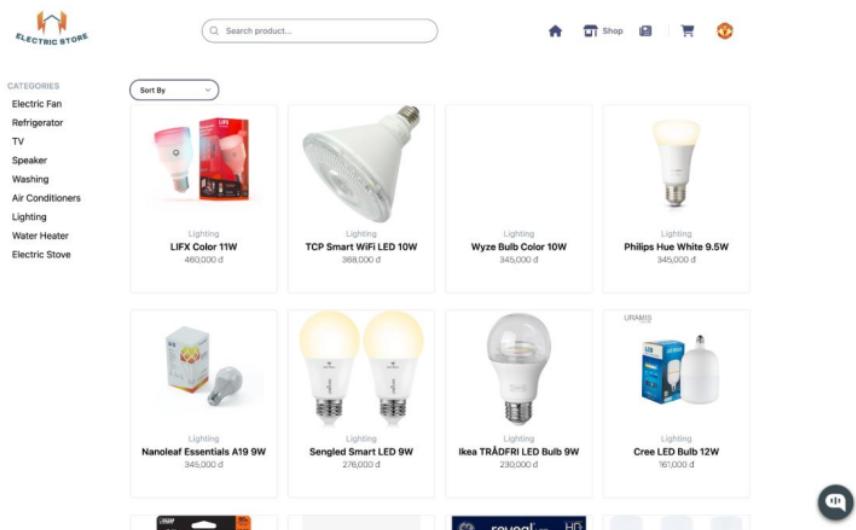


Figure 35 - View All Product

2.2.3.5. View product details

Table 17- Show product details description

ID and Name:	UC - 05 View product details		
Created By:	Tran Chi Do	Date Created:	22/5/2024
Primary Actor:	Guest, Customer, Staff,	Secondary Actors:	
Trigger:	The Users select a product from any page to view detailed information.		
Description:	This use case describes the process of any user (Guest, Customer) who wants to view detailed product information.		
Preconditions:	1. The system must be operational and able to retrieve product information from the database. 2. The product must have information in the database.		
Post-conditions:	Success: 1. The system displays detailed product information that the user selects		
Normal Flow:	1. User selects a specific product from any page on the system or search results. 2. The system retrieves detailed information about the selected product from the database. 3. The system displays detailed product information to users, including: <ul style="list-style-type: none"> ● Product's name ● Description ● Price ● availability ● Image ● Specifications ● Add to cart button 		
Alternative Flows:	N/A		

Exception:	<p>Step 4: If there is a technical problem during the logout process (e.g. server, database error), the system may display an error message "An error occurred during processing, please try again"</p> <p>Step 5: The system is down or unreachable: The user will not be able to access the product management interface</p> <p>Step 5: Insufficient permissions: The user tries to edit a product without the necessary permissions and will be denied access.</p>
Priority:	High
Frequency of Use:	Frequent
Business Rules:	BR - 01, BR - 09, BR - 10, BR - 15
Other Information:	
Assumptions:	Internet connection is available.

Screen:

The screenshot shows a product page for a Feit Electric Filament LED Bulb 8W. At the top, there's a navigation bar with a logo, a search bar, and various links like 'Shop' and 'Cart'. The main image is a product shot of two A15 LED filament bulbs in their packaging, which is black with orange and white text. The packaging indicates it's a 2-pack of 60W equivalent bulbs, Soft White, with a lifespan of up to 15 years, and a brightness of 750 lumens. Below the image is a detailed product description: "Upgrade your lighting to Feit Electric's elegant Exposed White Filament LED Bulbs for a fresh take on vintage bulbs. These first-of-their-kind white filament bulbs take a traditional clear glass A-shape bulb and add lower-profile white filaments. Unlike yellow filaments, these blend into any décor style for a timeless look that complements any room. Their dimmable 2700K Soft White glow is ideal for creating a relaxing and comfortable atmosphere, with no harsh glare. Use these bulbs in any fixture with a medium E26 base for a variety of general-purpose and decorative lighting applications. BPA156092CAWFIL/2 bulbs emit 750 lumens of light while using just 8 watts, up to 86.7% less energy than standard 60-watt incandescent bulbs. A 90+ CRI infuses vibrance into your space, bringing out truer colors and more natural skin tones. Get up to 15,000 hours of life with an estimated energy cost of only \$0.96 per year. Create a stylish feel that instantly enhances both home and commercial spaces." There are also sections for reviews (0), price (161,000đ), quantity selection, and an 'Add to Cart' button.

Similar

- Refrigerator
Hitachi R-WB480PND2
20,990,000đ
- Washing
Aqua 8.8 KG AQW-FR88GT.BK
Washer
4,790,000đ
- Lighting
Sylvania Ultra LED 8W
136,000đ
- Lighting
Feit Electric LED Bulb 8W
127,000đ
- Lighting
GE reveal LED 8W
136,000đ

Figure 36 - View product details

2.2.3.6. View the history of orders

Table 18-View the history of orders description

ID and Name:	UC - 06 View the history of orders		
Created By:	Tran Chi Do	Date Created:	21/5/2024
Primary Actor:	Customer	Secondary Actors:	
Trigger:	The Customer clicks on the "Orders Management" option and selects "Order History" from the menu.		
Description:	This use case describes the process by which a Customer can view the history of their orders in the system.		
Preconditions:	1. The Customer must be logged into the system. 2. The Customer must have placed at least one order in the system.		
Post-conditions:	1. The order history is displayed to the Customer. 2. The Customer can see details of each order, including order date, items ordered, status, and total amount.		
Normal Flow:	1. User Authentication: The customer logs into the system. 2. Navigate to Orders Section: The Customer clicks on the "Orders" option from the main menu. 3. Select Order History: The Customer selects "Order History" from the orders menu. 4. Display Order History: The system retrieves the order history for the Customer and displays it.		
Alternative Flows:	A1: No Orders Found 4a: If the system does not find any orders for the Customer, it displays a message indicating that no orders were found.		
	A2: System Error 2 4a: The system encounters an error while retrieving the order history. 4b: The system displays an error message and suggests retrying.		

	<p>4c: The Customer attempts to view the order history again or contacts technical support if the problem persists.</p>
Exception:	<p>E1: No Orders Found</p> <ol style="list-style-type: none"> 1. The user clicks on the "Orders" link (step 2 of the Normal Flow). 2. The system retrieves the user's order history and finds no past orders. 3. The system displays a message indicating that no orders were found and suggests the user browse products and place an order. 8 4. The user can choose to navigate to other parts of the website.
Priority:	High
Frequency of Use:	Frequent
Business Rules:	
Other Information:	<ul style="list-style-type: none"> • The user interface should be responsive and accessible on various devices (e.g., desktops, tablets, smartphones). • Users should receive notifications for any significant updates related to their orders. • The system should log all activities related to viewing order history for compliance and auditing purposes.
Assumptions:	<ul style="list-style-type: none"> • Users have basic training on how to navigate and use the system interface. • Network connectivity is stable during the process.

Screen:

The screenshot shows a web interface for an e-commerce store named 'ELECTRIC STORE'. At the top, there's a logo, a search bar with placeholder text 'Search product...', and several navigation icons. Below the header, there are three separate order cards, each representing a completed purchase.

- Order #1720578609320:** Purchased 10 units of 'JBL Authentics AUTH500 Bluetooth Speaker' at \$1600000 each. Payment information: Ordered At 2024-07-10T02:30:08.383Z, Paid At 2024-07-10T02:30:08.383Z, Payment method VNPAY, Payment ID 1720578609320. Shipping information: Phone number 0845292981, Address 635 Nguyen Van cu.
- Order #1719986095776:** Purchased 3 units of 'Rezo Play Bluetooth Speaker' at \$675000 each and 4 units of 'Lasko 2551 Wind Curve Tower Fan' at \$2530000 each. Payment information: Ordered At 2024-07-03T05:54:55.565Z, Paid At 2024-07-03T05:54:55.565Z, Payment method VNPAY, Payment ID 1719986095776. Shipping information: Phone number, Address.
- Order #1719818962234:** Purchased 2 units of 'Honeywell HT-900 TurboForce Air Circulator Fan' at \$460000 each. Payment information: Ordered At 2024-07-01T07:29:22.024Z, Paid At 2024-07-01T07:29:22.024Z, Payment method VNPAY, Payment ID 1719818962234. Shipping information: Phone number, Address.

Figure 37 - View the history of orders

2.2.3.7. View all blogs

Table 19– View all blogs description

ID and Name:	UC - 07 View all blogs		
Created By:	Quach Dang khoa	Date Created:	21/5/2024
Primary Actor:	Guest, Customer	Secondary Actors:	
Trigger:	A user initiates the process by navigating to the blog section of the system.		
Description:	This use case describes the process by which any user (Guest, Customer, Staff, Admin) views all blog posts in the system.		

Preconditions:	None. Any user can access the blog section without needing to log in.
Post-conditions:	The user views the list of all blog posts available in the system.
Normal Flow:	<p>1. Access Blog Section: The user navigates to the blog section from the main menu or homepage.</p> <p>2. Retrieve Blog List: The system retrieves the list of all blog posts from the database.</p> <p>3. Display Blog List: The system displays the list of blog posts to the user.</p> <p>4. View Blog Posts: The user can scroll through the list and select any blog post to read in detail.</p>
Alternative Flows:	<p>A1: No Blog Posts Available</p> <p>2a. The system finds that there are no blog posts available</p> <p>2b. The system displays a message indicating that no blog posts are currently available.</p>
Exception:	<ul style="list-style-type: none"> - The system is down or unreachable: The user will not be able to access the product management interface - Insufficient permissions: The user tries to edit a product without the necessary permissions and is denied access.
Priority:	Medium
Frequency of Use:	Frequent
Business Rules:	BR-09, BR-06
Other Information:	<ul style="list-style-type: none"> - The blog section should be easily accessible from the main menu or homepage. - Blog posts should be displayed in a user-friendly format, possibly with filters or categories for easier navigation.
Assumptions:	<p>3</p> <ul style="list-style-type: none"> - Users have access to a device with internet connectivity. - The system has blog posts already created and stored in the database.

Screen:

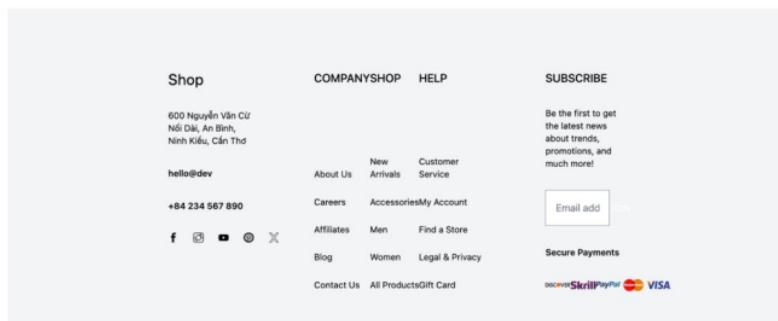
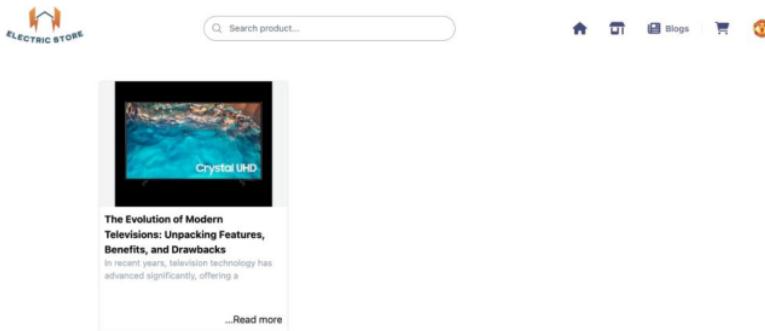


Figure 38 - View all blogs

2.2.3.8. Suggestion and search by keyword

Table 20- Suggestion and search by keyword description

ID and Name:	UC - 08 Suggestion and search by keyword		
Created By:	Tran Gia Cuong	Date Created:	22/5/2024
Primary Actor:	Guest, Customer	Secondary Actors:	
Trigger:	The Users search for products by entering keywords in the search bar.		
Description:	77 The search bar is displayed at the top of the website While searching for products, the search bar will suggest products by keyword according to the product name		
Preconditions:	1. The system must be operational and able to retrieve product		

	<p>information from the database.</p> <p>2. The product must have information in the database.</p>
Post-conditions:	<p>Success:</p> <p>5</p> <ol style="list-style-type: none"> 1. The system displays a list of products based on the keyword the user entered. 2. If no matching products are found, the system informs the user that no results are available.
Normal Flow:	<ol style="list-style-type: none"> 1. The user accesses the search bar. 2. The user enter a keyword or part of a keyword into the search bar. 3. The user submits the search query by clicking the search button. 4. The system processes the search query and retrieves matching products from the database. 5. The system displays a list of products that match the entered keyword, including relevant details such as name, description, and price.
Alternative Flows:	<p>24</p> <p>Step 5: If no matching products are found, the system displays the message "No results"</p>
Exception:	<p>2</p> <p>Step 4: If there is a technical problem during the logout process (e.g. server, database error), the system may display an error message "An error occurred during processing, please try again"</p> <p>Step 5: The system is down or unreachable: The user will not be able to access the product management interface</p> <p>Step 5: Insufficient permissions: The user tries to edit a product without the necessary permissions and will be denied access.</p>
Priority:	1 Medium
Frequency of Use:	Frequent
Business Rules:	BR - 01, BR - 09
Other Information:	Then search for products using keywords. The product will be displayed. In addition, sometimes additional products are displayed that are recommended by keyword

Assumptions:	Internet connection is available.
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Screen:

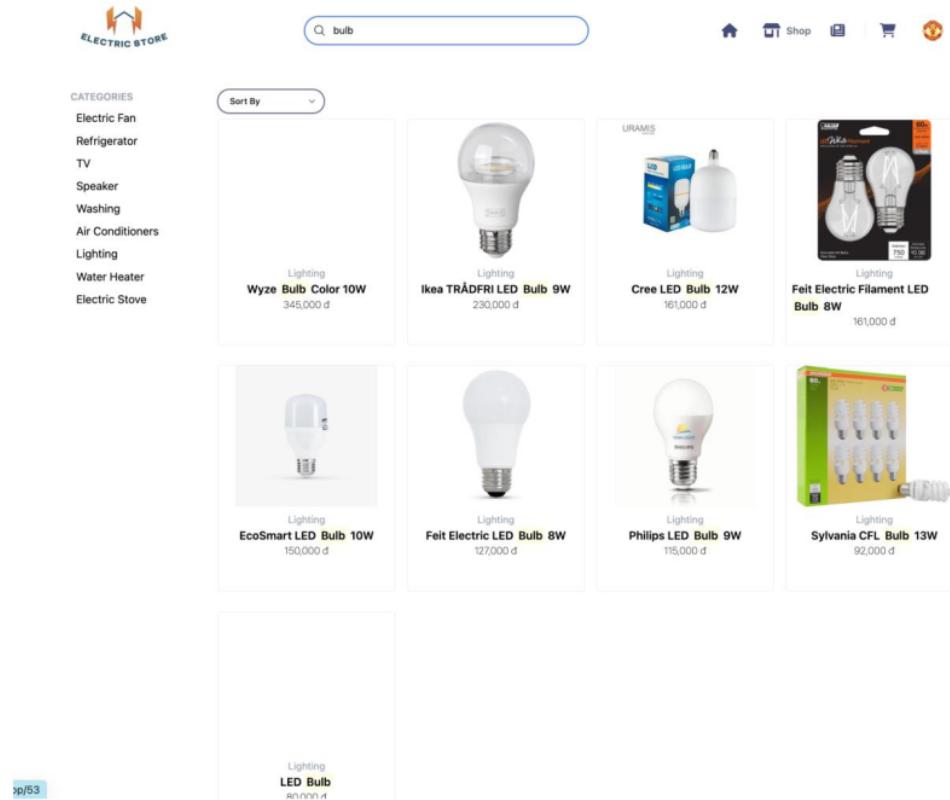


Figure 39 - Suggestion and search by keyword

2.2.3.9. Recommendations for behaviour

Table 21- Recommendations for products description

ID and Name:	UC - 09 Recommendations for behaviour	
Created By:	Tran Gia Cuong	Date Created: 23/5/2024

Primary Actor:	Guest, Customer, Staff, Admin	Secondary Actors:	
Trigger:	Users visit product pages, search for products, or view product recommendations based on their personalised preferences.		
18 Description:	This use case describes the process by which the system suggests products to users based on their behaviour, preferences, and shopping history.		
Preconditions:	1. The user must be interacting with the system (logged in or as a guest). 2. The system must have access to user behaviour data and preferences.		
Post-conditions:	Success: The system displays a list of products based on user preferences.		
Normal Flow:	1. The user visits the product page, performs a search, or accesses the recommendations section. 2. The system collects relevant data such as user behaviour, preferences, and shopping history. 3. The system processes the collected data using AI Algolia or similar algorithms. 4. The system recommends products based on user preferences. 5. The user can interact with the recommended products (e.g., view details, add to cart).		

Alternative Flows:	<p>E1: Insufficient Data</p> <p>2a. The system finds insufficient data to generate personalised recommendations.</p> <p>2b. The system uses generic popular products or category-based recommendations instead.</p> <p>E2: System Error</p> <p>3a. The system encounters an error while processing data or generating recommendations.</p> <p>3b. The system displays an error message and suggests retrying or provides default recommendations.</p>
Exception:	<ul style="list-style-type: none"> - The system is down or unreachable: Users will not receive any recommendations. - Insufficient permissions: Users without the necessary permissions may receive limited or no recommendations.
Priority:	High
Frequency of Use:	Very Frequent
Business Rules:	BR-01, BR-10
Other Information:	<ul style="list-style-type: none"> - Recommendations should be updated in real-time as the user's behaviour and preferences evolve. - The system should support filtering and refining recommendations based on user feedback. - Ensure that the recommendation algorithms respect user privacy and data security guidelines.
Assumptions:	<ul style="list-style-type: none"> - Users are actively engaging with the platform, providing sufficient data for meaningful recommendations. - The recommendation engine is properly integrated with the user data and product catalogue. - Internet connection is available.

Screen:

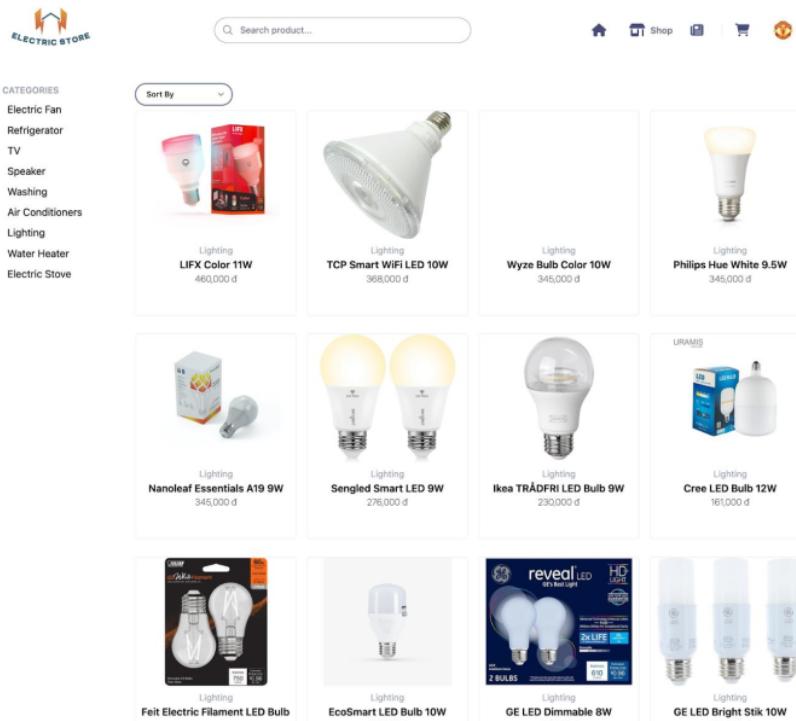


Figure 40 - Recommendations for behaviour

2.2.3.10. Manage cart

Table 22- Manage cart description

ID and Name:	UC - 10 Manage cart		
Created By:	Tran Chi Do	Date Created:	23/5/2024
Primary Actor:	Customer	Secondary Actors:	
Trigger:	A user selects the option to view their cart from any page within the system.		
Description:	This use case describes the process by which users view the contents of their shopping cart.		

Preconditions:	<p>1. The user must be interacting with the system (logged in or as a guest).</p> <p>2. The system is online and functioning correctly</p>
Post-conditions:	Success: The user views the current contents of their shopping cart, including item details and total price.
Normal Flow:	<p>UC10 - 01 Add to cart</p> <ol style="list-style-type: none"> 1. The user navigates to the product details page or product listing. 2. The user selects the product they wish to add to the cart. <small>23</small> 3. The user specifies the quantity of the product (default is 1). <small>23</small> 4. The user clicks the "Add to Cart" button. 5. The system validates the input and updates the cart contents in the database or session storage. <small>68</small> 6. The system provides feedback to the user indicating that the product has been successfully added to the cart, and displays the updated cart contents. <p>UC10 - 02 Edit cart</p> <ol style="list-style-type: none"> 1. The user navigates to the cart page and selects the option to edit the cart. <small>9</small> 2. The system displays the current cart contents, including item names, quantities, and prices. 3. The user modifies item quantities or removes items as needed. <small>8</small> 4. The user confirms the changes to update the cart. 5. The system validates the changes and updates the cart contents in the database or session storage. <small>82</small> 6. The system provides feedback to the user indicating that the cart has been successfully updated, and displays the updated cart contents. <p>UC10 - 03 Remove Product from Cart</p>

	<ol style="list-style-type: none"> 1. The user selects a product to remove from the cart. 2. The system updates the cart contents by removing the selected product. 3. The system displays the updated cart contents, including item names, quantities, prices, and total cost. <p>UC10 - 04 View cart information</p> <ol style="list-style-type: none"> 1. The user selects the cart icon or "View Cart" option. 2. The system retrieves the cart contents from the database or session storage. 3. The system displays the cart contents, including item names, quantities, prices, and total cost. 4. The user can review the cart items, update quantities, remove items, or proceed to checkout.
Alternative Flows:	<p>UC10 - 01 View cart information</p> <p>AF1: Empty Cart</p> <ol style="list-style-type: none"> 2a. The system finds that the cart is empty. 2b. The system displays a message indicating the cart is empty and suggests browsing products. <p>AF2: System Error</p> <ol style="list-style-type: none"> 3a. The system encounters an error while retrieving cart data. 3b. The system displays an error message and suggests retrying. <p>UC10 - 02 Edit cart</p> <p>AF1: Invalid Quantity Entry</p> <ol style="list-style-type: none"> 3a. The user enters an invalid quantity (e.g., non-numeric value, negative

	<p>number).</p> <p>3b. The system highlights the invalid field and displays an error message.</p> <p>3c. The user corrects the quantity and proceeds to update the cart.</p> <p>AF2: System Error</p> <p>2</p> <p>5a. The system encounters an error while updating the cart.</p> <p>5b. The system displays an error message and suggests retrying.</p> <p>5c. The user attempts to update the cart again or contacts technical support if the problem persists.</p> <p>UC10 - 03 Add to cart</p> <p>AF1: Invalid Quantity Entry</p> <p>3a. The user enters an invalid quantity (e.g., non-numeric value, negative number).</p> <p>3b. The system highlights the invalid field and displays an error message.</p> <p>3c. The user corrects the quantity and proceeds to add the product to the cart.</p> <p>AF2: System Error</p> <p>2</p> <p>5a. The system encounters an error while updating the cart.</p> <p>5b. The system displays an error message and suggests retrying.</p> <p>5c. The user attempts to add the product again or contacts technical support if the problem persists.</p>
Exception:	<ul style="list-style-type: none"> - The system is down or unreachable: Users will not be able to view their cart. - Insufficient permissions: Guests may have limited functionality compared to registered users.
Priority:	1 High
Frequency of Use:	Very Frequent
Business Rules:	BR-11

Other Information:	<ul style="list-style-type: none"> - The cart interface should be user-friendly and provide real-time updates on changes to item quantities or prices. - Cart information should persist across sessions for logged-in users. - Ensure cart data integrity and consistency, especially during high traffic.
Assumptions:	<p style="text-align: right;">13</p> <ul style="list-style-type: none"> - Users understand how to add items to the cart and navigate to the cart page. - The system can reliably retrieve and display cart data in real-time. - Internet connection is available. - Maintain cart data integrity and consistency, especially during high traffic.

Screen:

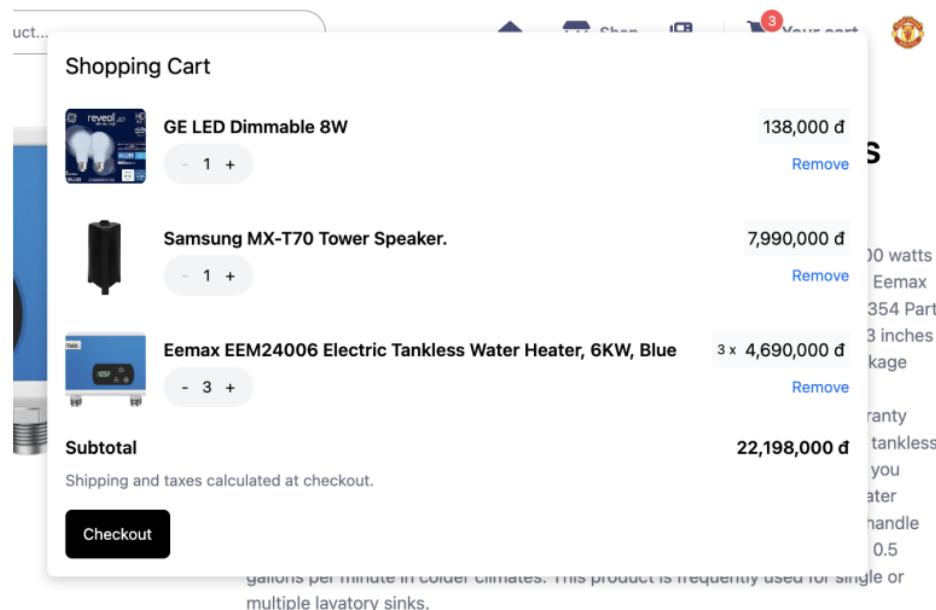


Figure 41 - Manage cart

2.2.3.11. Checkout

Table 23- Continue Shopping or Proceed to checkout description

ID and Name:	UC - 11 Checkout		
Created By:	Tran Chi Do	Date Created:	21/5/2024
Primary Actor:	Customer	Secondary Actors:	
Trigger:	The cart has products, the user selects the checkout option from within the cart.		
Description:	Checkout allows customers to make a payment after adding products to their cart. Once customers have finished selecting products and adding them to their cart, they can choose the checkout option to start the payment process. At this step, the system will display various payment options, including VNPay.		

Preconditions:	<p style="text-align: right;">45</p> <ol style="list-style-type: none"> 1. Login information: The customer must be logged into their account or provide the necessary information for guest checkout. 2. Shipping address: The customer must provide a valid shipping address. 3. Cart is not empty: The customer must have at least one product in the cart. 4. Payment information: The customer must enter the necessary payment information (card number, expiration date, CVV, etc.). 5. Inventory check: The system must confirm that all products in the cart are still in stock to complete the order.
Post-conditions:	<p>Success:</p> <ol style="list-style-type: none"> 1. The order is successfully placed and recorded in the system 2. The user receives an order confirmation with the details of the purchase
Normal Flow:	<ol style="list-style-type: none"> 1. Customer logs in: The customer must log in to their account to continue shopping. 2. Customer adds products to the cart: After logging in, the customer selects the desired products and adds them to the cart from the product details page ¹⁷. 3. Customer accesses the cart: The customer clicks on the cart icon to view the added products. ¹⁷ 4. Customer selects the Checkout option: The customer clicks on the "Checkout" button to start the checkout process. 5. Enter shipping address: The customer provides a valid shipping address. ²⁹ 6. Select payment method: The customer chooses a payment method (e.g., credit card, VNPay, e-wallet, bank transfer). ²⁹ 7. Enter payment information: The user enters the necessary payment information (card number, expiration date, CVV, etc.). ²⁹ 8. Order placed successfully: The order is successfully placed and recorded in the system.

Alternative Flows:	<p>AF1: Customer is not logged in</p> <ol style="list-style-type: none"> 1. Customer accesses the product details page: The customer tries to add a product to the cart. 8 2. System prompts login: The system prompts the customer to log in or create an account. 32 3. Customer logs in or creates an account: The customer logs in to their existing account or creates a new account. 4. Customer adds products to the cart: After logging in or creating an account, the customer selects the desired products and adds them to the cart. 5. Continue with the normal flow: The customer continues with the normal flow from step <p>AF2: Shipping address is invalid</p> <ol style="list-style-type: none"> 1. Customer enters an invalid shipping address: The customer provides an address that the system cannot verify or that does not meet shipping criteria. 56 2. System prompts for a valid address: The system notifies the customer that the address is invalid and requests a new address. 3. Customer enters a valid shipping address: The customer provides a valid shipping address. 4. Continue with the normal flow: The customer continues with the normal flow from step 5. <p>AF3: Payment method is declined</p> <ol style="list-style-type: none"> 1. Customer selects a payment method: The customer chooses a payment method and enters the necessary information. 2. Payment is declined: The system attempts to process the payment, but it is declined (e.g., insufficient funds, incorrect information). 3. System prompts for a new payment method: The system notifies the customer that the payment was declined and requests a new payment method. 60 4. Customer selects a different payment method: The customer chooses a different payment method and enters the necessary information. 5. Continue with the normal flow: The customer continues with the normal flow from step
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Exception:	<p>E1: System error during login</p> <ul style="list-style-type: none"> 6. Customer attempts to log in: The customer enters their login information and clicks the login button. 7. System error occurs: The system encounters an error and cannot process the login request. 8. System displays error message: The system notifies the customer of the error and requests them to try again later. 9. Customer retries or contacts support: The customer can retry logging in later or contact customer support for assistance. <p>E2: System error when adding product to cart</p> <div style="display: flex; justify-content: space-between; align-items: center;"> 81 36 </div> <ul style="list-style-type: none"> 1. Customer attempts to add product to cart: The customer selects a product and clicks the "Add to Cart" button. 2. System error occurs: The system encounters an error and cannot add the product to the cart. 3. System displays error message: The system notifies the customer of the error and requests them to try again later. 4. Customer retries or selects another product: The customer can retry adding the product later or select another product. <p>E3: System error during payment processing</p> <ul style="list-style-type: none"> 1. Customer enters payment information and confirms order: The customer enters the necessary payment information and clicks the "Confirm Order" button. 2. System error occurs: The system encounters an error and cannot process the payment. 3. System displays error message: The system notifies the customer of the error and requests them to try again later. 4. Customer retries or selects a different payment method: The customer can retry the payment later or select a different payment method. <p>E4: Network connection error</p> <ul style="list-style-type: none"> 1. Customer performs any action: The customer is performing any action during the checkout process (logging in, adding products to the cart, entering shipping information, making a payment). 2. Network connection error occurs: The customer's network connection is interrupted or lost. 3. System displays error message: The system notifies the customer of the network connection error and requests them to
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	<p>check their connection.</p> <p>4. Customer checks network connection: The customer checks and restores their network connection, then retries the action.</p> <p>E5: Session timeout</p> <ol style="list-style-type: none"> Customer performs any action after a long period of inactivity: The customer has not performed any action for an extended period, causing their session to expire. System displays session timeout message: The system notifies the customer that their session has expired and requests them to log in again. Customer logs in again: The customer logs back into their account to continue the checkout process.
2	Priority: High
	Frequency of Use: Frequent
	Business Rules: -
	Other Information: N/A
	Assumptions: - Internet connection is available.

Screen:

The screenshot shows a checkout page for an e-commerce store. At the top, there's a logo for "ELECTRIC STORE" and a search bar. Below the search bar are fields for "Full name" (Sunshine), "Email address" (trangiacuong2018@gmail.com), "Phone number" (empty), and "Shipping address" (empty). To the right, there's an "Order summary (3)" section showing the details of three items: GE LED Dimmable 8W (138,000đ), Samsung MX-T70 Tower Speaker (7,990,000đ), and Eemax EEM24006 Electric Tankless Water Heater, 6kW, Blue (3 x 4,690,000đ). The total amount is 22,198,000đ. At the bottom, there are payment method options: "VNPay" and "Pay".

Figure 42 - Checkout

2.3.12. Feedback

Table 24- Feedback

ID and Name:	UC - 12 Feedback		
Created By:	Tran Chi Do	Date Created:	21/5/2024
Primary Actor:	Customer	Secondary Actors:	
Trigger:	The user completes a successful payment, and the order appears in "My Orders". A pop-up appears allowing the user to provide ratings and feedback.		
Description:	This use case describes the process where a customer provides feedback for their order after completing a purchase. The feedback option appears in "My Orders" only if the customer has successfully paid for their order.		

	When the customer clicks on feedback, a pop-up window appears allowing them to rate and provide feedback.
10 Preconditions:	<ol style="list-style-type: none"> The customer must be logged into the system. The customer must have successfully completed payment and have orders listed in "My Orders". The system is online and functioning correctly.
Post-conditions:	<p>Success: The user submits feedback for their order, which is stored in the system for review.</p> <p>Failure: The user encounters an error while submitting feedback and is informed to try again.</p>
Normal Flow:	<ol style="list-style-type: none"> The customer navigates to "My Orders" after completing a purchase. The system displays the customer's previous orders. The customer selects the order they wish to provide feedback for. The system retrieves order details from the database. The system displays order details, including the feedback option if the order has been successfully paid for. The customer selects the option to provide feedback for their order. The system displays a pop-up window with a feedback form. The customer fills out the feedback form, providing ratings and comments as necessary. The customer submits the feedback form. The system verifies the feedback input. The system stores the feedback in the database. The system confirms to the customer that their feedback has been successfully submitted.
Alternative Flows:	<p>AF1: Order Not Found</p> <ol style="list-style-type: none"> The customer navigates to "My Orders" after successfully logging in. The system finds that the customer has no orders listed in "My Orders". The system displays a message informing the customer that

	<p>there are no orders available to provide feedback for.</p> <p>AF2: System Error</p> <ol style="list-style-type: none"> 1. During the navigation to "My Orders" or selection of an order: 2. The system encounters an error while retrieving order details or verifying payment status. 3. The system displays an error message and suggests that the customer retry the action later. <p>AF3: Unpaid Order</p> <ol style="list-style-type: none"> 1. The customer navigates to "My Orders" after successfully logging in. 2. The system displays the customer's previous orders. 3. The customer selects a specific order they wish to provide feedback for. 4. The system verifies that the selected order has not been successfully paid for. 5. If the order has not been paid for, the system does not display the option to provide feedback. 6. The system informs the customer that only paid orders can be reviewed and suggests they complete the payment process.
Exception:	<ul style="list-style-type: none"> • The system is down or inaccessible: The customer will be unable to view their orders or provide feedback. • Insufficient permissions: Only registered customers who have successfully paid for their order can provide feedback.
Priority:	Medium
Frequency of Use:	Occasional (Post-purchase activity)
Business Rules:	
Other Information:	<ul style="list-style-type: none"> • The feedback interface should be user-friendly and allow customers to easily rate and provide comments. • Feedback should be timestamped and linked to the corresponding order. • Ensure data integrity and consistency of feedback, especially during periods of high traffic.
Assumptions:	<ul style="list-style-type: none"> • Customers understand how to navigate to "My Orders" and select an order for feedback.

- | | |
|--|--|
| | <ul style="list-style-type: none"> The system can reliably retrieve and display order data in real-time. Internet connection is available. |
|--|--|

Screen:

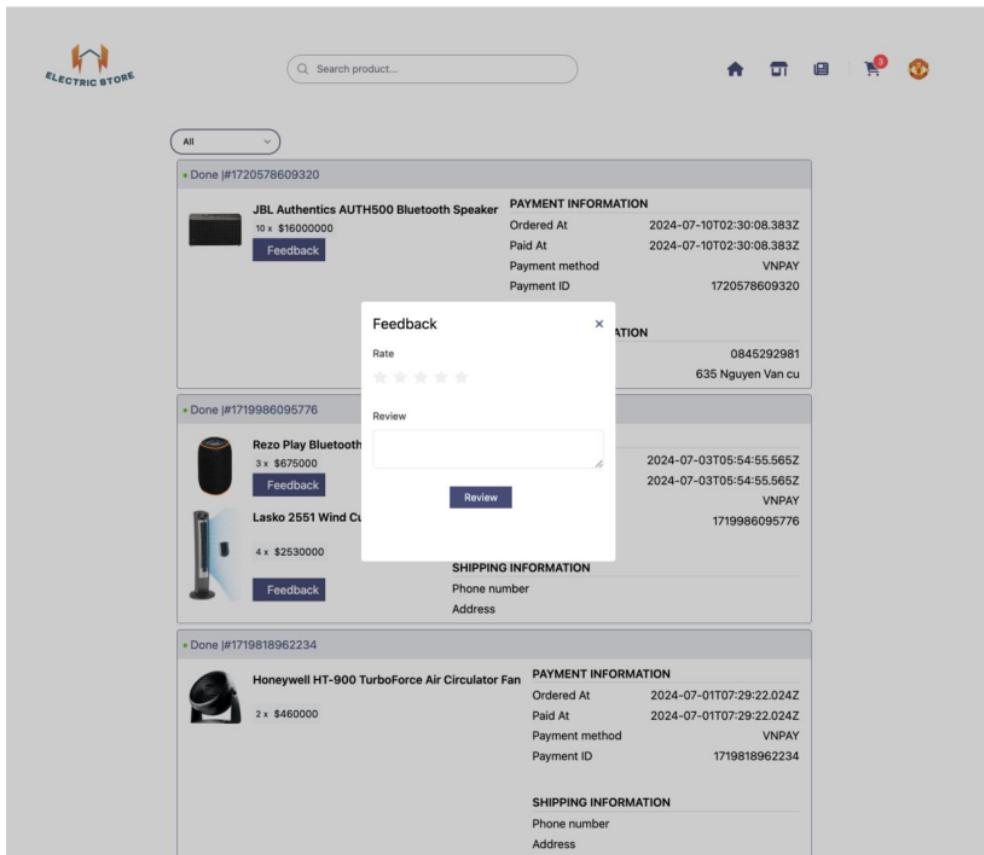


Figure 43 - Feedback

2.2.3.13. Rating

Table 25 - Ratings

ID and Name:	UC - 13 Rating		
Created By:	Tran Chi Do	Date Created:	21/5/2024
Primary Actor:	Customer	Secondary Actors:	
Trigger:	The customer accesses "My Orders" and selects the rating option after successfully logging in and completing a purchase.		
3 Description:	This use case describes the process where a customer rates their order after completing a purchase. The rating option appears in "My Orders" only if the customer has successfully paid for their order. When the customer clicks on the rating option, a pop-up window appears allowing them to rate the order.		
10 Preconditions:	<ol style="list-style-type: none"> 1. The customer must be logged into the system. 2. The customer must have successfully completed payment and have orders listed in "My Orders". 3. The system is online and functioning correctly. 		
Post-conditions:	<p>Success:</p> <ol style="list-style-type: none"> 1. Customer rating is successfully stored in the system. 2. The customer receives confirmation that their rating has been successfully submitted. <p>Failure:</p> <ol style="list-style-type: none"> 1. The system encounters an error and the rating is not stored. 2. The customer receives a message indicating that their rating could not be submitted and to try again later. 		
Normal Flow:	<ol style="list-style-type: none"> 1. The customer navigates to "My Orders" after completing a purchase. 2. The system displays the customer's previous orders. 3. The customer selects the order they wish to rate. 4. The system retrieves order details from the database. 5. The system displays order details, including the rating option if the order has been successfully paid for. 6. The customer selects the option to rate their order. 7. The system displays a pop-up window with a rating form. 8. The customer fills out the rating form, providing their rating. 		

	<p>9. The customer submits the rating form.</p> <p>10. The system verifies the rating input.</p> <p>11. The system stores the rating in the database.</p> <p>12. The system confirms to the customer that their rating has been successfully submitted.</p>
Alternative Flows:	<p>AF1: Order Not Found</p> <p>2a. The system finds that the customer has no orders listed in "My Orders".</p> <p>2b. The system displays a message indicating that there are no orders to rate.</p> <p>AF2: System Error</p> <p>4a. The system encounters an error while retrieving order details.</p> <p>4b. The system displays an error message and suggests retrying.</p> <p>AF3: Unpaid Order</p> <p>5a. The system detects that the order has not been paid for. 5b. The system does not display the rating option and informs the customer that only paid orders can be rated.</p>
Exception:	<ul style="list-style-type: none"> The system is down or inaccessible: The customer will be unable to view their orders or provide a rating. Insufficient permissions: Only registered customers who have successfully paid for their order can provide a rating.
Priority:	Medium
Frequency of Use:	Occasional (Post-purchase activity)
Business Rules:	-

Other Information:	<ul style="list-style-type: none"> The rating interface should be user-friendly and allow customers to easily provide their rating. Ratings should be timestamped and linked to the corresponding order. Ensure data integrity and consistency of ratings, especially during periods of high traffic.
Assumptions:	<ul style="list-style-type: none"> Customers understand how to navigate to "My Orders" and select an order for rating. The system can reliably retrieve and display order data in real-time. Internet connection is available.

Screen:

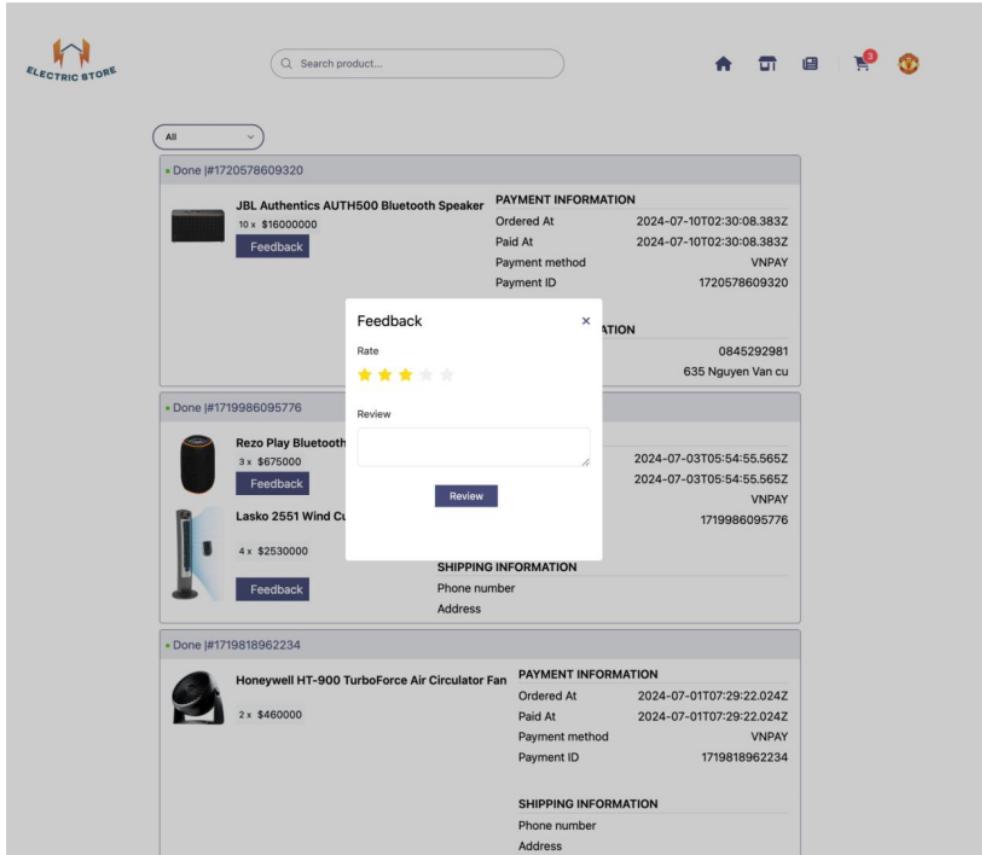


Figure 44 - Rating

2.2.3.14. Filter

Table 26– Filter description

ID and Name:	UC - 14 Filter		
Created By:	Quach Dang Khoa	Date Created:	24/5/2024
Primary Actor:	Guest, Customer, Staff, Admin	Secondary Actors:	
Trigger:	User accesses the filter feature in the system.		
Description:	Users (Guest, Customer, Staff, Admin) can filter and search for specific information.		
Preconditions:	N/A		
Post-conditions:	Filtered information is displayed based on user criteria.		
Normal Flow:	<p>Select Filter Option</p> <ol style="list-style-type: none"> 1. User selects the option to apply filters. 2. Options may include criteria such as date range, category, price range, etc. <p>Apply Filters</p> <ol style="list-style-type: none"> 1. User specifies filter criteria (e.g., select a date range, choose a category). 2. System applies the selected filters to the data set. <p>View Filtered Results</p> <ol style="list-style-type: none"> 1. System displays the filtered results based on the applied criteria. 2. Results are presented in a list or grid format, depending on the context. <p>Refine Filters</p> <ol style="list-style-type: none"> 1. User can refine or adjust the applied filters if needed. 2. System updates the displayed results dynamically as filters are refined. 		

1	
Alternative Flows:	N/A
Exception:	N/A
Priority:	Medium
Frequency of Use:	High (depending on the system and its functionalities)
Business Rules:	BR-02
Other Information:	N/A
Assumptions:	<p>The system provides adequate user interface elements for selecting and applying filters.</p> <p>Users understand how to use the filter feature effectively based on provided instructions or UI hints.</p>

Screen:

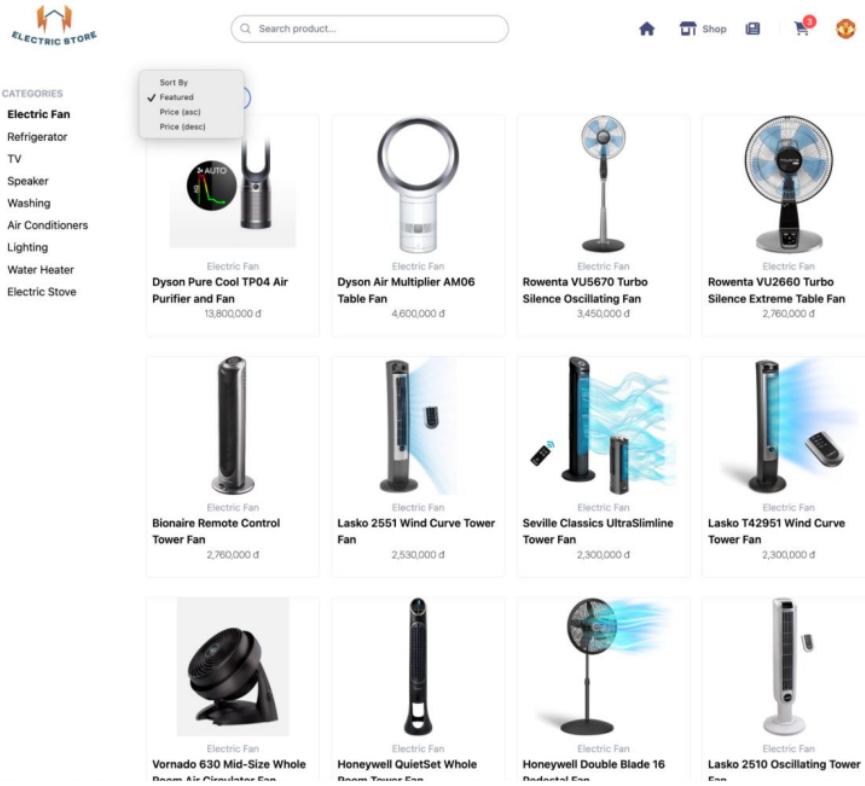


Figure 45 - Filter

2.2.3.15. Manage Profile

Table 27- Manage Profile description

ID and Name:	UC - 15 Manage Profile		
Created By:	Tran Quoc Thai	Date Created:	21/5/2024
Primary Actor:	Staff, Admin	Secondary Actors:	
Trigger:	Staff or Admin initiates the process by selecting the manage profile option from the navigation bar.		

Description:	<p>25 This use case describes the process by which a user can view and update their profile information.</p>
Preconditions:	<ul style="list-style-type: none"> ● The user must be logged into the system. ● The user must have access to the profile management interface. ● Only viewing and updating profile actions are allowed.
Post-conditions:	<p>The system displays the updated profile information.</p>
Normal Flow:	<p>UC-15-01: Manage Profile (Customer view profile)</p> <ol style="list-style-type: none"> 1. Customer Authentication: Customer logs into the system. 2. Navigate to Manage Profile: Customer navigates to the "Profile" section via the navigation bar. 3. View Profile: The system displays the current profile information of the Customer: <ul style="list-style-type: none"> ● Customer's full name ● Customer's Email <p>UC-15-02: Manage Profile (Admin/Staff view profile)</p> <ol style="list-style-type: none"> 1. Admin or Staff Authentication: Staff or Admin logs into the system. 2. Navigate to Manage Profile: Staff or Admin navigates to the "Profile" section via the navigation bar. 3. View Profile: The system displays the current profile information of the Staff or Admin: <ul style="list-style-type: none"> ● Admin/Staff's full name ● Admin/Staff's Email ● Admin/Staff's password ● Admin/Staff's confirm password(using for update) <p>UC-15-03: Manage Profile (Admin/Staff update profile)</p> <ol style="list-style-type: none"> 1. Select Update Profile: Staff or Admin selects the option to update the profile information. 2. Enter confirm password: Staff or Admin enters the necessary confirm password 3. Save Changes: Staff or Admin clicks the "Save" button to save the updated information.

Alternative Flows:	<p>A1: Staff or Admin Not Authenticated</p> <p>2a. The system detects that the Staff or Admin is not logged in. 2b. The system redirects the Staff or Admin to the login page. 2c. The Staff or Admin provides login credentials. 2d. The system authenticates the Staff or Admin. 2e. The system redirects the Staff or Admin to the "Manage Profile" section.</p> <p>A2: Invalid Data During Update</p> <p>3a. The Staff or Admin enters invalid data while updating the profile. 3b. The system detects the invalid data. 3c. The system displays an error message and prompts the Staff or Admin to enter valid data. 3d. The Staff or Admin re-enters correct and valid information.</p>
Exception:	<p>E1: The system is down or unreachable:</p> <ul style="list-style-type: none"> Staff or Admin will not be able to access the manage profile interface. The system should display an appropriate error message to Staff or Admin. <p>E2: Insufficient permissions:</p> <ul style="list-style-type: none"> Staff or Admin attempts to manage the profile without the necessary permissions and is denied access. The system displays a message indicating insufficient permissions.
1 Priority:	High
Frequency of Use:	Frequent
Business Rules:	

Other Information:	<ul style="list-style-type: none"> The user interface should be responsive and accessible on various devices. Only Staff or Admin with appropriate permissions can manage their profiles.
Assumptions:	Network connectivity is stable during the profile management process.

Screen:

ID	Full name	email	Created at	Updated at
1	Admin	admin	12:45:18 14-06-2024	08:57:36 22-06-2024
4	staff1	staff1@gmail.com	16:18:13 01-07-2024	16:18:13 01-07-2024
5	Tony Teo	staff2@gmail.com		13:51:38 09-07-2024
10	STAFF	staff@gmail.com		10:35:33 12-07-2024

Figure 46 - Manage Profile

2.2.3.16. Manage Blogs

Table 28– Manage Blogs description

ID and Name:	UC - 16 Manage Blogs		
Created By:	Quach Dang Khoa	Date Created:	21/5/2024
Primary Actor:	Staff, Admin	Secondary Actors:	
Trigger:	User clicks the blog management link in the sidebar		

Description:	Users (Staff or Admin) manage and edit blog posts.
Preconditions:	User is already logged in.
Post-conditions:	<ul style="list-style-type: none"> The system displays the updated blog information. The system reflects the changes made to the blog posts (creation, update, or deletion).
Normal Flow:	<p>UC-16-01: View List of Blog Posts</p> <ol style="list-style-type: none"> Staff or Admin Authentication: Staff or Admin logs into the system. Navigate to Manage Products: Staff or Admin navigates to the "Blogs management" section via the navigation bar. View blogs: The system displays a list of blog. <p>UC-16-02: Create Blog Post</p> <ol style="list-style-type: none"> Select Create Blogs: Staff or Admin selects the option to create a new blog. Enter Product Information: Staff or Admin enters the necessary blog information. Create Blogs: Staff or Admin clicks the "Create" button to save the new blogs. <p>UC-16-03: Update Blog Post</p> <ol style="list-style-type: none"> Select Blog to Update: Staff or Admin selects an existing blog to update. Update Blogs Information: Staff or Admin updates the necessary blog information. Save Changes: Staff or Admin clicks the "Update" button to save the changes. <p>UC-16-04: Delete Blog Post</p> <ol style="list-style-type: none"> Select Blog to Delete: Staff or Admin selects an existing blog to delete. Confirm Deletion: Staff or Admin confirms the deletion.
Alternative Flows:	<p>A1: User Not Authenticated</p> <ol style="list-style-type: none"> The system detects that the user is not logged in. The system redirects the user to the login page.

	<p>1c. The user provides login credentials. 14 1d. The system authenticates the user.</p> <p>1e. The system redirects the user to the blog management section.</p> <p>A2: Invalid Data During Blog Post Creation/Update</p> <p>2a. The user enters invalid data while creating or updating a blog post.</p> <p>2b. The system detects the invalid data. 3 2c. The system displays an error message and prompts the user to enter valid data.</p> <p>2d. The user re-enters correct and valid information.</p>
Exception:	<p>E1: The system is down or unreachable:</p> <ul style="list-style-type: none"> Users will not be able to access the blog management interface. The system should display an appropriate error message to users. <p>E2: Insufficient permissions:</p> <ul style="list-style-type: none"> Users attempt to manage the blogs without the necessary permissions and are denied access. The system displays a message indicating insufficient permissions.
1 Priority:	Medium
Frequency of Use:	Low
Business Rules:	BR-04, BR-06, BR-09
Other Information:	<ul style="list-style-type: none"> Only users with appropriate permissions can manage blog posts.
Assumptions:	<ul style="list-style-type: none"> Network connectivity is stable during the blog management

	<p>process.</p> <ul style="list-style-type: none"> • Users have the required permissions to manage blog posts.
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Screen:

Figure 47 - Manage Blogs

2.2.3.17. Manage Order

Table 29 - Manage order description

ID and Name:	UC - 17 Manage Order		
Created By:	Tran Quoc Thai	Date Created:	21/5/2024
Primary Actor:	Staff, Admin	Secondary Actors:	
Trigger:	The Staff or Admin selects the "Orders Management" option and chooses a specific order to view detailed information.		
Description:	This use case describes the process by which a user can view detailed information about a specific order they have placed.		
Preconditions:	<p>● The Staff or Admin must be logged into the system.</p>		
Post-conditions:	<p>Success:</p> <ul style="list-style-type: none"> ● Customer information is successfully managed (viewed, updated, or deleted). 		

	<ul style="list-style-type: none"> The system reflects the changes made to the customer information. <p>Failure:</p> <ul style="list-style-type: none"> If there are errors or issues during the process (e.g., invalid data, insufficient permissions, system errors), appropriate error messages are displayed. No changes are made to the customer information if the process fails.
Normal Flow:	<p>UC-17-01: Manage Order (View order list)</p> <ol style="list-style-type: none"> Staff or Admin Authentication: Staff or Admin logs into the system. Navigate to Manage Orders: The Staff or Admin navigates to the "Manage Orders" section via the navigation bar. View Orders: The system displays a list of orders. <p>UC-17-02: Manage Order (View order details)</p> <ol style="list-style-type: none"> Staff or Admin Authentication: Staff or Admin logs into the system. Navigate to Manage Orders: The Staff or Admin navigates to the "Manage Orders" section via the navigation bar. View order details: The system displays order details. <p>UC-17-03: Manage Order (Update order status)</p> <ol style="list-style-type: none"> Staff or Admin Authentication: Staff or Admin logs into the system. Navigate to Manage Orders: The Staff or Admin navigates to the "Manage Orders" section via the navigation bar. Click "Mark as Shipped"

Alternative Flows:	<p>AF1: Staff or Admin Not Authenticated</p> <p>1a. Staff or Admin Not Logged In: The system redirects the Staff or Admin to the login page.</p> <p>1b. Provide Login Credentials: The Staff or Admin provides login credentials.</p> <p>1c. Redirect to Manage Orders: The system authenticates the Staff or Admin and redirects them to the "Manage Orders" section.</p>
Exception:	<p>E1: The system is down or unreachable:</p> <ul style="list-style-type: none"> • The Staff or Admin will not be able to access the manage orders interface. • The system should display an appropriate error message to the Staff or Admin. <p>E2: Insufficient permissions:</p> <ul style="list-style-type: none"> • The Staff or Admin attempts to manage orders without the necessary permissions and is denied access. • The system displays a message indicating insufficient permissions.
Priority:	High
Frequency of Use:	Frequent
Business Rules:	BR-18, BR-12, BR-13, BR-14, BR-15, BR-22
Other Information:	<ul style="list-style-type: none"> • The user interface should be responsive and accessible on various devices (e.g., desktops, tablets, smartphones). • The system should use secure protocols to protect order information during transmission. • Only Staff or Admin with appropriate permissions can manage orders. • There should be a help or support option available in case users encounter issues while managing orders.

Assumptions:	<ul style="list-style-type: none"> • Staff and Admin have basic training on how to navigate and use the system interface. • Network connectivity is stable during the order management process.
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Screen:

Payment ID	Payment Method	Status	Total	Created at
17205904314859	vnpay	Paid	31,200,000 ₫	12:47:15 10-07-2024
1720590147258	vnpay	Paid	10,800,000 ₫	12:42:28 10-07-2024
1720578609320	vnpay	Done	160,000,000 ₫	09:30:08 10-07-2024
1720577465678	vnpay	Done	42,800,000 ₫	09:10:23 10-07-2024
1720577380496	vnpay	Done	2,760,000 ₫	09:09:30 10-07-2024
1720496773579	vnpay	Done	13,800,000 ₫	10:46:12 09-07-2024
1720496534112	vnpay	Paid	5,750,000 ₫	10:42:13 09-07-2024
1720423068326	vnpay	Paid	16,900,000 ₫	14:28:05 08-07-2024
1720423090029	vnpay	Done	2,300,000 ₫	14:18:09 08-07-2024
1720420568371	vnpay	Paid	2,760,000 ₫	13:35:57 08-07-2024

Figure 48 - Manage Order

2.2.3.18. Manage Product

Table 30- Manage Product description

ID and Name:	UC - 18 Manage Product		
Created By:	Tran Quoc Thai	Date Created:	21/5/2024
Primary Actor:	Staff, Admin	Secondary Actors:	
Trigger:	Staff or Admin initiates the process by selecting the manage products option from the navigation bar.		
Description:	This use case describes the process by which a user can filter orders management based on a specified date range.		
Preconditions:	1. The user must be logged into the system.		

	<p>2. The user must have access to the order management interface.</p>
Post-conditions:	The system displays a filtered list of orders based on the specified date range.
Normal Flow:	<p>UC-18-01: Manage Product(View)</p> <ol style="list-style-type: none"> 1. Staff or Admin Authentication: Staff or Admin logs into the system. 2. Navigate to Manage Products: Staff or Admin navigates to the "Management Products" section via the navigation bar. 3. View Products: The system displays a list of products. <p>UC-18-02: Manage Product(Update)</p> <ol style="list-style-type: none"> 1. Select Product to Update: Staff or Admin selects an existing product to update. 2. Update Product Information: Staff or Admin updates the necessary product information. 3. Save Changes: Staff or Admin clicks the "Add" button to save the changes. 4. Confirm Update: The system updates the product information in the database and confirms the changes. <p>UC-18-03: Manage Product>Delete)</p> <ol style="list-style-type: none"> 1. Select Product to Delete: Staff or Admin selects an existing product to delete. 2. Confirm Deletion: Staff or Admin confirms the deletion. 3. Delete Product: The system deletes the product from the database and confirms the deletion. <p>UC-18-04: Manage Product>Add new product)</p> <ol style="list-style-type: none"> 1. Select Create Product: Staff or Admin selects the option to create a new product.

	<ol style="list-style-type: none"> 2. Enter Product Information: Staff or Admin enters the necessary product information (e.g., name, description, price, category). 3. Save Product: Staff or Admin clicks the "Create" button to save the new product. 4. Confirm Creation: The system saves the product information in the database and confirms the creation.
Alternative Flows:	<p>AF1: Staff or Admin Not Authenticated</p> <ol style="list-style-type: none"> 1. Staff or Admin is not logged in: The system redirects Staff or Admin to the login page. 2. Staff or Admin provides login credentials: The system authenticates Staff or Admin. 3. Staff or Admin is redirected to the "Management Products" section. <p>AF2: Invalid Data During Create or Update</p> <ol style="list-style-type: none"> 1. Staff or Admin enters invalid data while creating or updating a product: <p>The system detects the invalid data.</p> <p style="color: #808000;">70</p> 2. The system displays an error message: <p>The system prompts Staff or Admin to enter valid data.</p> <ol style="list-style-type: none"> 3. Staff or Admin re-enters valid information: <p>Staff or Admin re-enters correct and valid information.</p>
Exception:	<p>EF1: The system is down or unreachable:</p> <ul style="list-style-type: none"> • Staff or Admin will not be able to access the manage products interface. • The system should display an appropriate error message to Staff or Admin. <p>EF2: Insufficient permissions:</p>

	<ul style="list-style-type: none"> • Staff or Admin attempts to manage products without the necessary permissions and is denied access. • The system displays a message indicating insufficient permissions.
1 Priority:	High
Frequency of Use:	Frequent
Business Rules:	
Other Information:	<ul style="list-style-type: none"> • The user interface should be responsive and accessible on various devices (e.g., desktops, tablets, smartphones). • The system should use secure protocols to protect product information during transmission. • Only Staff or Admin with appropriate permissions can manage products. • There should be a help or support option available in case users encounter issues while managing products.
Assumptions:	<ul style="list-style-type: none"> • Staff and Admin have basic training on how to navigate and use the system interface. • Network connectivity is stable during the product management process.

Screen:

The screenshot shows the Admin portal's Product management section. On the left, there is a sidebar with links: Admin dashboard, Staff management (selected), Product management (selected), Category management, Order management, Customer management, and Blog management. The main area has a header with 'Admin > Products' and buttons for '+ New product' and 'Sync'. A table lists ten products:

Name	Quantity	Price	Categories
Panasonic Inverter 550L	20	24,990,000 ₫	Refrigerator
Google TV Sony 4K 55 inch KD-55X75K	10	13,890,000 ₫	TV
Smart TV NanoCell LG 4K 55 inch 55NANO76SQA	10	11,390,000 ₫	TV
Beko GN1416220CK	18	22,800,000 ₫	Refrigerator
Smart TV QLED Samsung 4K 65 inch QA65Q60BAKXXV	16	14,990,000 ₫	TV
Google TV TCL LED 4K 65 inch 65P638	10	10,490,000 ₫	TV
Smart TV Samsung Crystal UHD 4K 43 Inch UA43AU7022KXXV	10	7,900,000 ₫	TV
Smart TV LG 4K 65 inch 65UR9500PSB	10	15,390,000 ₫	TV
Panasonic NR-D507KV	7	17,990,000 ₫	Refrigerator
Whirlpool FP 263D	12	14,990,000 ₫	Refrigerator

Figure 49 - Manage Product

2.2.3.19. Manage Staffs

Table 31 – Manage Staffs description

ID and Name:	UC - 19 Manage Staffs		
Created By:	Quach Dang Khoa	Date Created:	23/5/2024
Primary Actor:	Admin	Secondary Actors:	
Trigger:	Admin accesses staff management features in the system.		
Description:	Admin can manage staff information.		
31 Preconditions:	Admin is logged into the system.		
Post-conditions:	Staff information is successfully managed.		
Normal Flow:	<p>UC-19-01: View List of Staff</p> <ol style="list-style-type: none"> 4. Staff or Admin Authentication: Staff or Admin logs into the system. 5. Navigate to Manage Staff: Staff or Admin navigates to the "Staff management" section via the navigation bar. 6. View Staff: The system displays a list of Staff. <p>UC-19-02: Create Staff</p> <p style="text-align: center;">3</p> <ol style="list-style-type: none"> 4. Select Create Staff: Staff or Admin selects the option to create a new Staff. 5. Enter Product Information: Staff or Admin enters the necessary staff information. 6. Create Staff: Staff or Admin clicks the "Create" button to save the new staff. <p>UC-19-03: Update Staff</p> <ol style="list-style-type: none"> 4. Select Staff to Update: Staff or Admin selects an existing staff to update. 5. Update Staff Information: Staff or Admin updates the necessary staff information. 6. Save Changes: Staff or Admin clicks the "Update" button to save the changes. 		

	UC-19-04: Delete Staff <ol style="list-style-type: none"> 3. Select Blog to Delete: Staff or Admin selects an existing staff to delete. 4. Confirm Deletion: Staff or Admin confirms the deletion.
Alternative Flows:	A1: Admin Not Authenticated <ol style="list-style-type: none"> 1. Admin Not Logged In: The system redirects the Admin to the login page. 2. Provide Login Credentials: The Admin provides login credentials. 3. Redirect to Manage Staff: The system authenticates the Admin and redirects them to the "Management Staff" section.
Exception:	E1: The system is down or unreachable <ul style="list-style-type: none"> • The Admin will not be able to access the manage staff interface.
Priority:	1 Medium
Frequency of Use:	Frequent
Business Rules:	BR-02, BR-08
Other Information:	N/A
Assumptions:	Admin has the necessary permissions to manage staff information. The system is available and functioning correctly. Staff information is stored securely and is accessible for viewing and updating by authorised personnel.

Screen:

Admin portal		Admin > Staffs				
		Staffs				
		+ New staff				
ID	Full name	email	Created at	Updated at		
1	Admin	admin	12:45:18 14-06-2024	08:57:36 22-06-2024		
6	staff1	staff1@gmail.com	16:18:13 01-07-2024	16:18:13 01-07-2024		
5	Tony Teo	staff2@gmail.com	19:41:22 03-07-2024	13:51:38 09-07-2024		
10	STAFF	staff@gmail.com	16:35:53 12-07-2024	16:35:53 12-07-2024		

*Figure 50 - Manage Staffs***2.2.3.20. Manage Customers***Table 32– Manage Customers description*

ID and Name:	UC - 20 Manage Customers		
Created By:	Quach Dang Khoa	Date Created:	23/5/2024
Primary Actor:	Admin	Secondary Actors:	
Trigger:	Admin accesses the customer management feature in the system.		
Description:	Admin can manage customer information.		
31 Preconditions:	Admin is logged into the system.		
Post-conditions:	Customer information is successfully managed.		
Normal Flow:	<ol style="list-style-type: none"> 1. Admin Authentication: Admin logs into the system. 2. Navigate to Manage Customers: Admin navigates to the "Customer management" section via the navigation bar. 3. View Customers: The system displays a list of customers, showing details such as name, contact information, and recent activity. 		

Alternative Flows:	<p>A1: Admin Not Authenticated</p> <p>1a. Admin Not Logged In: The system redirects the Admin to the login page.</p> <p>1b. Provide Login Credentials: The Admin provides login credentials.</p> <p>1c. Redirect to Manage Customers: The system authenticates the Admin and redirects them to the "Manage Customers" section.</p>
Exception:	<p>E1: The system is down or unreachable:</p> <ul style="list-style-type: none"> The Admin will not be able to access the manage customers interface.
Priority:	Medium
Frequency of Use:	Medium
Business Rules:	BR-02, BR-15,
Other Information:	N/A
Assumptions:	<p>Admin has the necessary permissions to manage customer information.</p> <p>The system is available and functioning correctly.</p> <p>Customer information is stored securely and is accessible for viewing and updating by authorised personnel.</p>

Screen:					
Admin portal					
User management					
ID	Full name	Email	Created at	Actions	⋮
ctbdnua48000011apied7269	Xà Đô TV	tranchida1x2018@gmail.com	12:29:58 15-06-2024	⋮	⋮
ctbyv080000u4t8frz7hi	Quang tran	tranquoccong216@gmail.com	13:16:10 17-06-2024	⋮	⋮
ctfrmrg0002d8sverBqj3	Tran Quoc Thai (FUG CT)	thanspa1605@fpt.edu.vn	16:18:39 17-06-2024	⋮	⋮
ctkmsgh0000lnsuuy4y3o	Béng Khoa Quach	quachdengkhoa@gmail.com	16:25:28 17-06-2024	⋮	⋮
ctkwmgm0000lgeozt9y7v	Tran Chi Do (FUG CT)	dstrce160549@fpt.edu.vn	17:52:46 17-06-2024	⋮	⋮
ctkyy4e0000lqgt1b8y1gl	Benis	benni.ph@gmail.com	13:08:59 22-06-2024	⋮	⋮
ctk7ead000003bvgnmnd	Sunshine	tranquoccong2018@gmail.com	23:32:42 24-06-2024	⋮	⋮
ctyGeekrg00221jpcjdltmxop	Kendle	kendle.ph@gmail.com	12:29:31 03-07-2024	⋮	⋮
ctyRnTV00000uafqz4Neen	Tran Gia Cuong (FUG CT)	cuongtrng160008@fpt.edu.vn	00:43:22 06-07-2024	⋮	⋮
ctyKrcqg0000ld3warch0f5	Quach Dang Khoa (FUG CT)	khoadecke160561@fpt.edu.vn	16:31:03 06-07-2024	⋮	⋮

Figure 51 - Manage Customers

2.2.3.21. Dashboard Statistics

Table 33– Dashboard Statistics description

ID and Name:	UC - 21 Dashboard Statistics		
Created By:	Tran Quoc Thai	Date Created:	23/5/2024
Primary Actor:	Staff, Admin	Secondary Actors:	
Trigger:	The admin navigates to the dashboard page within the admin section of the e-commerce platform.		
Description:	The dashboard asynchronously fetches statistical data from the server using the API function. This includes statistics for new users, orders, products, and revenue. The dashboard displays several cards, each dedicated to a specific statistic.		
Preconditions:	<ul style="list-style-type: none"> - The actor must be logged in with an admin role. - The admin dashboard is accessible. 		

Post-conditions:	<ul style="list-style-type: none"> - The admin has an overview of the platform's key performance indicators (KPIs) directly from the dashboard. - The admin can make informed decisions based on the displayed statistics.
6 Normal Flow:	<ol style="list-style-type: none"> 1. The admin navigates to the dashboard page within the admin section of the e-commerce platform. 2. The dashboard asynchronously fetches statistical data from the server using the API function. This includes statistics for new users, orders, products, and revenue. 3. The dashboard displays several cards, each dedicated to a specific statistic: <ul style="list-style-type: none"> - New User Card: Shows the number of new users today and the total number of users. - Order Card: (Details not provided, but assumed to show order statistics such as total orders and new orders for the day.) - Product Card: (Details not provided, but assumed to show product statistics such as total products and newly added products.) - Revenue Chart: (Details not provided, but assumed to display revenue over time in a graphical format.) - Product Ranking: (Details not provided, but assumed to rank products based on criteria such as sales or views.) - User Ranking: (Details not provided, but assumed to rank users based on criteria such as purchase volume or activity.)
Alternative Flows:	None
Exception:	If the data cannot be fetched, the dashboard displays a loading indicator or an error message, depending on the nature of the failure.
Priority:	Medium
Frequency of Use:	Potentially high, as admins and staff may frequently check the dashboard for updates on the platform's performance.

66	Business Rules:	- BR-01, BR-02, BR-03, BR-04, BR-10, BR-11
	Other Information:	N/A
	Assumptions:	N/A

Screen:

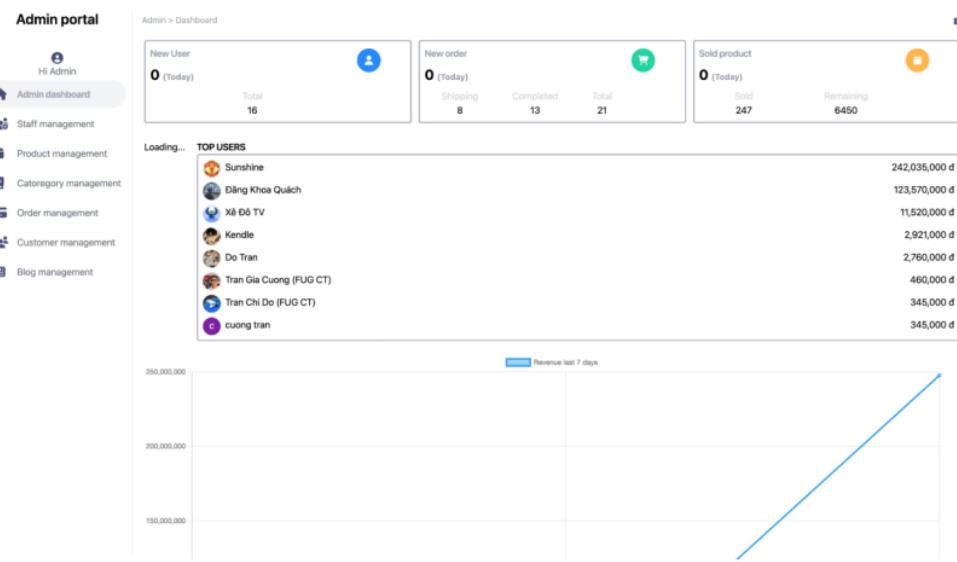


Figure 52 - Dashboard Statistics

2.2.3.22. Export File

Table 34– Export File description

ID and Name:	UC - 22 Export File		
Created By:	Tran Quoc Thai	Date Created:	23/5/2024
Primary Actor:	Staff, Admin	Secondary Actors:	
Trigger:	The user initiates the export by selecting the "Export Revenue Report" option from the website's reporting interface.		
Description:	This use case describes the process by which a user exports a revenue report to an Excel file. The report includes detailed revenue data for a specified period, which the user can further analyse or share with stakeholders.		
Preconditions:	<ul style="list-style-type: none"> The user is logged into the application with appropriate permissions to access and export revenue reports. Revenue data for the selected period is available in the system. The system is capable of generating and exporting Excel files. 		
Post-conditions:	<p>Success:</p> <ol style="list-style-type: none"> The user receives an Excel file containing the requested revenue report. The file is correctly formatted and contains all relevant data for the specified period. The user is notified of the export completion, and the file is either downloaded to their local system or made available via a download link. 		
Normal Flow:	<ol style="list-style-type: none"> The user logs into the website. The user click "Order management" The user selects the desired period and any other relevant filters for the revenue report. The user clicks on the "Export" button. The system processes the request and generates the revenue report. The system formats the report data into an Excel file. The system either prompts the user to download the file or provides a download link. 		

	8. The user is notified that the export is complete, and the Excel file is available.
Alternative Flows:	N/A
Exception:	E1: User Not Authenticated The user is not logged in or lacks the necessary permissions. E3: No Data Available There is no revenue data for the selected period.
Priority: 49	High
Frequency of Use:	Frequent
Business Rules:	N/A
Other Information:	N/A
Assumptions:	Network connectivity is stable during the information retrieval process.

Screen:

The screenshot shows the Admin portal's Order management screen. At the top, there are navigation links for Admin portal, Admin dashboard, Staff management, and Product management. Below these, a date range selector shows 2024-06-04 to 2024-07-25, and an 'Export' button. The main area displays a table of orders with the following columns: Payment ID, Payment Method, Status, Total, and Created at. One row is highlighted with a blue background. A modal window titled 'export-1720885299.csv' is open, showing the raw data in CSV format. The CSV file contains the same columns as the table, with each row representing an order. The modal also includes download options for 'Open with WPS Office', 'CSV', 'XLSX', and 'PDF'.

Payment ID	Payment Method	Status	Total	Created at
1720590435859	vnpay	Paid	31,200,000 ₫	12:47:15 10-07-2024
1720577385496	Vornado 600 Large Whole Room Air Circulator Fan	2780000	2780000 ₫	09:10:00 10-07-2024
1720497735797	Vornado 600 Large Whole Room Air Circulator Fan	2780000	2780000 ₫	09:10:00 10-07-2024
172049631112	LIFX Color 11W	460000	2300000 ₫	10:46:00 09-07-2024
172049631112	Wyze Bulb Color 10W	345000	345000 ₫	10:42:00 09-07-2024
172049368336	LIFX Color 11W	460000	2300000 ₫	14:28:00 09-07-2024
1720423988336	Beach PV0331RILE 3-Zone Built-In Induction Cooktop	1200000	11300000 ₫	14:28:00 09-07-2024
1720423990299	LIFX Color 11W	460000	2300000 ₫	14:18:00 09-07-2024
1720423553371	Vornado 600 Large Whole Room Air Circulator Fan	2780000	2780000 ₫	13:35:00 09-07-2024
172041948451	Cree LED Bulb 12W	161000	161000 ₫	13:18:00 09-07-2024
1720204994265	LIFX Color 11W	460000	2300000 ₫	10:46:00 09-07-2024
1720204992487	Wyze Bulb Color 10W	345000	345000 ₫	10:40:00 09-07-2024
1720199505798	New Ray Bluetooth Speaker	679000	320000 ₫	13:54:00 09-07-2024
172018922214	Lasko 2550 Oscillating Desk Fan	250000	250000 ₫	14:29:00 09-07-2024
172018922214	Inventor HT-800 TurboForce Air Circulator Fan	460000	200000 ₫	14:29:00 09-07-2024
17201895175	Rowenta U20160 Turbo Silence Extreme Table Fan	2740000	300000 ₫	08:07:25 09-07-2024
17201895175	Braun K 10 MG21440051 Mixer	9490000	1540000 ₫	08:07:25 09-07-2024
171904895195	Samsung Inverter 9 kg WW90T6340BN/SV Washer	15090000	34527000 ₫	08:07:25 09-07-2024
171904895195	Android TV TCL 43L 32 inch 32S5000A	4090000	4090000 ₫	08:07:25 09-07-2024
171904895195	Levi's 3200 Wind Machine Air Circulator Fan	920000	180000 ₫	08:07:25 09-07-2024
1718798213119	Volteo 1.4 Ton 5 Star	11440000	11440000 ₫	15:36:19 09-07-2024
171877754980	LED Bulb	80000	80000 ₫	13:15:19 09-07-2024

Figure 53 - Export File

2.2.3.23. Manage Category

Table 35– Manage Category description

ID and Name:	UC - 23 Manage Category		
Created By:	Quach Dang Khoa	Date Created:	23/5/2024
Primary Actor:	Staff, Admin	Secondary Actors:	
Trigger:	The Staff or Admin selects the "Categories Management" option to view, create, update, or delete categories.		
Description:	This use case describes the process by which users can manage (create, read, update, delete) categories.		
Preconditions:	<p style="text-align: right;">10</p> <ul style="list-style-type: none"> The Staff or Admin must be logged into the system. The Staff or Admin must have appropriate permissions to manage categories. 		
Post-conditions:	<p>Success:</p> <ul style="list-style-type: none"> Categories are managed successfully (viewed, created, updated, or deleted). The system reflects the changes made to the categories. <p>Failure:</p> <ul style="list-style-type: none"> If there are errors or issues during the process (e.g., invalid data, insufficient permissions, system errors), appropriate error messages are displayed. No changes are made to the categories if the process fails. 		
Normal Flow:	<p>UC-23-01: View List of Categories</p> <ol style="list-style-type: none"> Staff or Admin Authentication: Staff or Admin logs into the system. Navigate to Manage Categories: The Staff or Admin navigates to the "Category management" section via the navigation bar. View Categories: The system displays a list of categories. <p>UC-23-02: Create New Category</p>		

	<ol style="list-style-type: none"> 1. Select Create Category: The Staff or Admin selects the option to create a new category. 2. Enter Category Information: The Staff or Admin enters the necessary information for the new category. 3. Save New Category: The Staff or Admin clicks the "Create" button to create the new category. <p>UC-23-03: Update Category</p> <ol style="list-style-type: none"> 1. Select Category to Update: The Staff or Admin selects a category to view details or manage. 2. Update Category Information: The Staff or Admin updates the category information as needed. 3. Save Changes: The Staff or Admin clicks the "Update" button to save the changes. <p>UC-23-04: Delete Category</p> <ol style="list-style-type: none"> 1. Select Category to Delete: The Staff or Admin selects a category to delete. 2. Confirm Deletion: The Staff or Admin confirms the deletion.
Alternative Flows:	AF1: Staff or Admin Not Authenticated <ol style="list-style-type: none"> 1a. Staff or Admin Not Logged In: The system redirects the Staff or Admin to the login page. 1b. Provide Login Credentials: The Staff or Admin provides login credentials. 1c. Redirect to Manage Categories: The system authenticates the Staff or Admin and redirects them to the "Manage Categories" section.
Exception:	E1: The system is down or unreachable: <ul style="list-style-type: none"> ● The Staff or Admin will not be able to access the manage categories interface.
Priority:	High
Frequency of Use:	Frequent

Business Rules:	BR-19, BR-20, BR-15
Other Information:	Network connectivity should be stable during the category management process.
Assumptions:	Network connectivity is stable during the information retrieval process.

Screen:

Name	Created at
Lighting	14:28:45 14-06-2024
Electric Fan	14:31:03 14-06-2024
Refrigerator	16:05:47 17-06-2024
TV	16:58:24 17-06-2024
Speaker	19:24:01 17-06-2024
Washing	20:29:11 17-06-2024
Air Conditioners	14:06:53 19-06-2024
Water Heater	13:09:55 10-07-2024
Electric Stove	13:22:26 10-07-2024

Figure 54 - Manage Category

2.2.3.24. View blog detail

Table 36– View blog detail description

ID and Name:	UC - 24 View blog detail		
Created By:	Tran Quoc Thai	Date Created:	21/5/2024
Primary Actor:	Guest, Customer	Secondary Actors:	
Trigger:	A user initiates the process by selecting a blog post from the list.		
Description:	2 This use case describes the process by which any user views the details of a blog post in the system.		

Preconditions:	None. Any user can access the blog post details without needing to log in.
Post-conditions:	The user views the details of the selected blog post.
Normal Flow:	<ol style="list-style-type: none"> 1. User Authentication: The customer logs into the system. 2. Navigate to Orders Section: The Customer clicks on the "Blogs" option from the main menu. 3. Select any blog: The Customer selects any blog from the blogs list. 4. View blog detail: The system gets the blog detail information and then displays it to the user. <ul style="list-style-type: none"> • Blog's media • Blog's title • Blog's content
Alternative Flows:	<ul style="list-style-type: none"> - Users make direct queries to the blog from the URL
Exception:	<ul style="list-style-type: none"> - The system is down or unreachable: The user will not be able to access the blog interface
Priority:	Low
1 Frequency of Use:	Frequent
Business Rules:	N/A
Other Information:	<ul style="list-style-type: none"> - Blog post details should be easily accessible from the blog list. - Blog post details should be displayed in a user-friendly format.
Assumptions:	<p style="margin-left: 20px;">3</p> <ul style="list-style-type: none"> - Users have access to a device with internet connectivity. - The system has blog posts already created and stored in the database.

Screen:

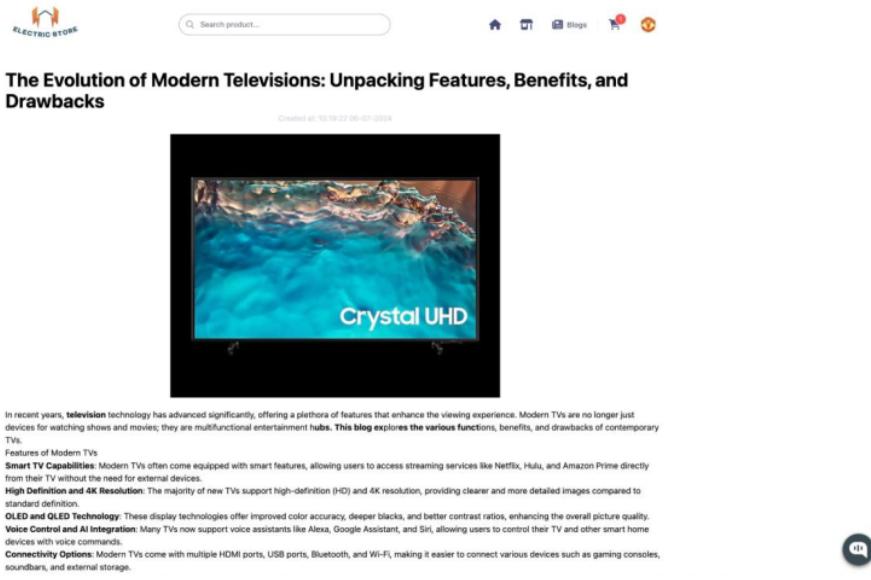


Figure 55 - View blog detail

3. Functional Requirements

3.1 System Functional Overview

3.1.1 Screens Flow

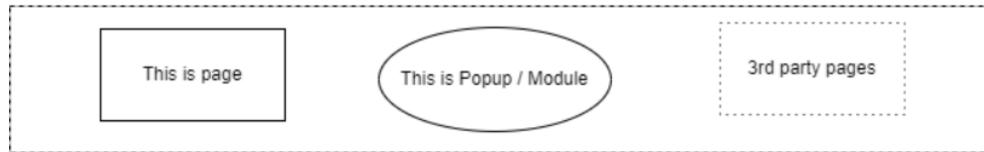


Figure 56 – Note for Screens Flow

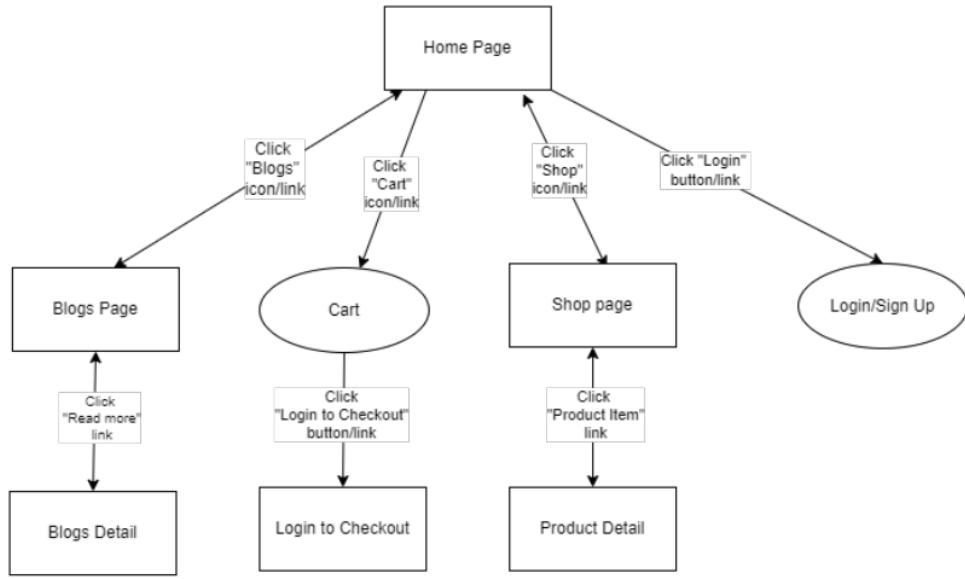


Figure 57- Screen Flow - Guest

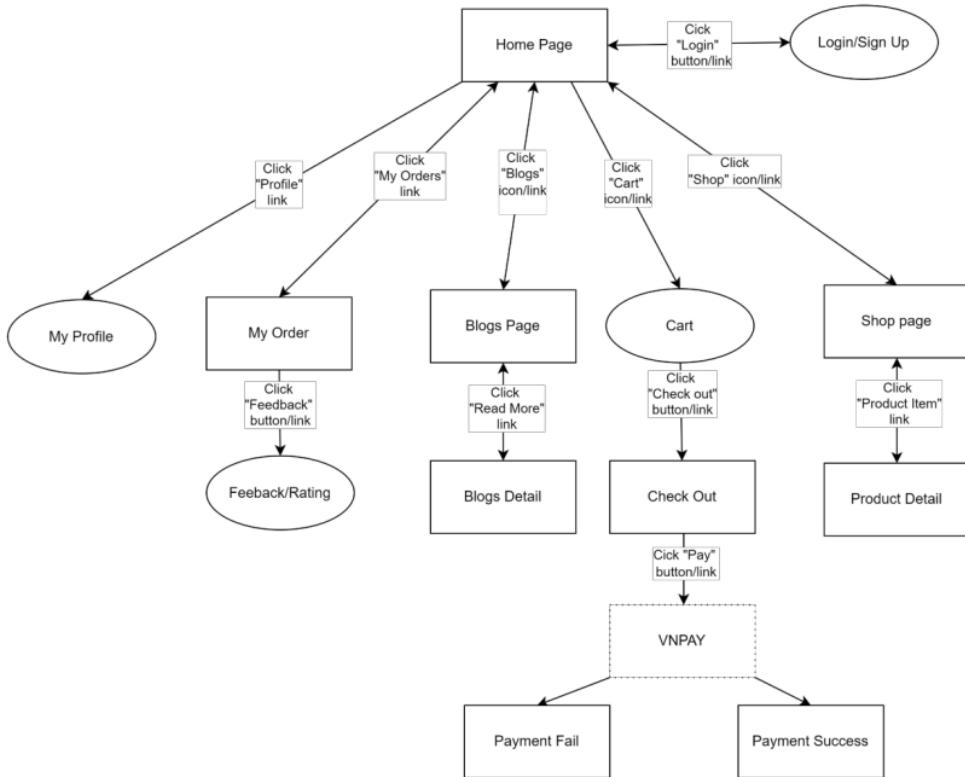


Figure 58- Screen Flow -Customer

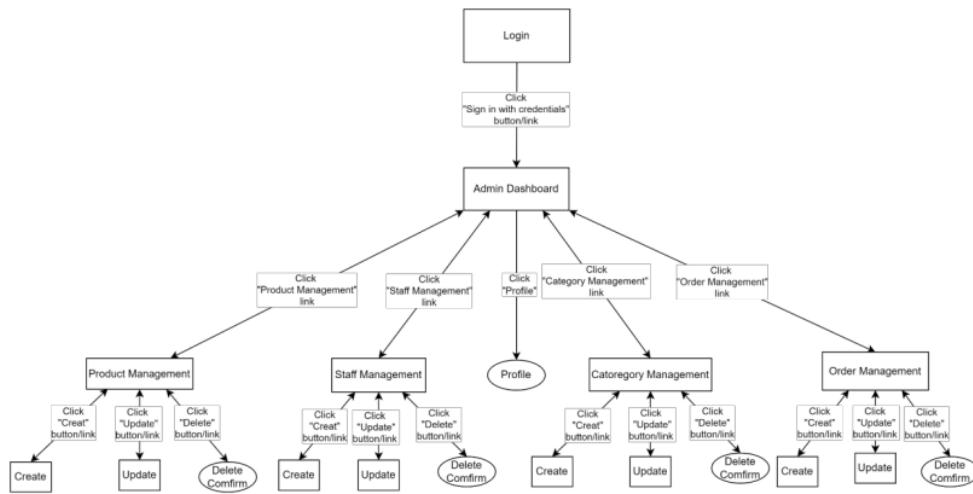


Figure 59 - Screen Flow -Staff/Admin

3.1.2 Screen Descriptions

Table 37 – Screen Description

#	Feature	Screen	Description
1	Login/Sign up	Login Screen	
2	My Profile	User Profile Screen	
3	Product List	Product Screen	
4	Product Details	Product Detail Screen	
5	My Order	My Order Screen	
6	Blog List	Blog Screen	
7	Blog Details	Blog Detail Screen	
8	Check Out	Check Out Screen	
9	Payment Success	Payment Success Screen	
10	Payment Fail	Payment Fail Screen	

3.1.3 Screen Authorization

Table 38– Screen Authorization

Screen	Admin	Staff	Customer	Guest
Sign In	X	X	X	
Sign Up				X
Sign Out	X	X	X	
View all products			X	X
View product detail			X	X
View orders history			X	
View all blogs			X	X
Suggestion and search by keyword			X	X
Recommendations by behaviour			X	X
Manage Cart (CRUD)			X	
Check out			X	
Feedback			X	
Rating			X	
Filter	X	X	X	X
Manage Profile (RU)	X	X	X	
Manage Blogs (CRUD)	X	X		
Manage Orders (RU)	X	X		
Manage Product (CRUD)	X	X		
Manage Staff (CRUD)	X			
Manage Customer (R)	X			
Dashboard Statistics	X	X		
Export File	X	X		
Manage Category (CRUD)	X	X		

3.1.4 Non-Screen Functions

Table 39- Non-Screen Functions

#	Feature	System Function	Description
1	User Management	User Data Synchronisation	A scheduled batch job that synchronises user data across different services and databases to maintain consistency.
2	Order Management	Order Processing Service	A backend service that processes orders, updates order statuses, and manages order-related notifications.
3	Product Management	Product Recommendation API	An API service that uses AI (powered by Algolia) to provide product recommendations based on user behaviour and preferences.
4	Product Management	Product Statistics Export	A batch job that compiles product statistics and exports them into Excel files for admin and staff users.
5	Dashboard	Revenue Report Generation	A service that generates detailed revenue reports (daily, monthly, yearly) and allows for exporting these reports to Excel.
6	Search Optimization	Search Indexing Service	A service that updates and maintains the search index to ensure fast and relevant search results for product queries.
7	Payment Integration	Payment Processing API	An API that handles payment transactions securely using VNPay, ensuring accurate processing and record-keeping.
8	Chatbot Integration	Chatbot Service	A service using AWS Lex/DialogFlow ES to provide customer support and product recommendations through chat interactions
9	Data Backup	Database Backup Job	A scheduled job that performs regular backups of the database to ensure data integrity and disaster recovery. <small>87</small>

3.1.5 Entity Relationship Diagram

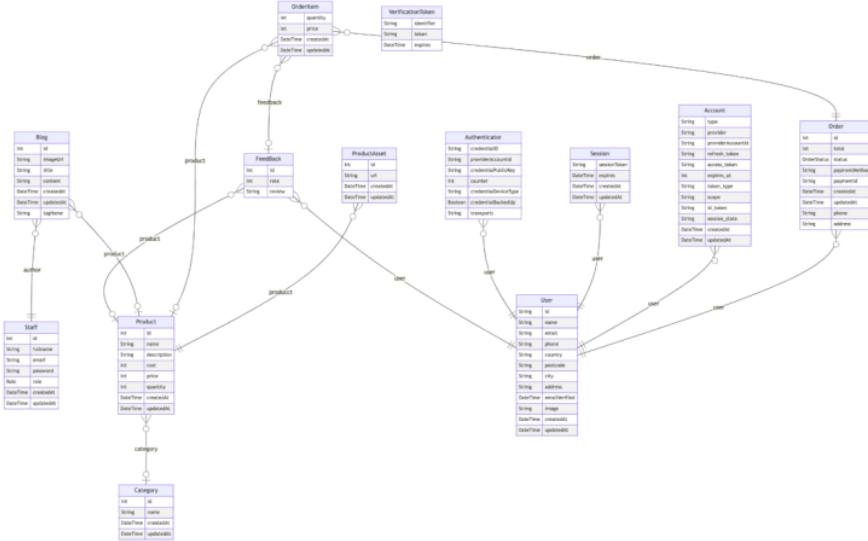


Figure 60 - Entity Relationship Diagram

Entities Description

Table 40- Entities Description

#	Entity	Description
1	Customer	People who buy products of shop
2	Information order	Information of order
3	Orders	Order of customer
4	Product	All product of shop
5	Category	Category of product

4. Non-Functional Requirements

4.1 External Interfaces

4.1.1 User Interfaces

- UI-1: The user interface must be intuitive and easy to navigate, allowing users to accomplish tasks without extensive training.
- UI-2: Error messages must be clear and provide actionable solutions.
- UI-3: The UI must load within 3 seconds on a standard broadband connection.

4.1.2 Software Interfaces

- SI-1: APIs should be compatible with various programming languages and platforms.
- SI-2: APIs must enforce authentication and authorization mechanisms.
- SI-3: The UI must be fully responsive and functional across all major devices and screen sizes, including mobile phones, tablets, and desktops. 75

4.2 Quality Attributes

4.2.1 Usability

- The application must be user-friendly and easy to use after training.
- Provide clear, easy-to-understand instructions and user support when needed.
- Provide comprehensive onboarding tutorials and documentation. Include interactive guides and walkthroughs for new users.
- Use familiar symbols and terminology to reduce user training time.

4.2.2 Reliability

- Ensure the system has an uptime of at least 99.99%.
- Implement redundant systems and failover mechanisms.
- Implement regular data backups and recovery processes.
- Ensure that the system can restore operations within 15 minutes of a failure.

4.2.3 Performance

- Optimize database queries and reduce server-side processing time.
- Ensure that all user actions receive a response within 2 seconds.

4.2.4 Security

- Authentication: Users should be securely authenticate before accessing sensitive functionalities.
- Authorization: Access control mechanisms should restrict users to only the functionalities they are authorised to use.
- Data Encryption: Sensitive data, such as user credentials and payment information, should be encrypted during transmission and storage. 11
- Protection Against Attacks: The system should implement measures to protect against common security threats such as SQL injection, cross-site scripting (XSS), and cross-site request forgery (CSRF). 42

36 4.2.5 Scalability

- Horizontal Scalability: The system should be able to scale horizontally by adding more servers or instances to accommodate increased user traffic.
- Vertical Scalability: The system should also be able to scale vertically by upgrading hardware resources such as CPU and memory.
- 9**
- Load Balancing: Implement load balancing mechanisms to distribute incoming traffic evenly across multiple servers.
- 11**
- Database Scalability: The database should be designed to scale along with the application, ensuring performance is maintained as the data volume grows.
- Elasticity: The system should dynamically allocate and deallocate resources based on demand to optimise performance and cost.

9 4.2.6 Maintainability

- Modularity: The system should be modularly designed, allowing for easy maintenance and updates to individual components without impacting the entire system.
- Documentation: Comprehensive documentation should be provided for system architecture, codebase, APIs, and deployment procedures to aid in maintenance and troubleshooting.
- 80**
- Version Control: Utilise version control systems such as Git to manage changes to the codebase and facilitate collaboration among developers.
- 12**
- Testing and QA: Implement automated testing and continuous integration pipelines to ensure code quality and facilitate the deployment of updates with minimal risk.
- 54**
- Error Handling and Logging: Implement robust error handling mechanisms and logging to aid in identifying and troubleshooting issues during maintenance.

5. Requirement Appendix

5.1 Business Rules

Table 41 – Business rules

ID	Rule Definition
BR-01	Smart sales information system combined with product introduction according to customer behaviour and habits.
BR-02	The system is capable of managing user roles with different permissions for Admin, Staff, Customer, and Guest.

ID	Rule Definition
BR-03	The system allows Admin/Staff to give permissions such as view order information, filter by date, create order statistics, and export to Excel file.
BR-04	The system allows Admin/Staff to manage such as View, Add, Edit, Delete product information, and create product statistics with the ability to export to Excel files.
BR-05	The system must allow roles to log in and register (except guests).
BR-06	The system allows Staff to manage blogs: view, edit, delete.
BR-07	The system allows users to manage information: password, Name...
BR-08	The system allows the Admin to create Staff.
BR-09	The system allows the user to search by keyword.
BR-10	The system uses AI Algolia to recommend products according to user behavior, shopping history, and preferences.
BR-11	The system allows users to view cart information, add products to the cart, edit to cart, and checkout.
BR-12	The system uses ReactJS for the front-end development.
BR-13	The system uses TailwindCSS and Ant for the UI library.
BR-14	The system uses node.js for the back-end development
BR-15	The system user Firebase for database management
BR-16	The system supports convenient payment methods for users
BR-17	The system uses AWS Lex or DialogFlow ES for chatbot functionality.
BR-18	The System required validate when login in the system
BR-19	Only Staff or Admin with appropriate permissions can manage categories.

ID	Rule Definition
BR-20	The system should use secure protocols to protect category information during transmission.
BR-21	Only Staff or Admin with appropriate permissions can manage orders.
BR-22	Only Admin or Staff with appropriate permissions can manage customer information.

5.2 Common Requirements

Table 42 - Common Requirements

ID	Rule Definition
CR-01	The system must have a user authentication mechanism for Login, Register, and Logout functions. (For example: OTP, authenticate by google email).
CR-02	The user interface should be intuitively designed using ReactJS with TailwindCSS and Antd libraries.
CR-03	When an Admin/Customer/Staff changes the password, you must re-enter the password you are using to be able to change it.
CR-04	The system must support secure payment methods, including VNPayto process transactions.
CR-05	Use Node.js as a back-end for backend development to handle API requests and business logic.
CR-06	The system uses Firebase to manage the database, ensuring high security, and fast querying against it.
CR-07	The system must integrate chatbots using AWS Lex or DialogFlow ES for automatic customer support.

5.3 Application Messages List

Table 43 - Application Messages List

#	Message code	Message Type	Context	Content
1	MSG01	Inline error message	Error during HTTP request or Algolia request processing	We have some error
2	MSG02	Inline error message	Specific product not found during the search or add to cart process	Sorry, your product is not found.
3	MSG03	Confirmation request	User is asked to confirm a product match	Are you looking for {product name}?
4	MSG04	Confirmation request	User is asked to confirm adding a product to the cart	Do you want to add {product name} to your cart?
5	MSG05	Inline closing message	Conversation ends without successful action or after confirmation	May I help you something else?
6	MSG06	Rich text response	Display categories with associated actions (open link or show products)	Categories with actions payload
7	MSG07	Rich text response	Display products within a category with associated actions	Products with actions payload
8	MSG08	Rich text response	Display detailed information about a specific product	Product detail with actions payload
9	MSG09	Rich text response	Provide a link for adding a specific product to the cart	Incorrect user name or password. Please check again.

#	Message code	Message Type	Context	Content
10	MSG10	Toast message	Error when fetching categories or products	We have some error.
11	MSG11	Toast message	Closing the dialog after a successful operation	There is some error
12	MSG12	Plain text response	Response after a successful operation	Add asset successfully
13	MSG13	Plain text response	Response after successfully adding a product to the cart	May I help you something else?

IV. Software Design Description

1. System Design

1.1 System Architecture

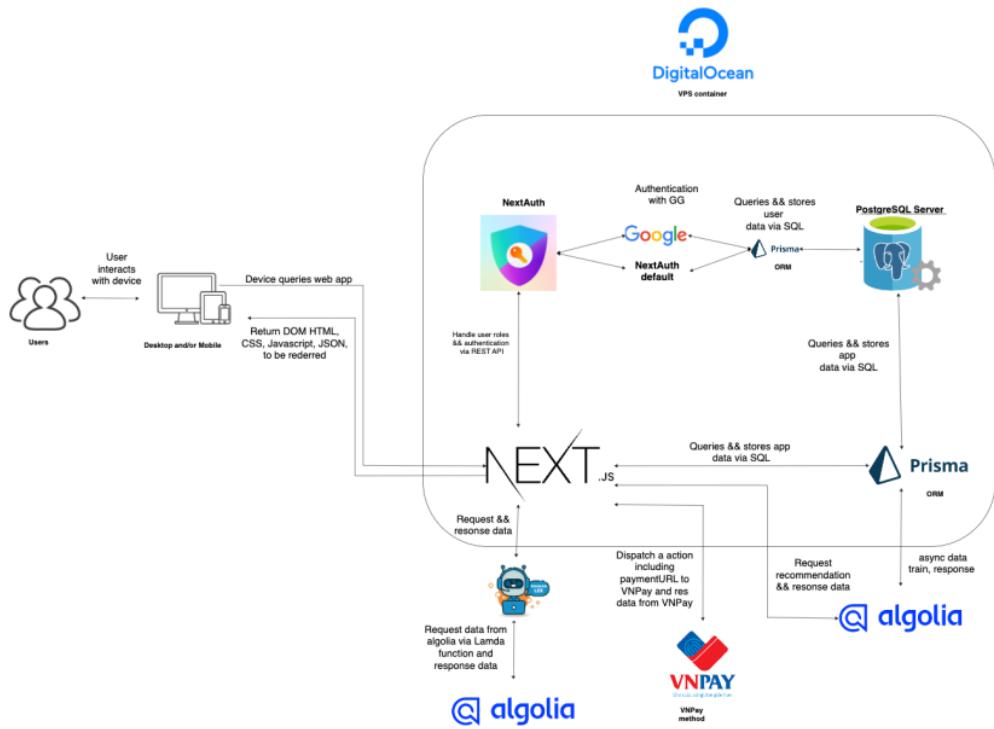


Figure 61 - System Architecture

1.2 Package Diagram

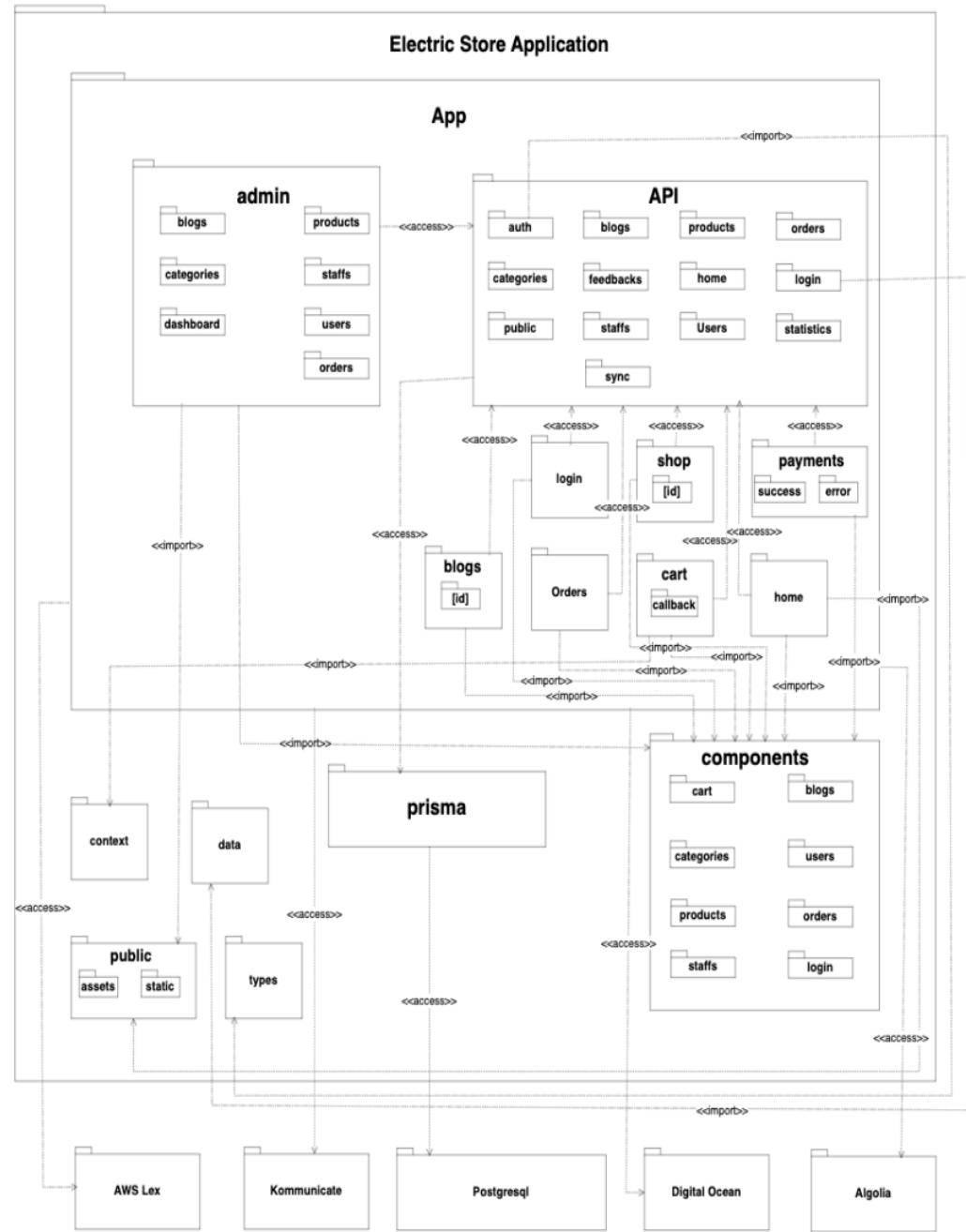


Figure 62 - Package Diagram

Package Descriptions

Table 44 - Package Descriptions

No	Package	Description
01	electric store	This package contains all sub-packages of the whole project.
02	app	This directory contains the application's source code, including pages, components, and styles. Subdirectories like admin/, API/, blogs/, etc., organize the code by function or part of the application.
03	components	Contains reusable React components in the application. These components can be used in multiple places throughout your application.
04	contexts	This directory contains definitions for React Contexts, helping to manage and share state across the entire application easily.
05	data	Typically contains files related to sample data or configurations, helping to organize the data used in the application
06	lib	This directory usually contains libraries or general support code, such as utility functions or API configurations.
07	prisma	Contains configurations and models for Prisma, an ORM for Node.js and TypeScript, making database interactions easier.
08	public	This directory contains static files like images, favicons, and robots.txt, which can be accessed directly via URL.
09	types	Contains TypeScript type definitions, helping to manage data types in your application.
10	api	This directory contains files related to APIs, which may be server-side endpoints.
11	blogs	This directory contains components or pages related to blogs within the application.
12	cart	This directory contains components or pages related to the application's shopping cart.

No	Package	Description
13	home	This directory contains components or pages related to the application's homepage.
14	login	This directory contains components or pages related to the application's login functionality
15	orders	This directory contains components or pages related to the application's orders
16	components	This directory contains reusable components within the application, such as buttons, navigation bars, footers, etc.
17	data	This directory may contain static data files or configurations, such as sample data, application configurations, etc.
18	lib	This directory contains libraries or utility functions used in the application, helping to reuse code and keep the source code clean.
19	Prisma	This directory contains configuration and migration files for Prisma, an ORM for Node.js, and TypeScript, making database interactions easier.
20	public	This directory contains static files such as images, favicons, and other static files that the browser can access directly.
21	shop	This directory may contain pages and components related to the online store where users can view and purchase products
22	categories	This directory may contain logic and user interfaces for managing product categories, helping to organize products by groups.
23	dashboard	This directory may contain pages and components for the admin dashboard, where administrators can view statistics, manage users, products, and other site functions
24	statistics	This directory may contain logic and user interfaces to collect and display statistical data, such as order quantities, revenue, and other metrics.

No	Package	Description
25	staffs	This directory may contain pages and components related to managing staff, including adding, deleting, and editing staff information.
26	users	This directory may contain pages and components related to managing the site's users, including personal information and purchase history.
27	products	This directory may contain pages and components related to managing products, including adding, editing, and deleting products
28	sync	This directory may relate to data synchronization between services or databases, or synchronizing state within the application
29	AWS Lex	This is a chatbot building service by Amazon Web Services, which can be used to create automated chat experiences for users
30	Kommunicate	This is a platform that allows the integration of chatbots and customer support into web or mobile applications.
31	PostgreSQL	This powerful relational database management system can be used to store and manage application data. <small>72</small>
32	DigitalOcean	This is a cloud service provider that can be used to host and deploy web applications
33	Algolia	This is a search-as-a-service platform that helps improve the search experience on your application

1.3 Enhancing E-Commerce with Algolia

1.3.1 Instant Search Algolia

Instant Search Algolia is a search service provided by Algolia, a company specializing in search and data discovery technology. This service helps create instant search experiences on websites and applications. Key features of Instant Search Algolia include:

Fast and Instant Search: Algolia uses optimized algorithms to provide nearly instantaneous search results as users begin typing keywords. This improves user experience by reducing wait times.

Autocomplete Suggestions: As users type keywords, Algolia can offer autocomplete suggestions based on popular keywords or historical data, helping users search more efficiently.

Personalized Search Results: Algolia allows for customization and personalization of search results based on criteria such as user behavior, or other parameters.

Easy Integration: Algolia provides robust SDKs and APIs, making it easy for developers to integrate search technology into websites and applications.

Data Management and Analytics: Algolia offers data management and analytics tools, allowing for tracking and optimizing search performance.

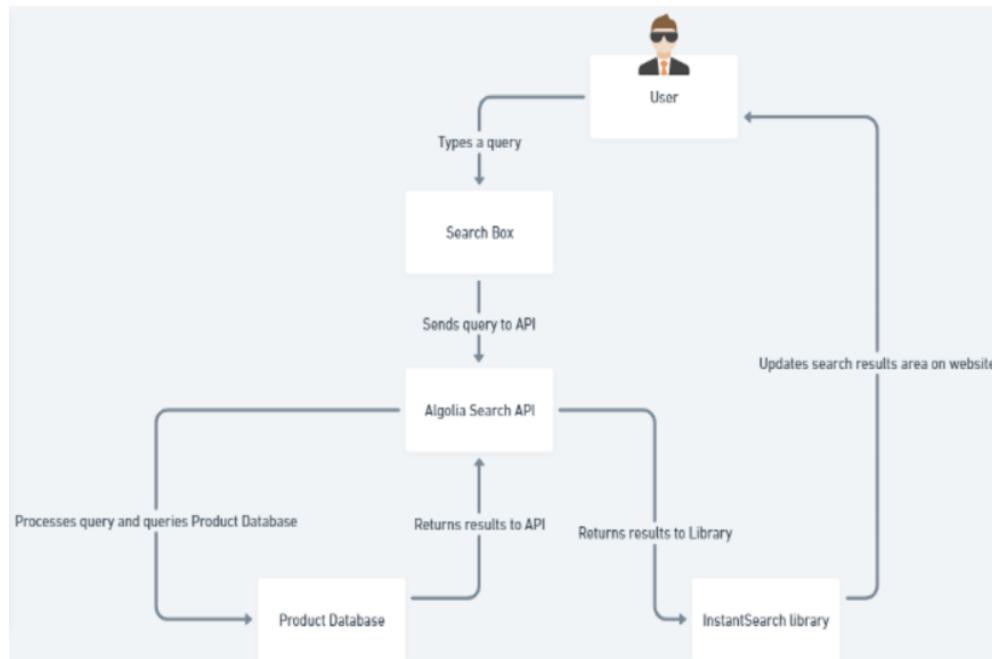


Figure 63 - Instant Search Algolia

- The process begins with the user typing a query into the search box on the website
- The search box captures the user's query and sends it to the Algolia Search API.
- The Product Database stores all the data related to the products available on the website. The Algolia Search API retrieves the necessary information from this database ⁸⁶ based on the user's query.
- Once **the** data **is** fetched from **the** Product Database, the Algolia Search API sends the results back to the InstantSearch library.
- The InstantSearch library processes the returned data and formats it for display. It then updates the search results area on the website, showing the user the relevant products or information corresponding to their query.
- Finally, the user sees the updated search results on the website, enabling them to explore the products or information that matches their search criteria.

1.3.2 Recommendations for behavior (Shop page)

Algolia supports product recommendation models based on user click events. Typically, these models utilize user interaction history to suggest similar or related products. When a user clicks on a specific product, the system records this event and uses it to enhance recommendation accuracy. Algolia provides APIs for building such recommendation models

Using user click data to suggest products offers several key benefits:

Enhanced user experience: By tracking mouse click behaviors, the system gains deeper insights into user preferences and needs. This improves the accuracy of product recommendations, increasing the likelihood that users find products they are genuinely interested in.

Optimized recommendation performance: Mouse click data provides insights into products users have interacted with. This information allows the system to optimize recommendation algorithms, ensuring that suggested products align well with user preferences.

Detecting trends and changes: Monitoring mouse click data helps the system identify new trends and changes in user preferences. This enables flexible updates to product recommendations, promptly adapting to shifts in the market or user interests.

In summary, leveraging mouse-click data is crucial for enhancing user experience and optimizing product recommendation performance.

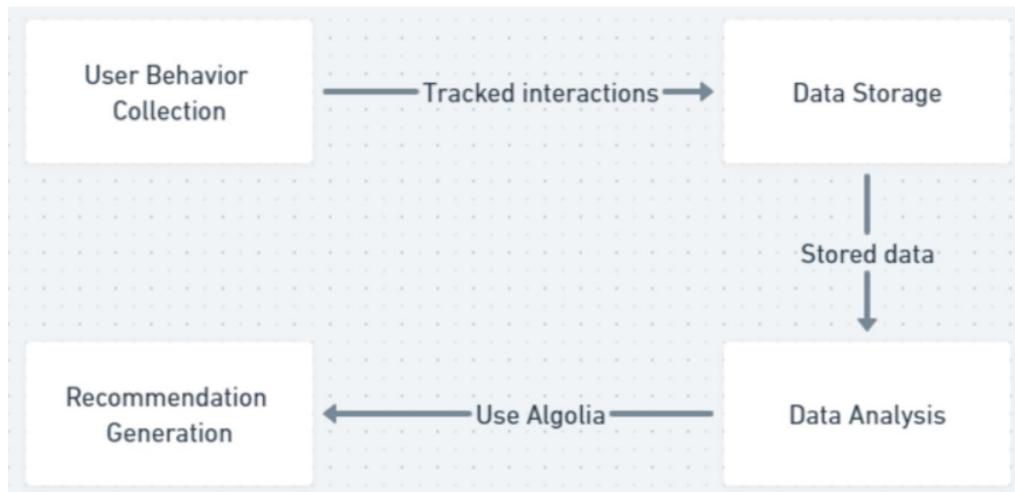


Figure 64 - Recommendations for behavior Step 1

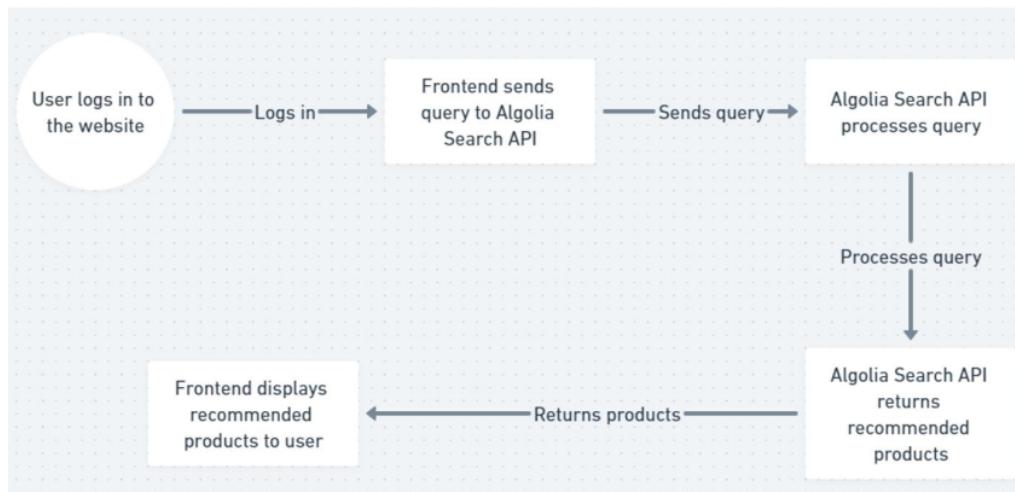


Figure 65 - Recommendations for behavior Step 2

1.3.3 Similar product (product detail page)

Algolia Recommends constructs models using data from your index and user interactions, employing supervised machine learning algorithms. This approach involves analyzing assets.0.url, which can represent source items or items that users have viewed. Using these assets.0.url as input, the trained model generates recommendations by identifying other related assets.0.url that are likely to be of interest to the user (recommendations). This process enhances the relevance and effectiveness of product recommendations, thereby improving user engagement and satisfaction on your platform.

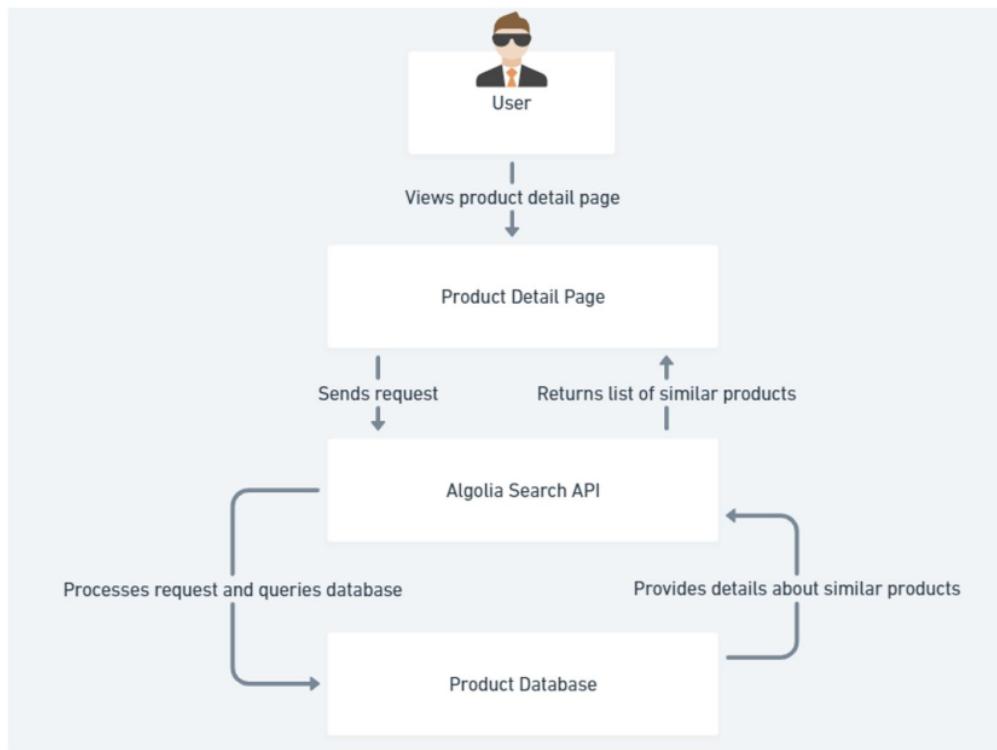


Figure 66 - Similar product

- The process begins with the user viewing a product detail page on the website.⁶³
- Upon viewing the product detail page, a request is sent to the Algolia Search API to retrieve a list of similar products.

- The Algolia Search API processes the request and queries the Product Database to find products that are similar to the one being viewed.
- The Product Database contains detailed information about all the products available on the website. The Algolia Search API queries this database to fetch details about similar products.
- After processing the request, the Algolia Search API returns a list of similar products to the Product Detail Page.
- The website then displays this list of similar products to the user, enhancing the shopping experience by providing them with more options that match their interests.

2. Database Design

- Database system

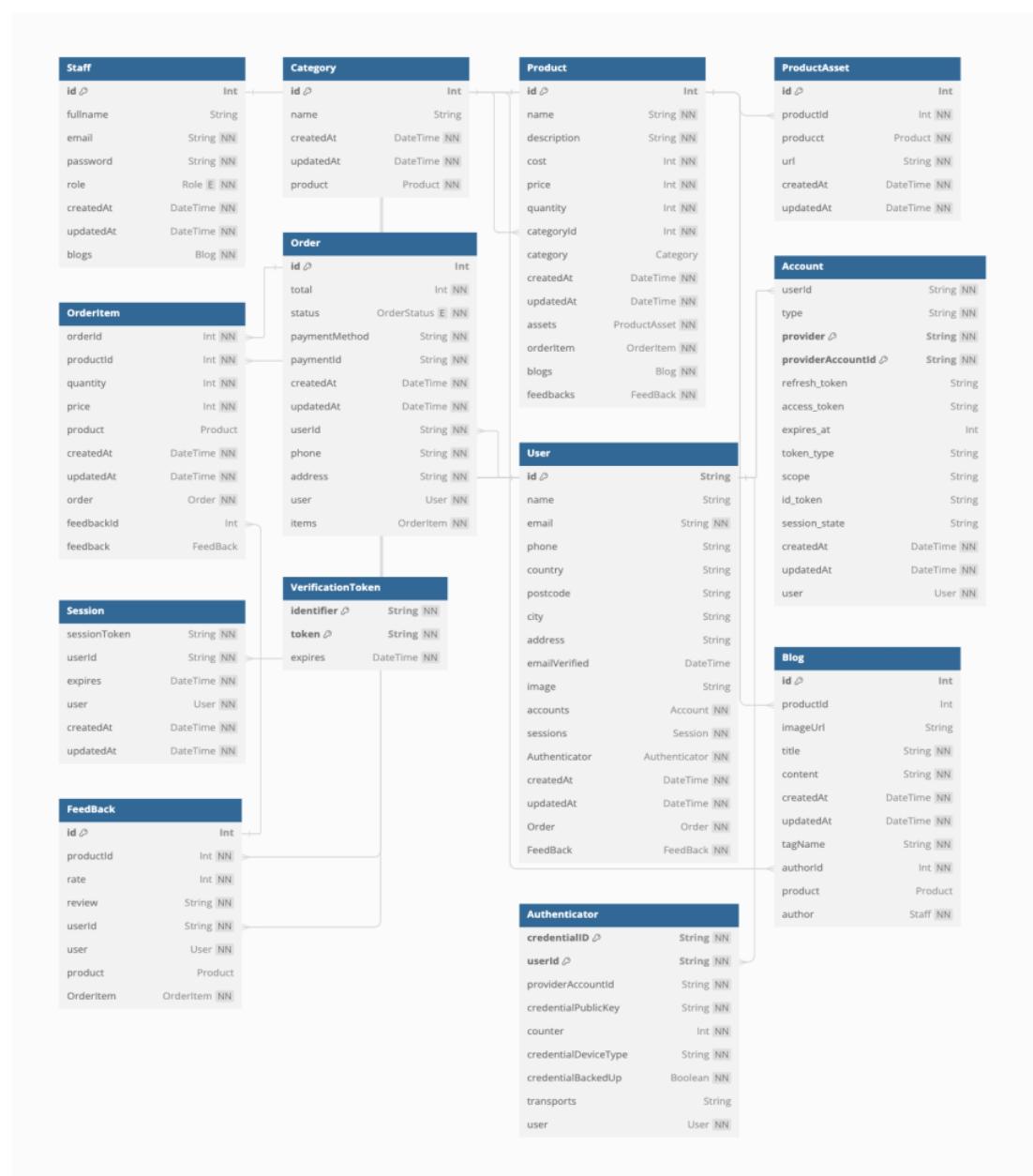


Figure 67 - Database system

Table Descriptions

Table 45 - Table Descriptions

No	Table	Description
01	Staff	<p>Description: Represents staff members, including their roles and contact information.</p> <p>Primary Key: id</p> <p>Foreign Keys: None directly in the schema, but related to Blog(authordId)</p>
02	User	<p>Description: Represents users of the system, including their contact information and authentication details.</p> <p>Primary Key: id</p> <p>Foreign Keys: None directly in the schema, but related to other tables via their foreign keys.</p>
03	Account	<p>Description: Represents user accounts, including details for third-party authentication.</p> <p>Primary Key: Composite key of provider and providerAccountId</p> <p>Foreign Keys: userId references User(id)</p>
04	Product	<p>Description: Represents products with details like name, description, cost, price, quantity, and category.</p> <p>Primary Key: id</p> <p>Foreign Keys: categoryId references Category(id)</p>
05	ProductAsset	<p>Description: Represents assets associated with a product, such as images or documents.</p> <p>Primary Key: id</p> <p>Foreign Keys: productId references Product(id)</p>

No	Table	Description
06	Order	<p>Description: Represents orders placed by users, including total cost, status, and payment information.</p> <p>Primary Key: id</p> <p>Foreign Keys: userId references User(id)</p>
07	OrderItem	<p>Description: Represents items within an order, including the product, quantity, and price.</p> <p>Primary Key: Composite key of orderId and productId</p> <p>Foreign Keys:</p> <ul style="list-style-type: none"> productId references Product(id) orderId references Order(id)
08	FeedBack	<p>Description: Represents feedback from users on products or services.</p> <p>Primary Key: id</p> <p>Foreign Keys: None directly in the schema, but related to other tables via their foreign keys.</p>
09	Category	<p>Description: Represents product categories.</p> <p>Primary Key: id</p> <p>Foreign Keys: None directly in the schema, but related to Product(categoryId)</p>
10	Blog	<p>Description: Represents blog posts, including content, author, and associated product.</p> <p>Primary Key: id</p> <p>Foreign Keys:</p> <ul style="list-style-type: none"> productId references Product(id) authorId references Staff(id)

No	Table	Description
11	VerificationToken	<p>Description: Used for account verification processes, storing tokens and their expiration.</p> <p>Primary Key: Composite key of identifier and token</p> <p>Foreign Keys: None explicitly, but related to users.</p>
12	Session	<p>Description: Represents user sessions for authentication and tracking.</p> <p>Primary Key: sessionToken</p> <p>Foreign Keys: userId references User(id)</p>
13	Authenticator	<p>Description: It supports WebAuthn authentication and stores credentials and device information.</p> <p>Primary Key: Composite key of userId and credential</p> <p>Foreign Keys: userId references User(id)</p>

3. Detailed Design

3.1 Sign In

3.1.1 Class Diagram

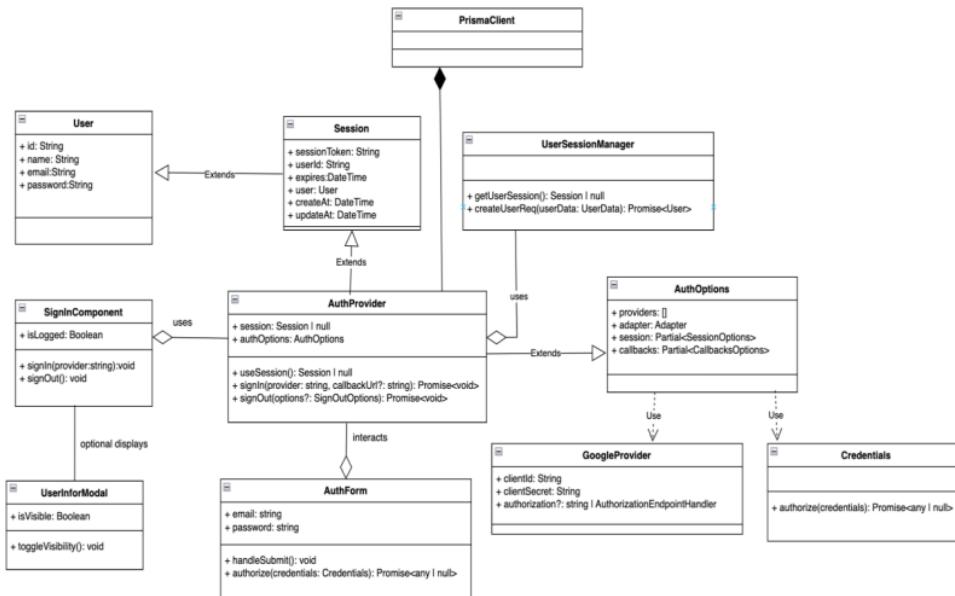


Figure 68 - Class Diagram - Sign In

3.1.2 Sequence diagram

- **Sign In with Credentials for Staff/Admin**

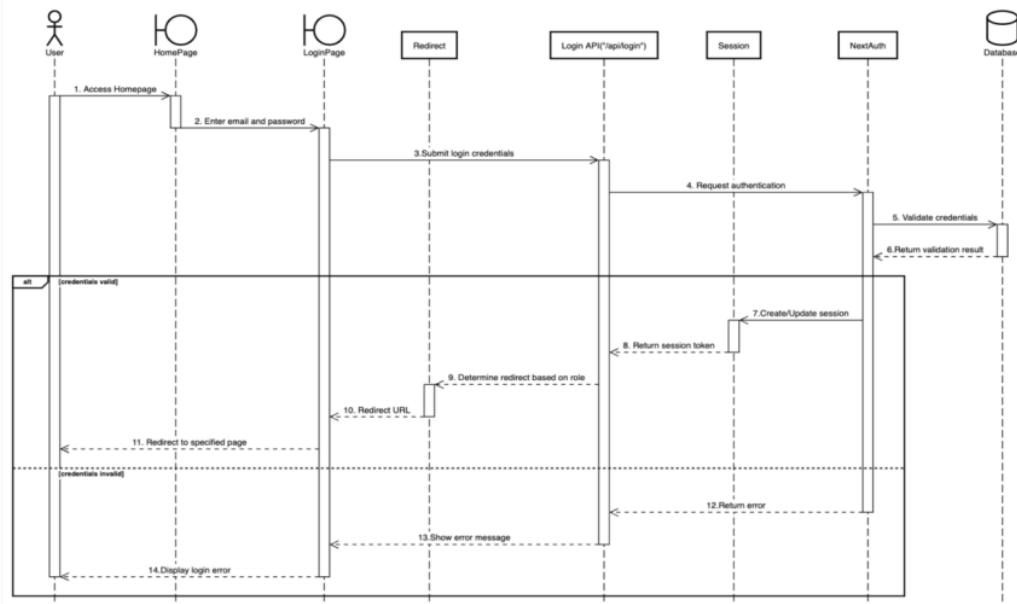
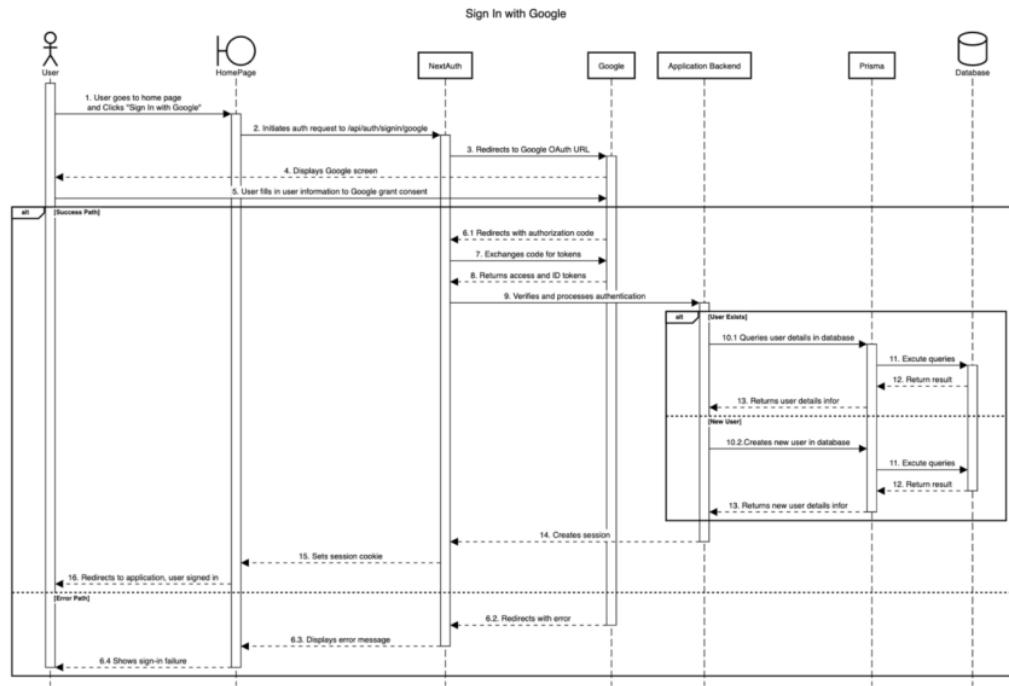


Figure 69 - Sequence Diagram - Sign In with Credentials for Staff/Admin

- **Sign in with Google for Guest/Customer**



3.2 Sign Up

3.2.1 Class Diagram

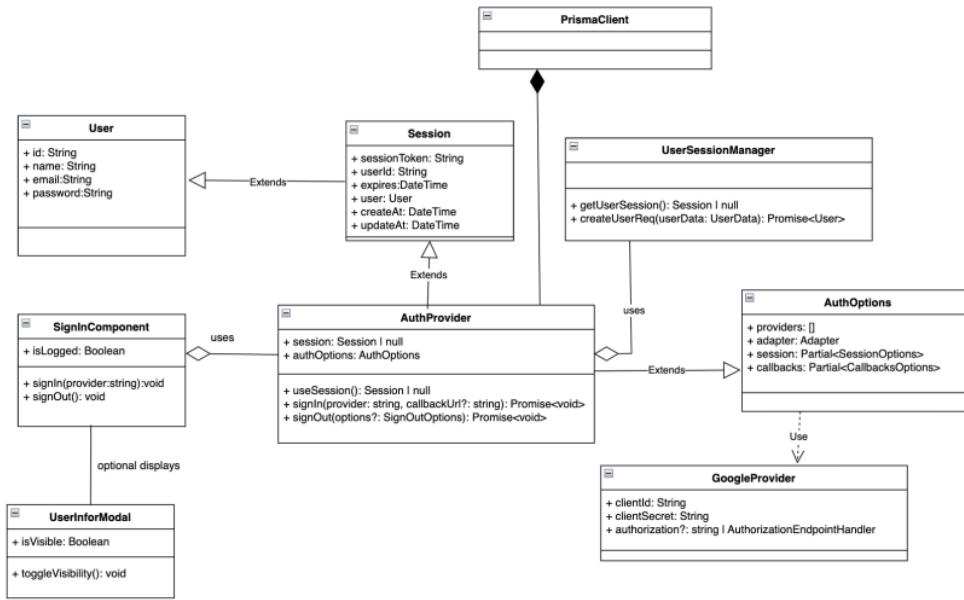


Figure 71 - Class Diagram - Sign Up

3.2.2 Sequence diagram

- **Sign Up with Google for Guest/Customer**

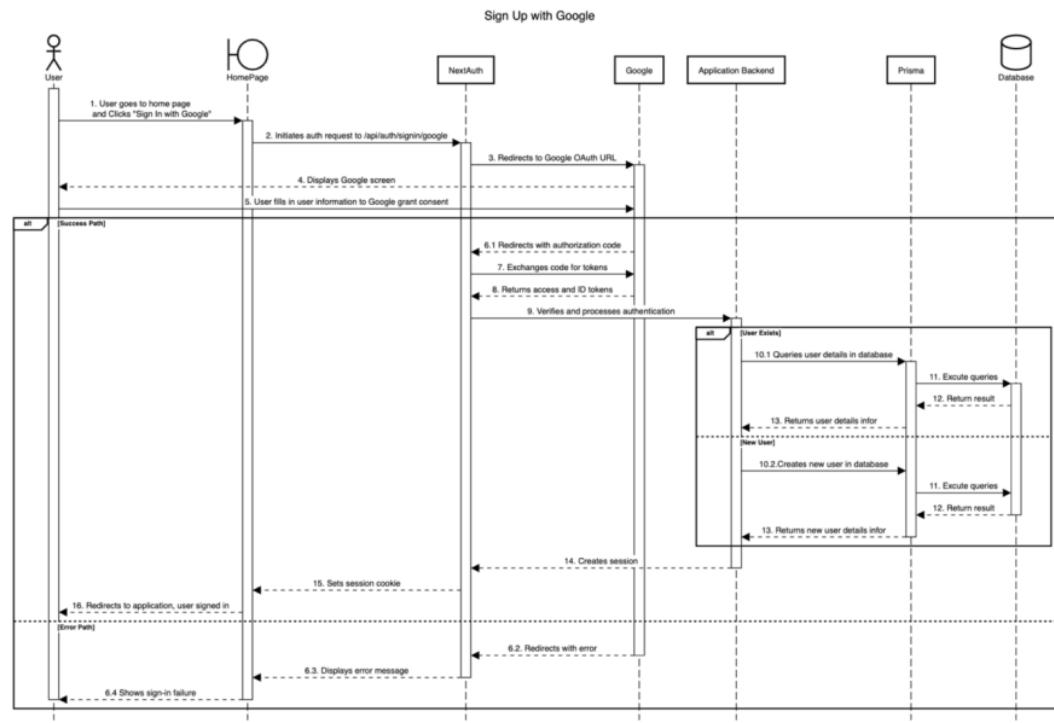


Figure 72 - Sequence Diagram - Sign Up with Google for Guest/Customer

3.3 Sign Out

3.3.1 Class Diagram

- Sign-out is performed by deleting the user's login token on the FE, so it is not shown in the class diagram.

3.3.2 Sequence diagram

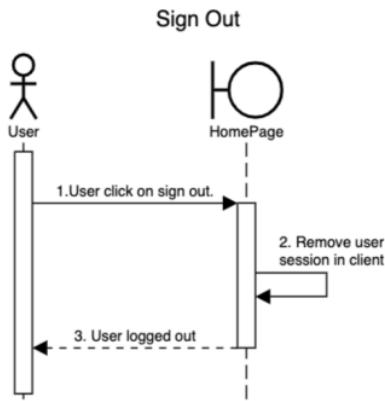


Figure 73 - Sequence Diagram - Sign Out

3.4 View all products

3.4.1 Class Diagram

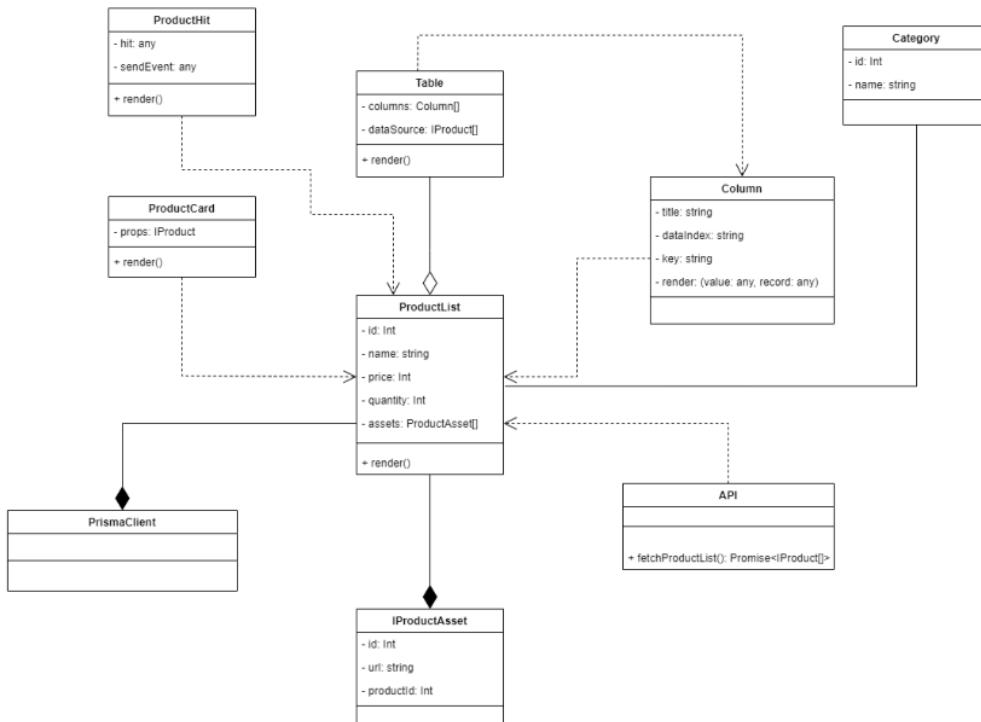


Figure 74 - Class Diagram - View all products

3.4.2 Sequence Diagram View all products

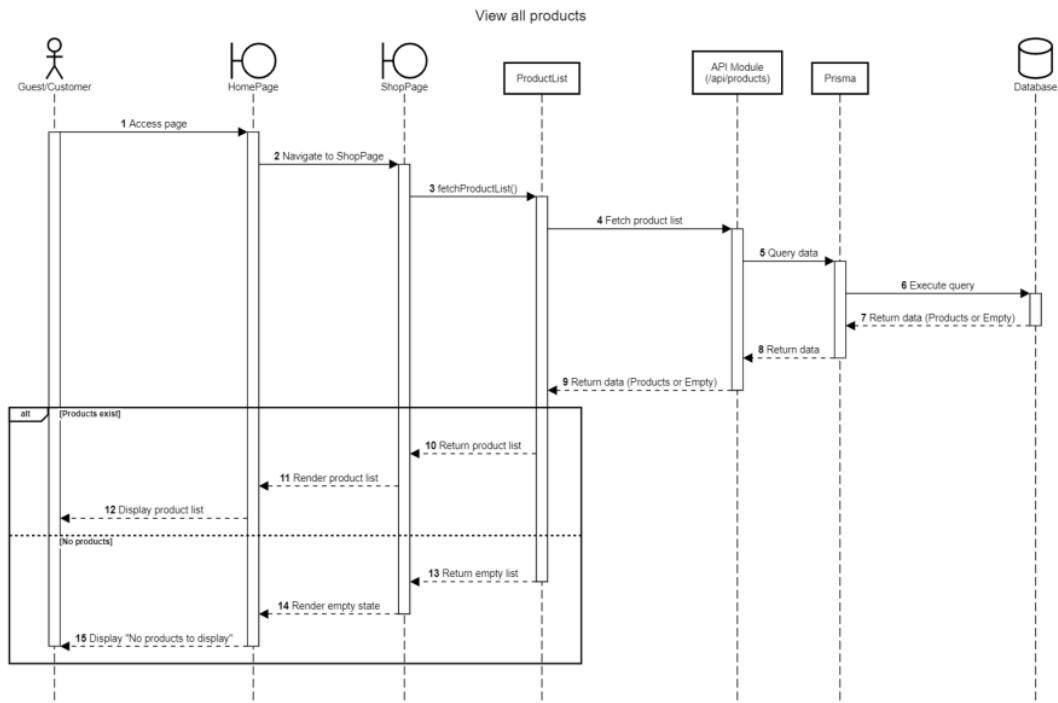


Figure 75 - Sequence Diagram - View all products

3.5 View product detail

84

3.5.1 Class Diagram

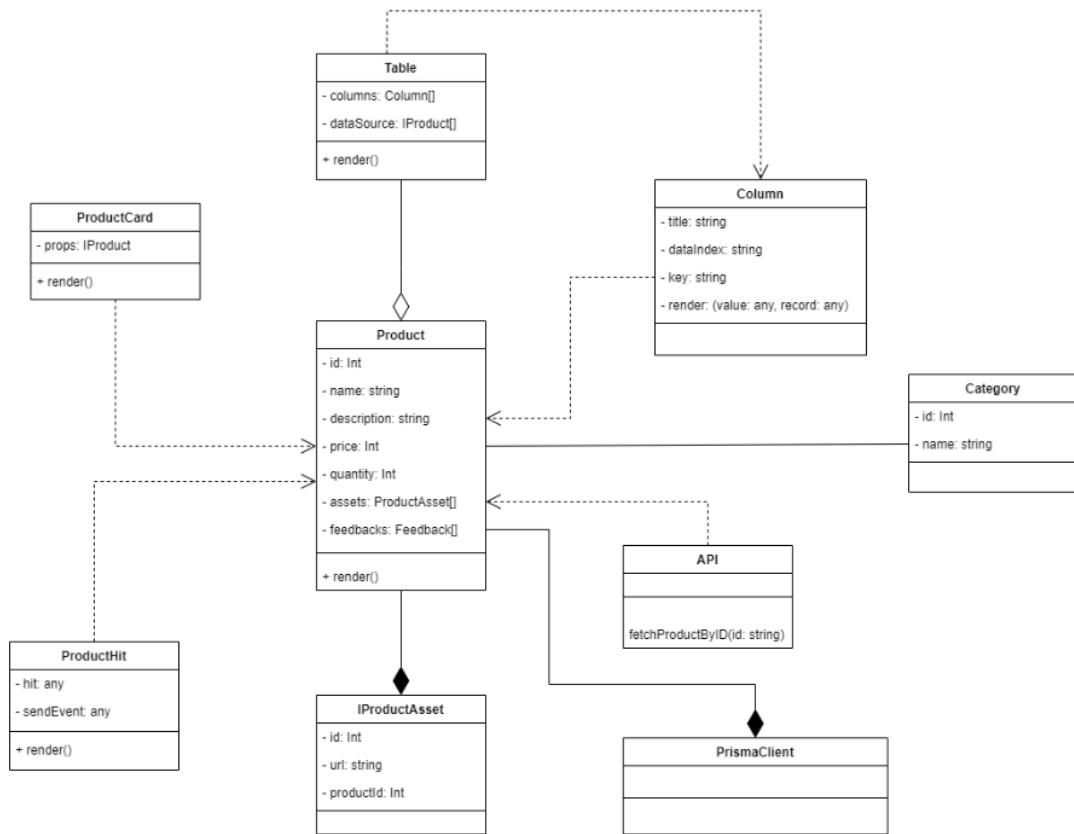


Figure 76 - Class Diagram - View product detail

6

3.5.2 Sequence Diagram View product detail

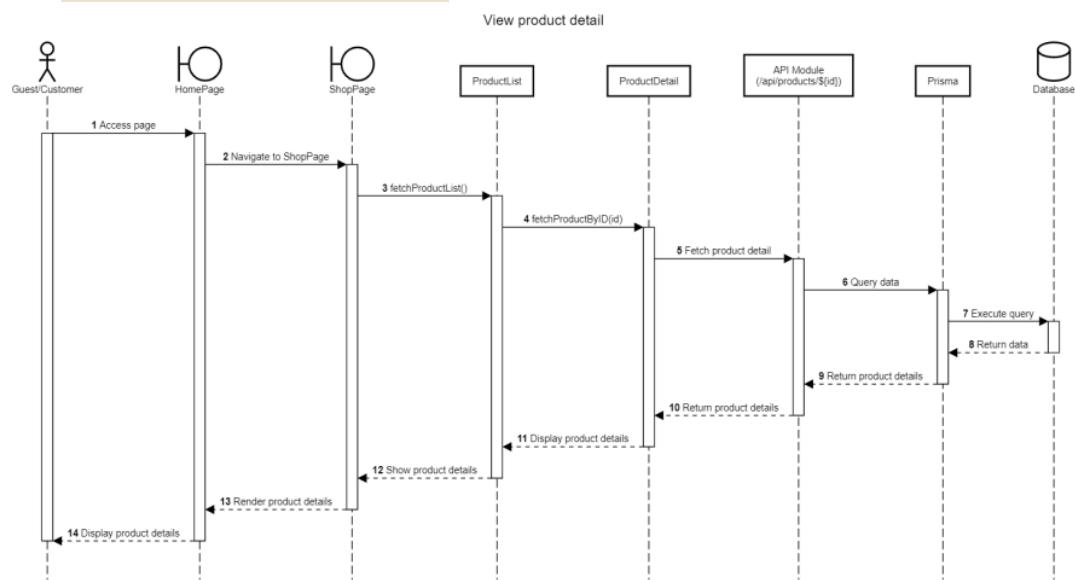


Figure 77 - Sequence Diagram - View product detail

3.6 View orders history

3.6.1 Class Diagram

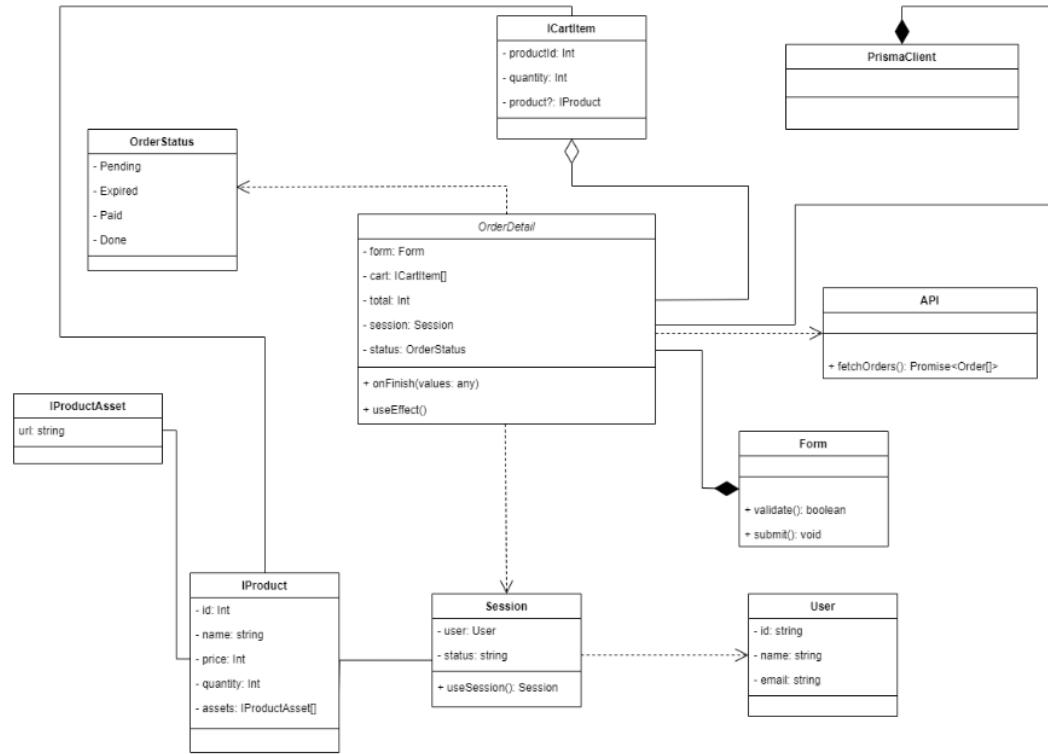
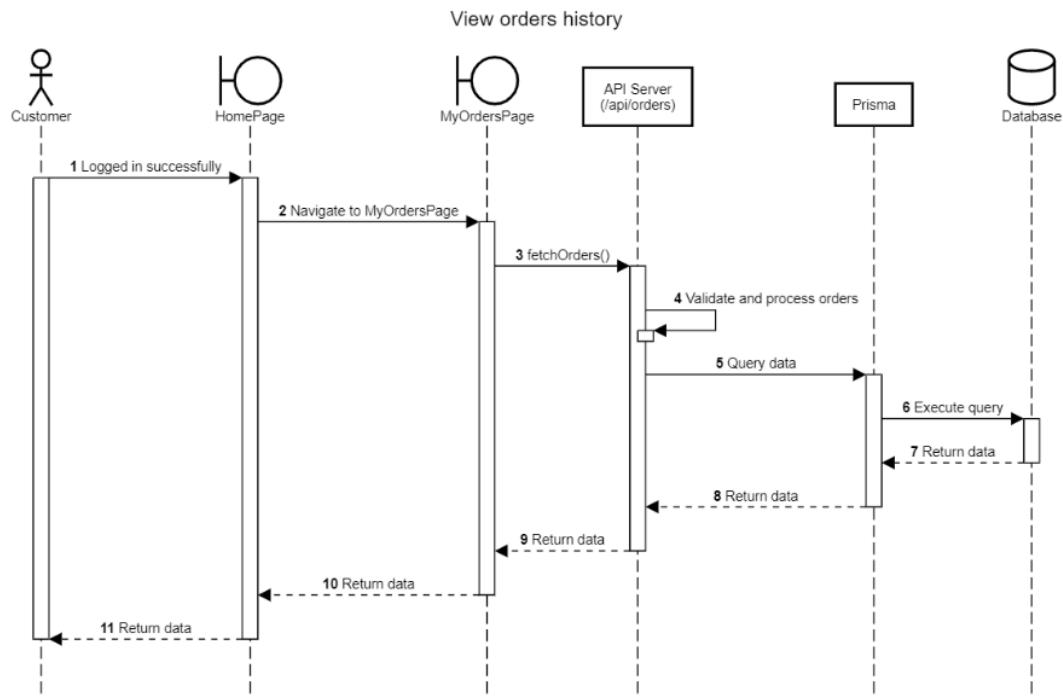


Figure 78 - Class Diagram - View orders history

3.5.2 Sequence Diagram View orders history



3.7 View all blogs

3.7.1 Class Diagram

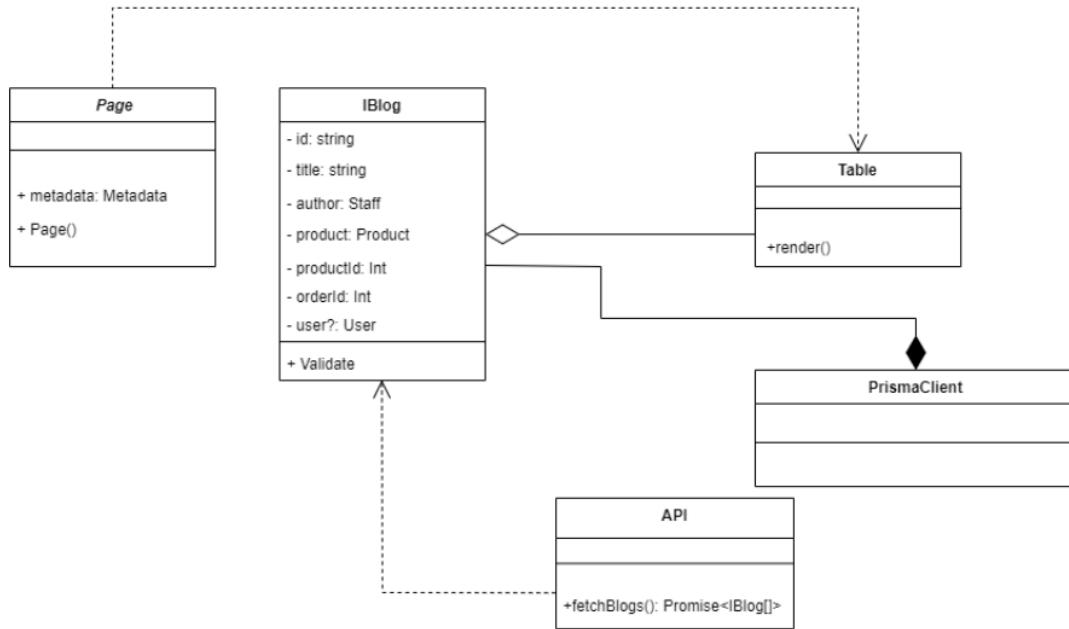


Figure 80 - Class Diagram - View all blogs

3.7.2 Sequence Diagram View all blogs

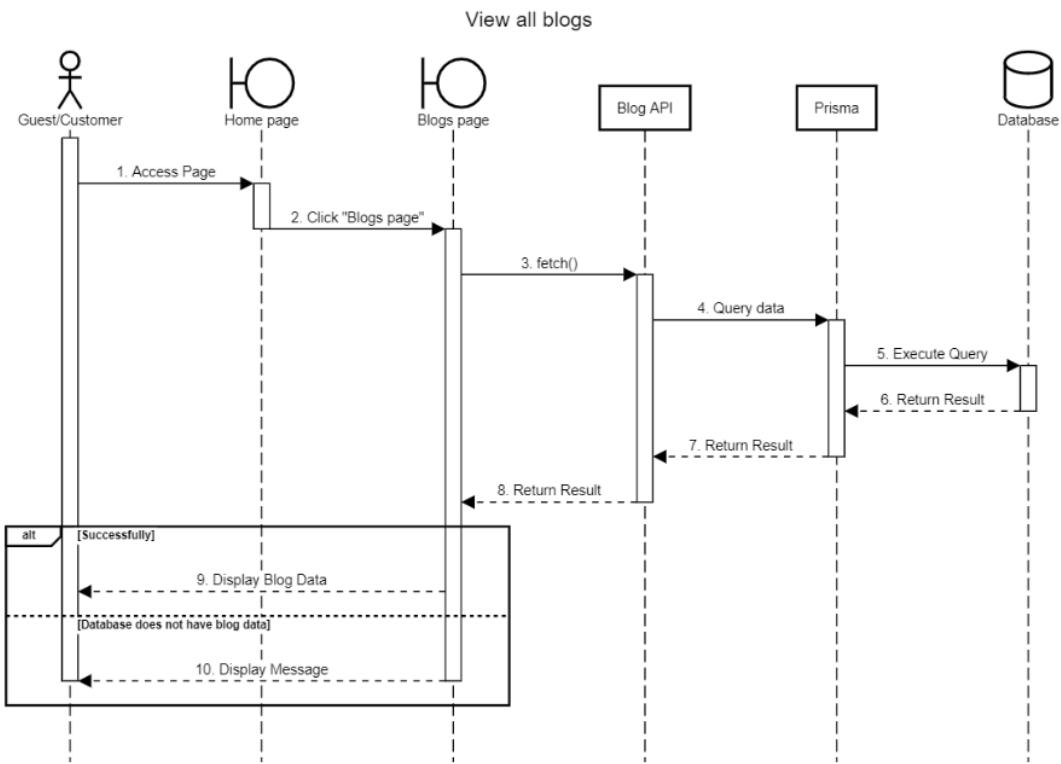


Figure 81 - Sequence Diagram View all blogs

3.8. Suggestion and search by keyword

3.8.1 Class Diagram

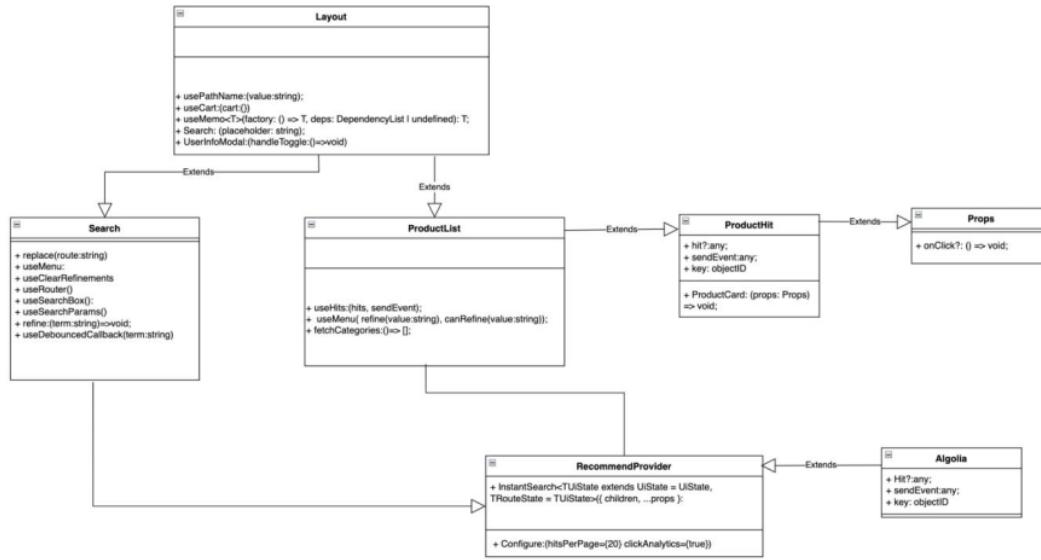


Figure 82 - Class Diagram - Suggestion and search by keyword

3.8.2 Sequence Diagram

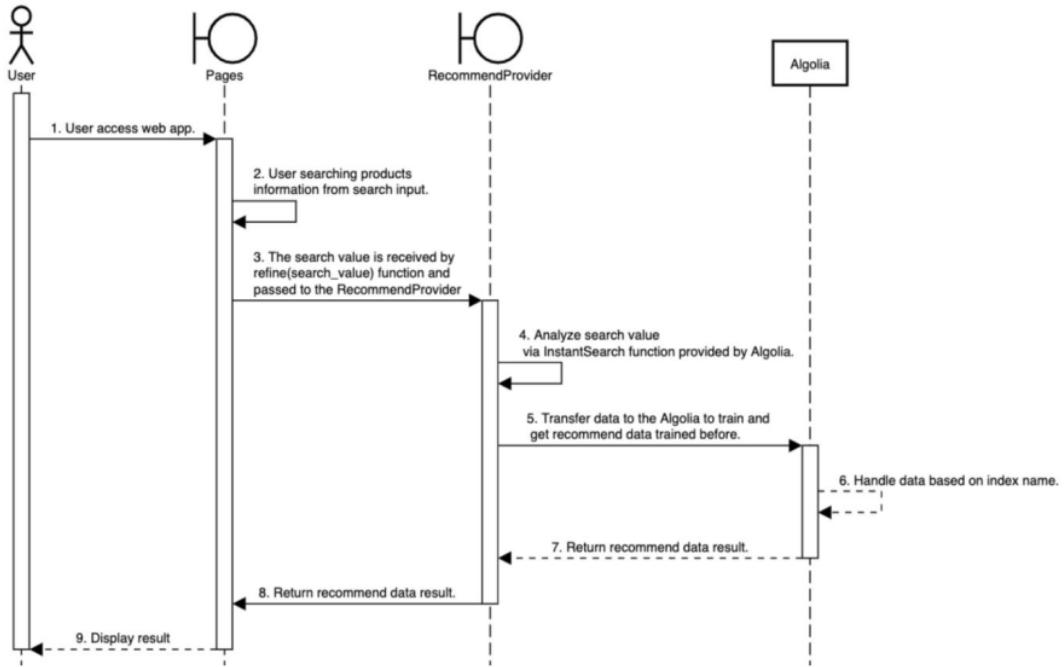


Figure 83 - Sequence Diagram - Suggestion and search by keyword

3.9. Recommendations by behavior

3.9.1 Class Diagram

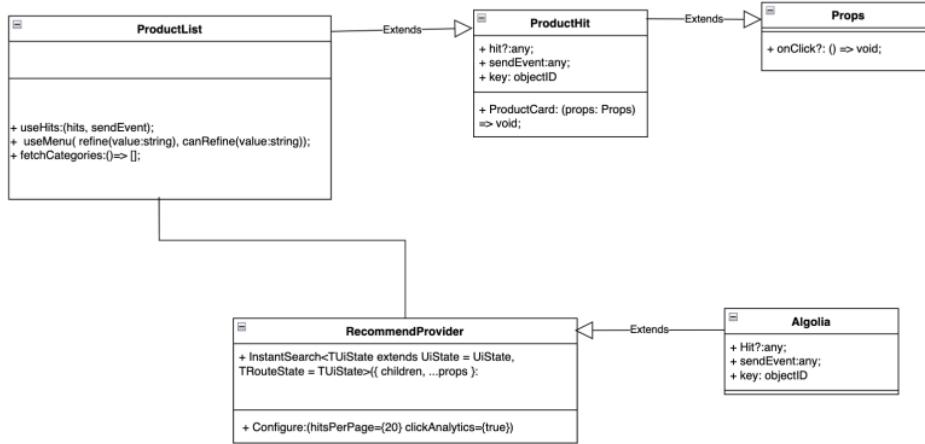


Figure 84 - Class Diagram - Recommendations by behavior

3.9.2 Sequence Diagram

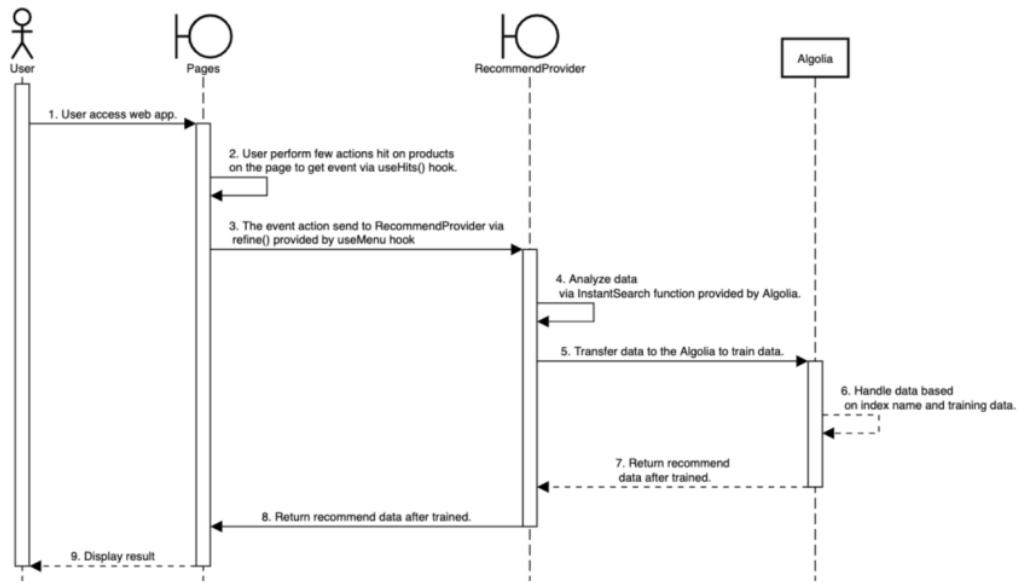


Figure 85 - Sequence Diagram - Recommendations by behavior

3.10 Manage Cart

3.10.1 Class Diagram

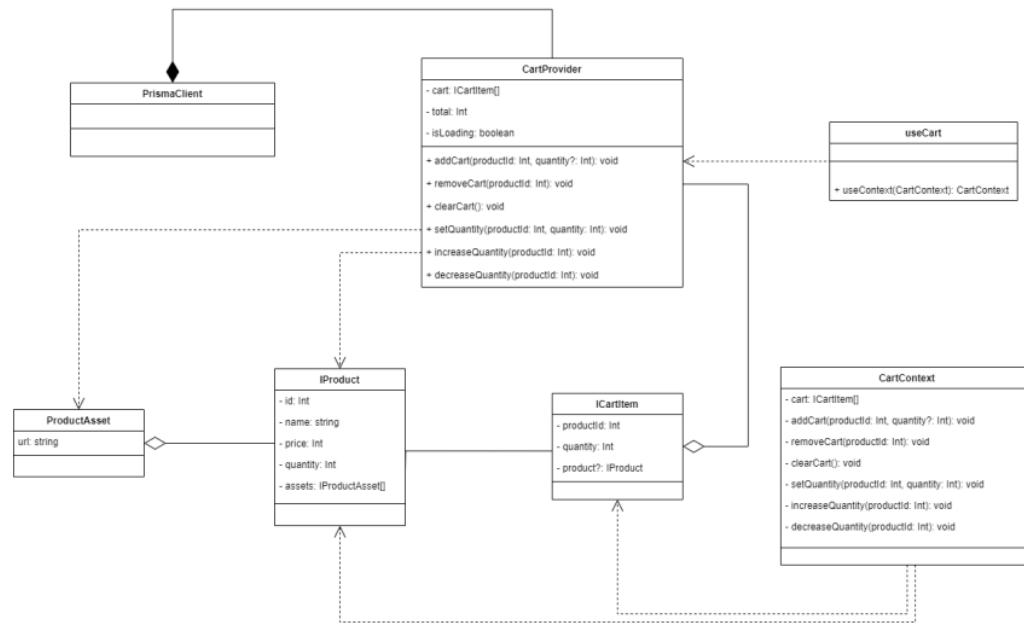


Figure 86 - Class Diagram - Manage Cart

3.10.2 Sequence Diagram Manage Cart (Create)

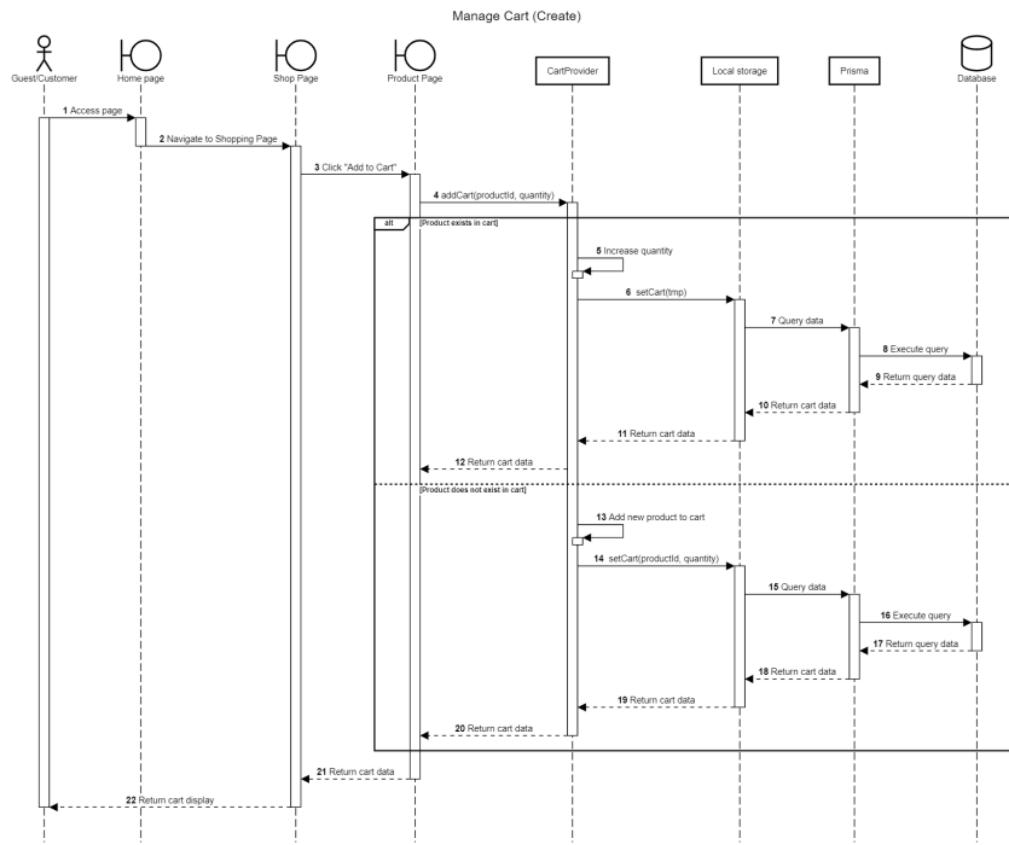


Figure 87 - Sequence Diagram Manage Cart (Create)

3.10.3 Sequence Diagram Manage Cart (UpdateQuantity)

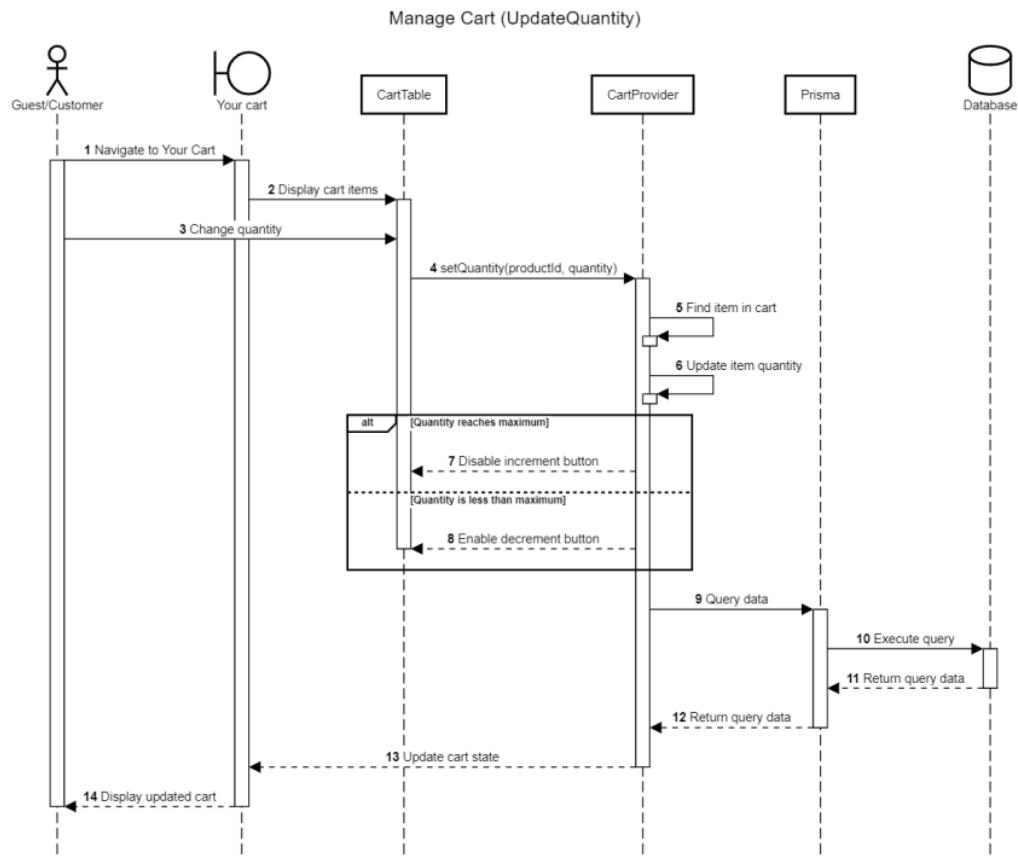


Figure 88 - Sequence Diagram Manage Cart (UpdateQuantity)

3.10.4 Sequence Diagram Manage Cart (Delete)

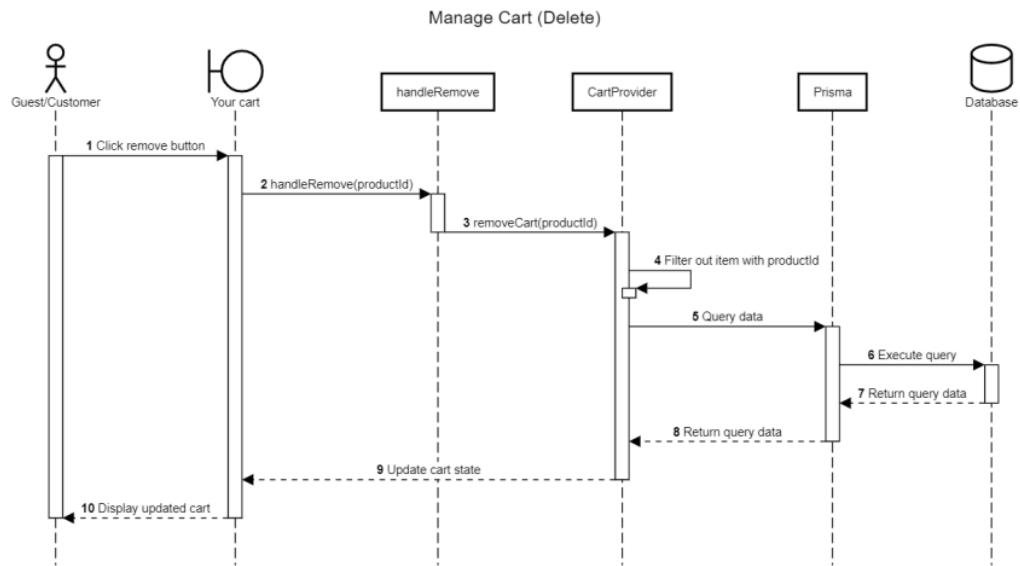


Figure 89 - Sequence Diagram Manage Cart (Delete)

3.10.5 Sequence Diagram Manage Cart (Read)

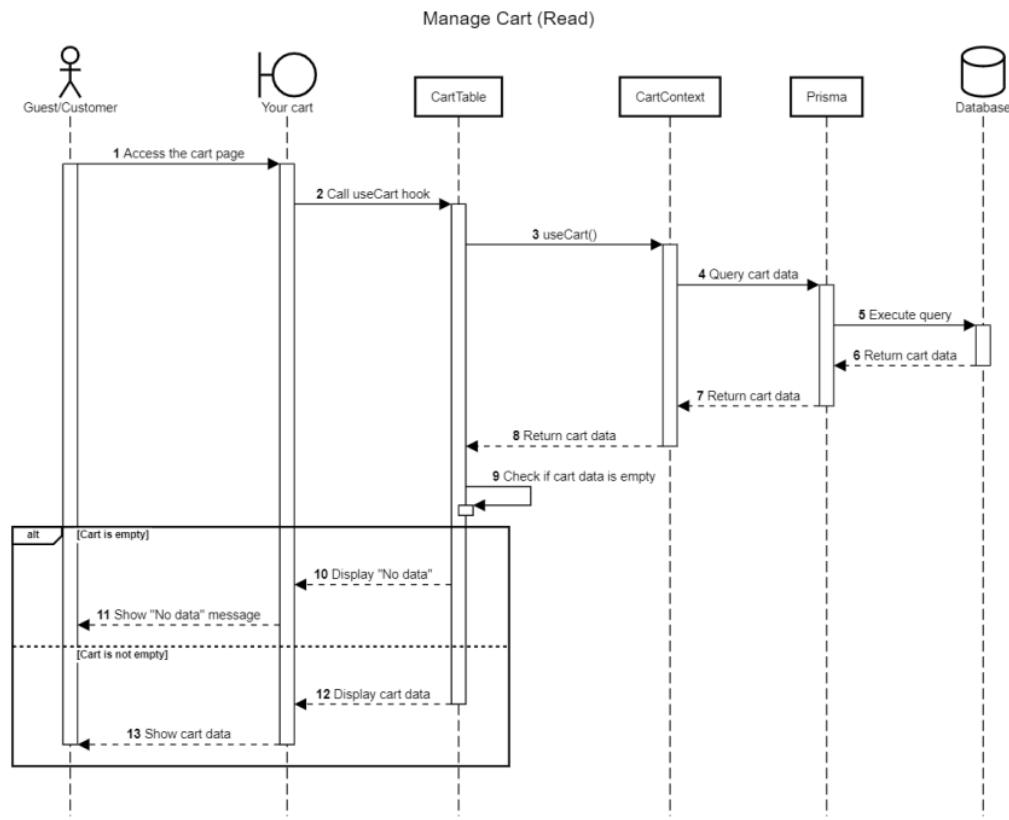


Figure 90 - Sequence Diagram Manage Cart (Read)

3.11 Check out

3.11.1 Class Diagram

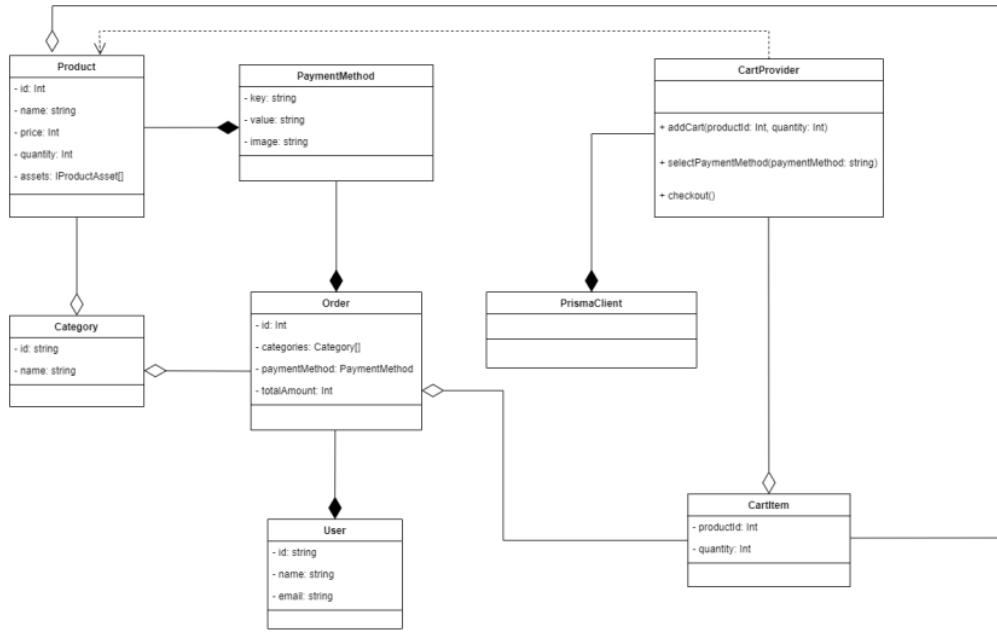


Figure 91 - Class Diagram – Check Out

3.11.2 Sequence Diagram Check out

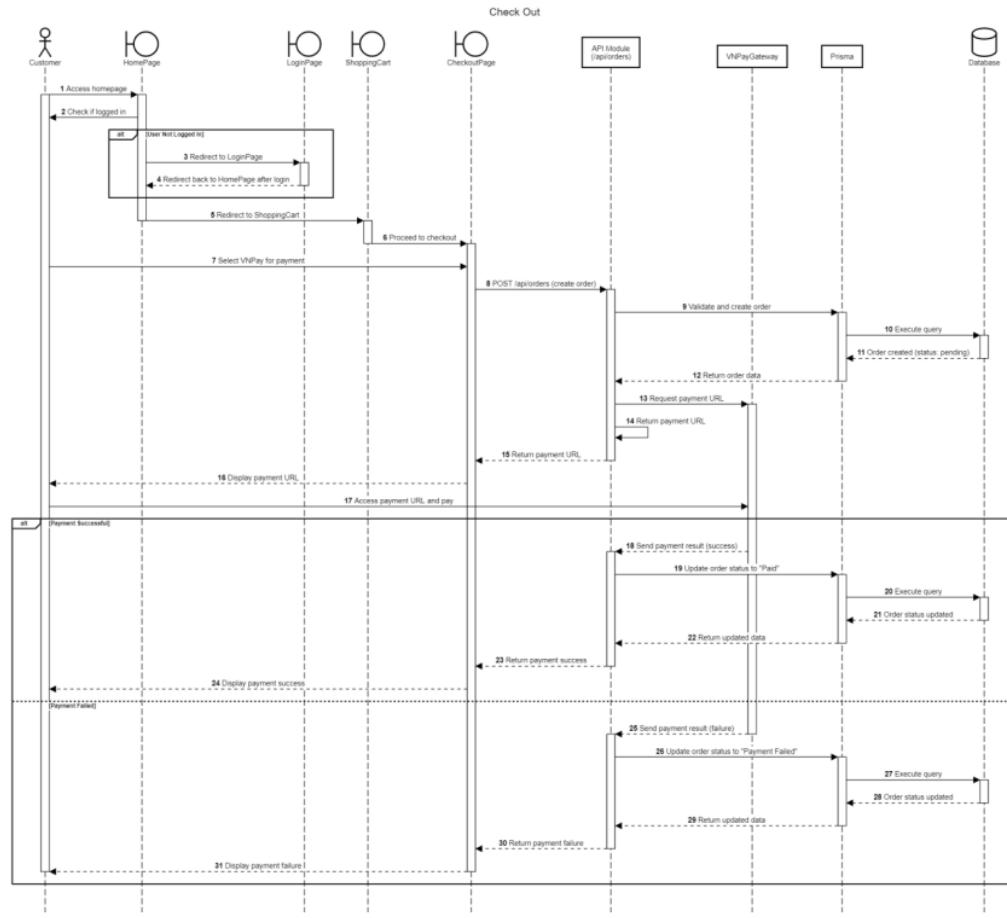


Figure 92 - Sequence Diagram Check out

3.12 Feedback

3.12.1 Class Diagram

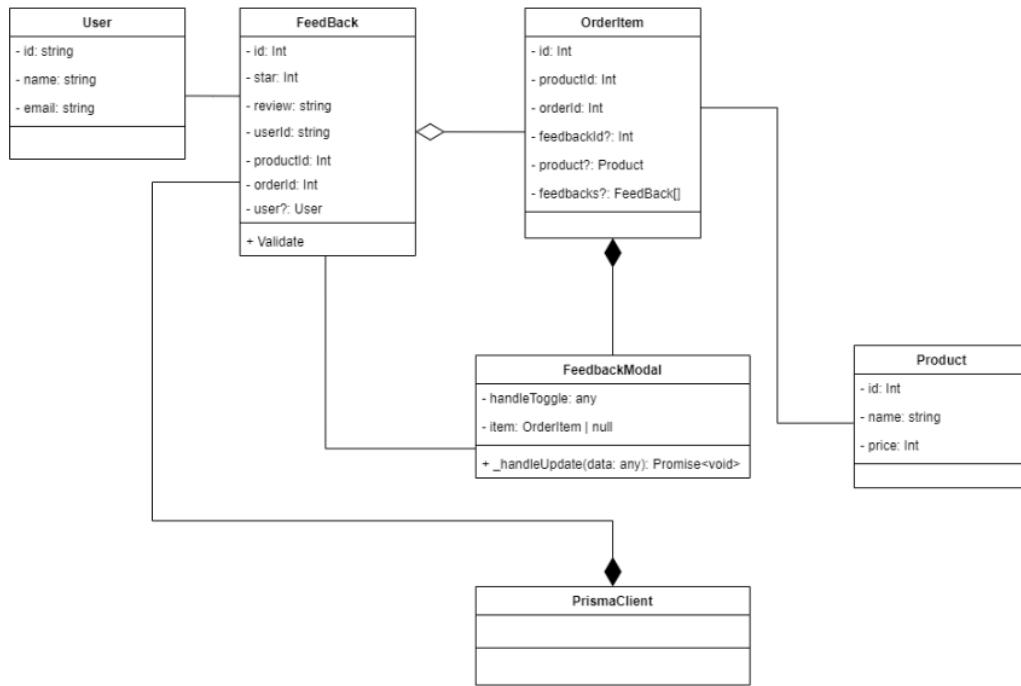


Figure 93 - Class Diagram – Feed Back

3.12.2 Sequence Diagram Feedback

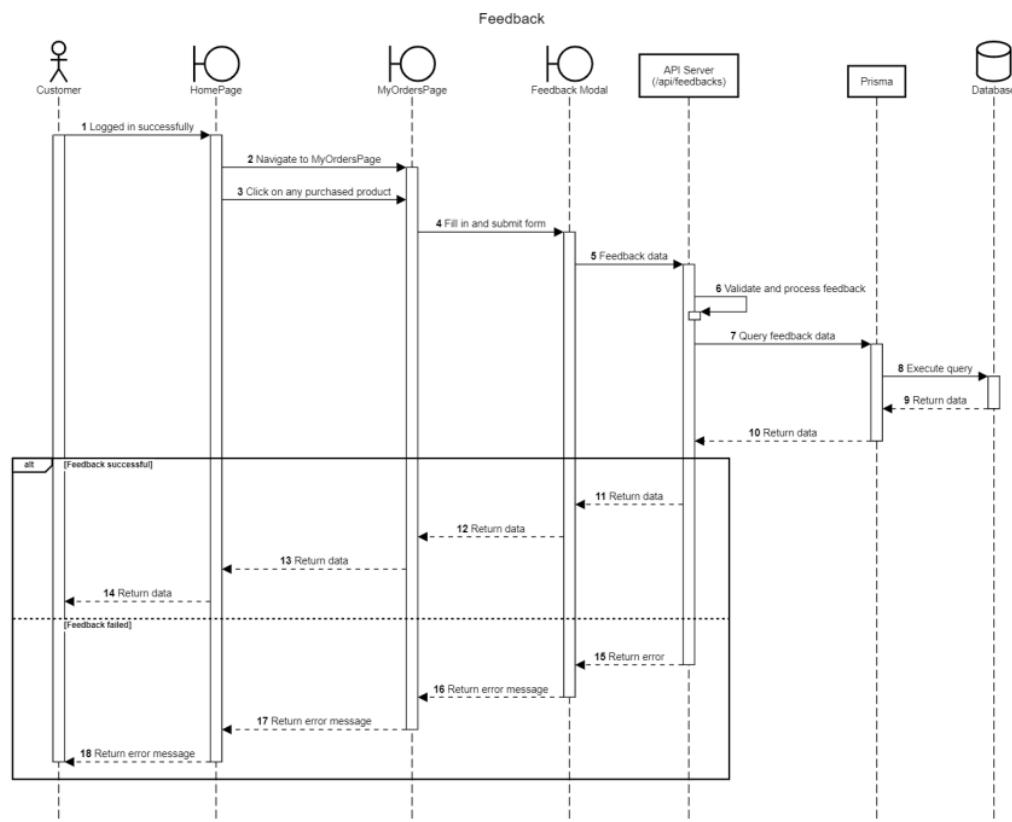


Figure 94 - Sequence Diagram Feedback

3.13 Rating

3.13.1 Class Diagram

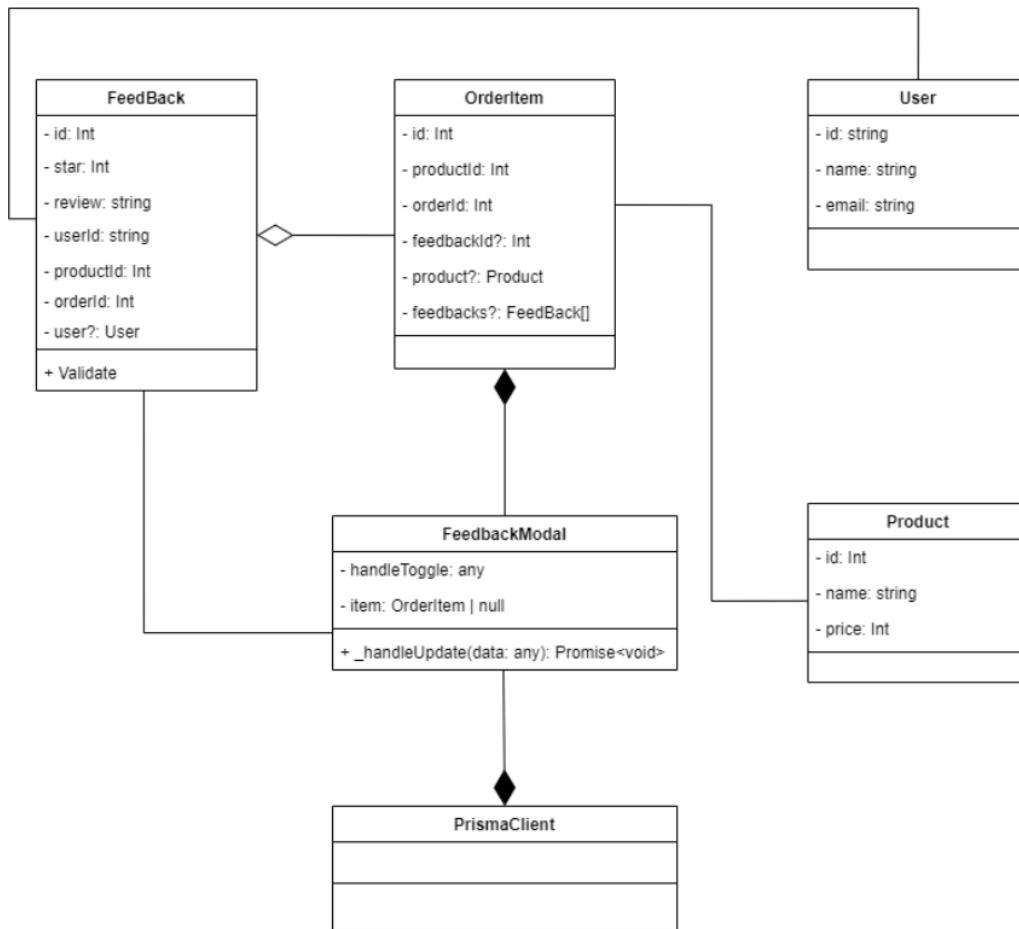


Figure 95 - Class Diagram - Rating

3.13.2 Sequence Diagram Rating

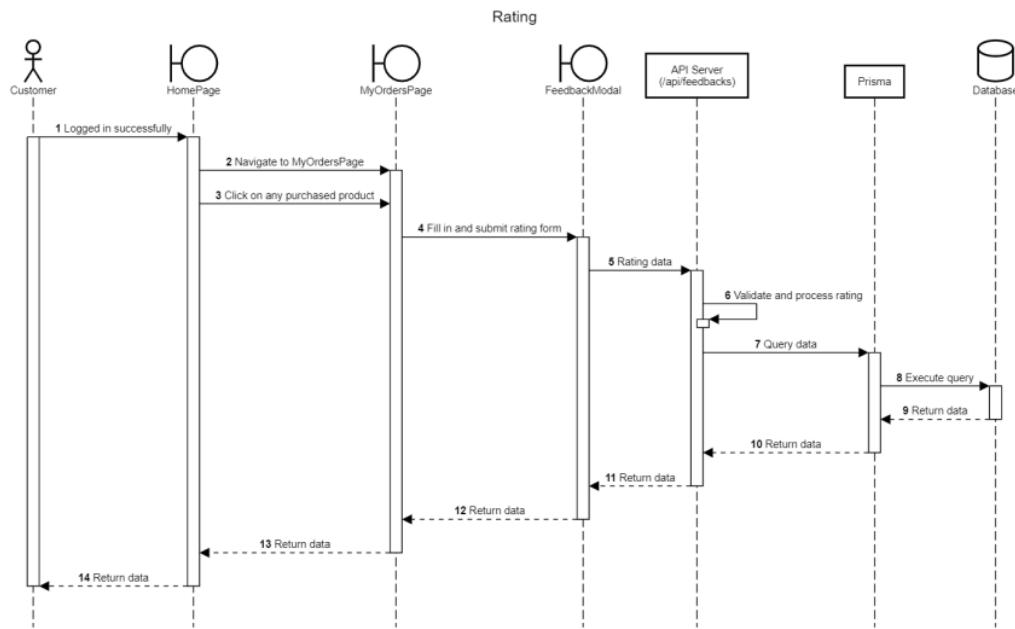


Figure 96 - Sequence Diagram Rating

3.14 Filter

3.14.1 Class Diagram

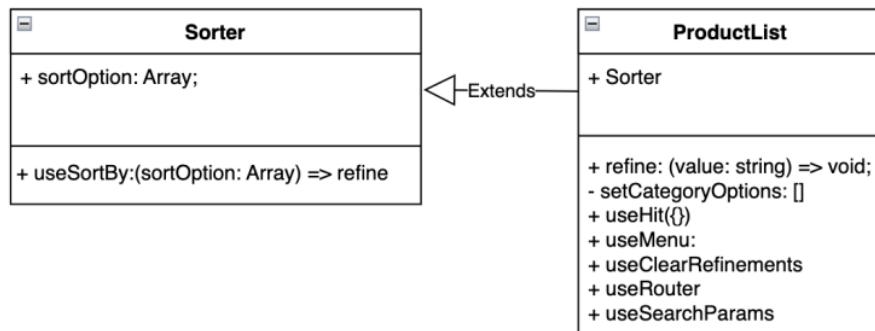


Figure 97 - Class Diagram - Filter

3.14.2 Sequence Diagram

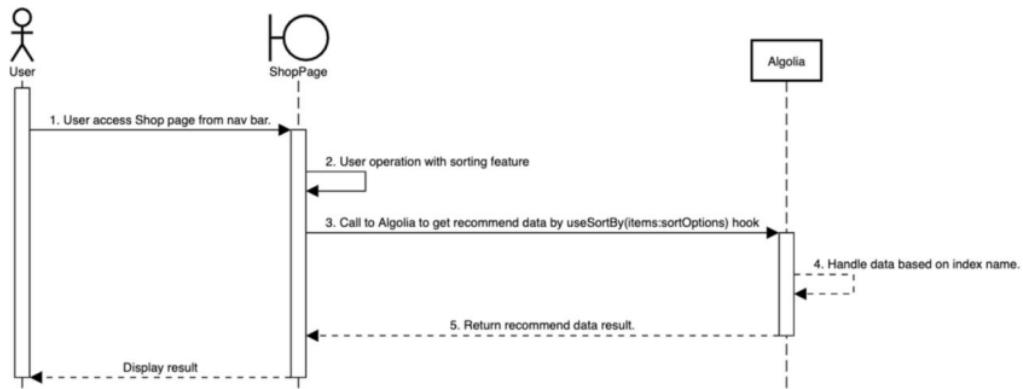


Figure 98 - Sequence Diagram - Filter

3.15 Manage Profile

3.15.1 Class Diagram

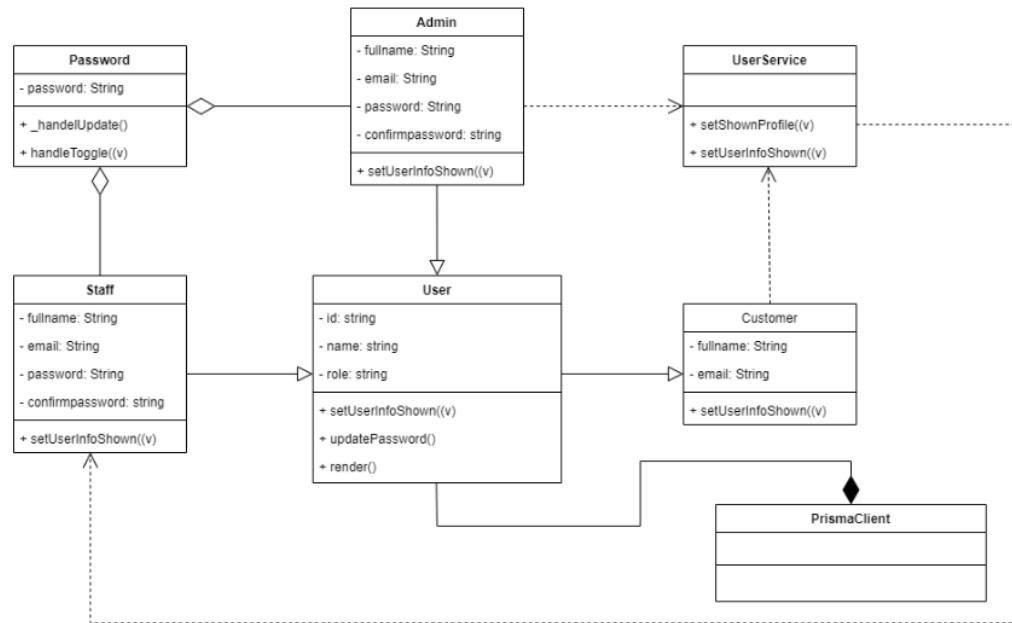


Figure 99 - Class Diagram - Manage Profile

17
3.15.2 Sequence Diagram Manage Profile (Customer view profile)

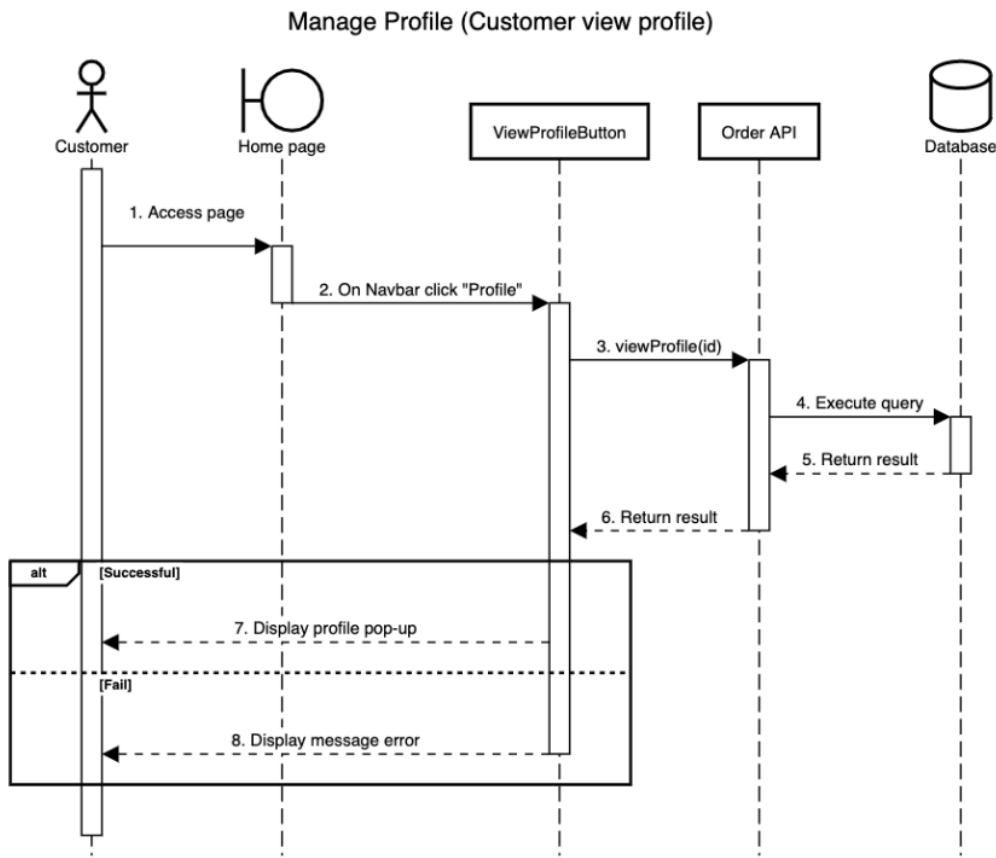


Figure 100 - Sequence Diagram Manage Profile (Customer view profile)

3.15.3 Sequence Diagram Manage Profile (Admin/Staff view profile)

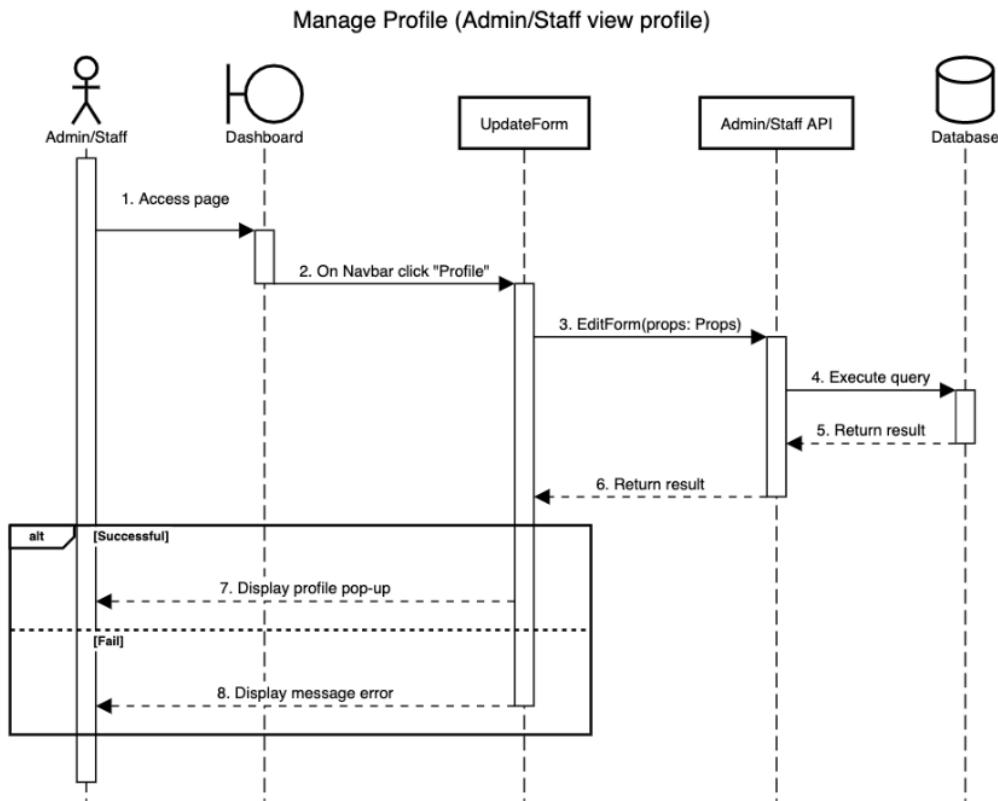


Figure 101 - Sequence Diagram Manage Profile (Admin/Staff view profile)

3.15.4 Sequence Diagram Manage Profile (Admin/Staff update profile)

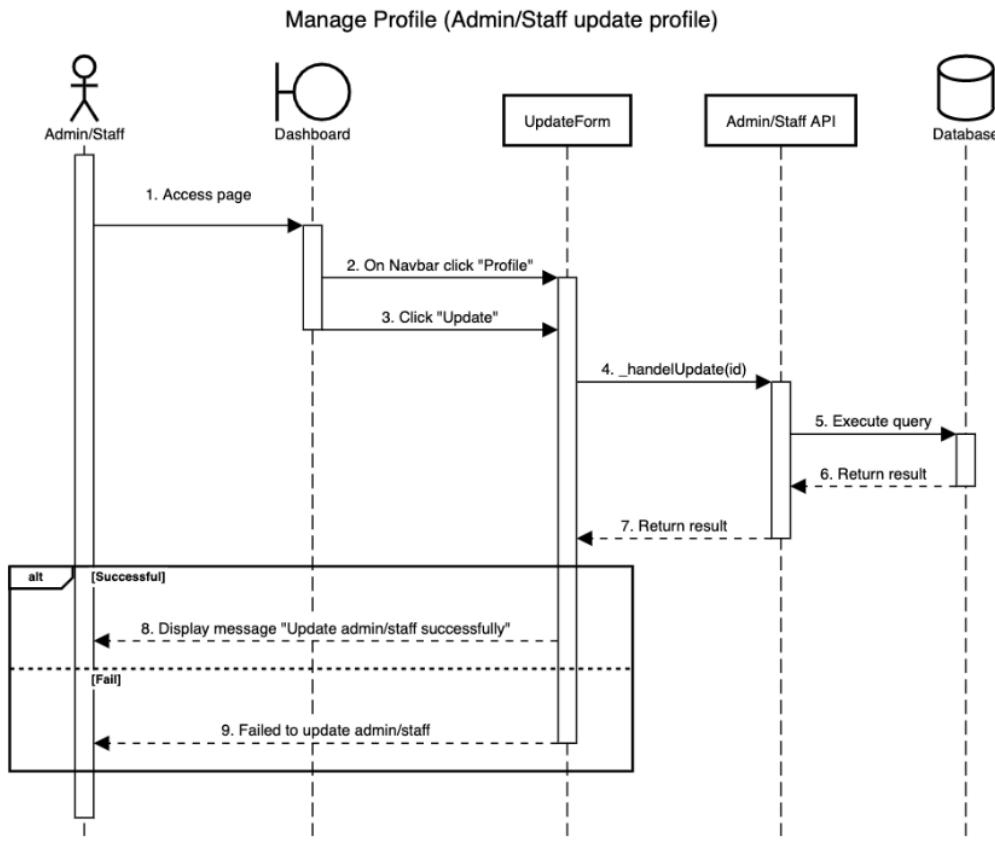


Figure 102 - Sequence Diagram Manage Profile (Admin/Staff update profile)

3.16 Manage Blogs

3.16.1 Class Diagram

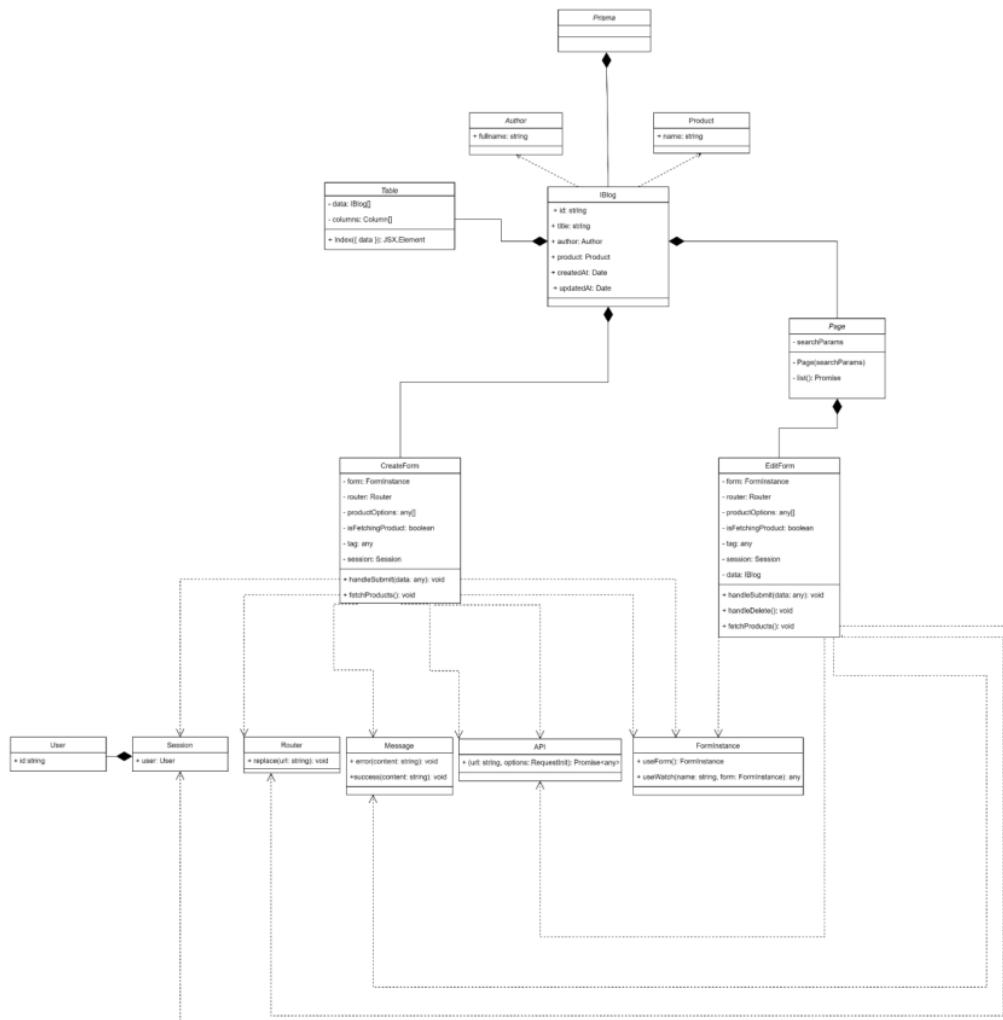


Figure 103 - Class Diagram - Manage Blogs

3.16.2 Sequence Diagram Manage Blogs(View)

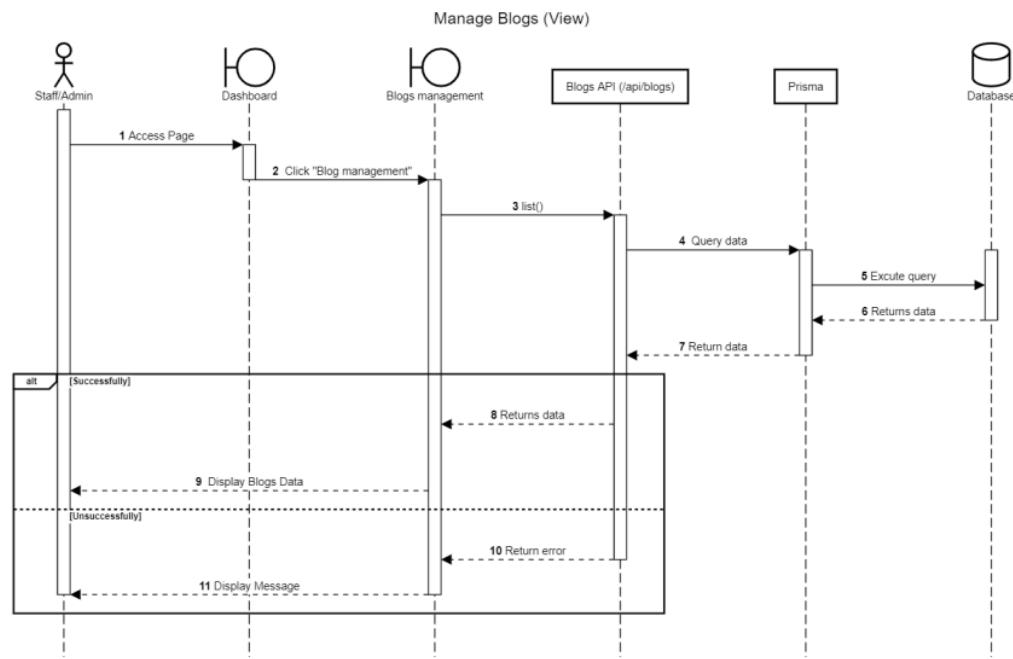


Figure 104 - Sequence Diagram Manage Blogs(View)

3.16.3 Sequence Diagram Manage Blogs(Create)

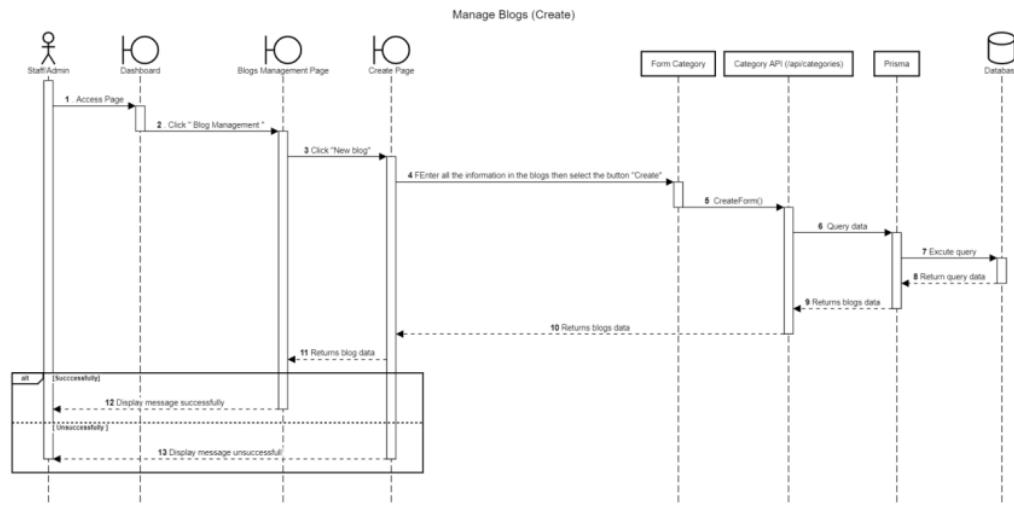


Figure 105 - Sequence Diagram Manage Blogs(Create)

3.16.4 Sequence Diagram Manage Blogs(Update)

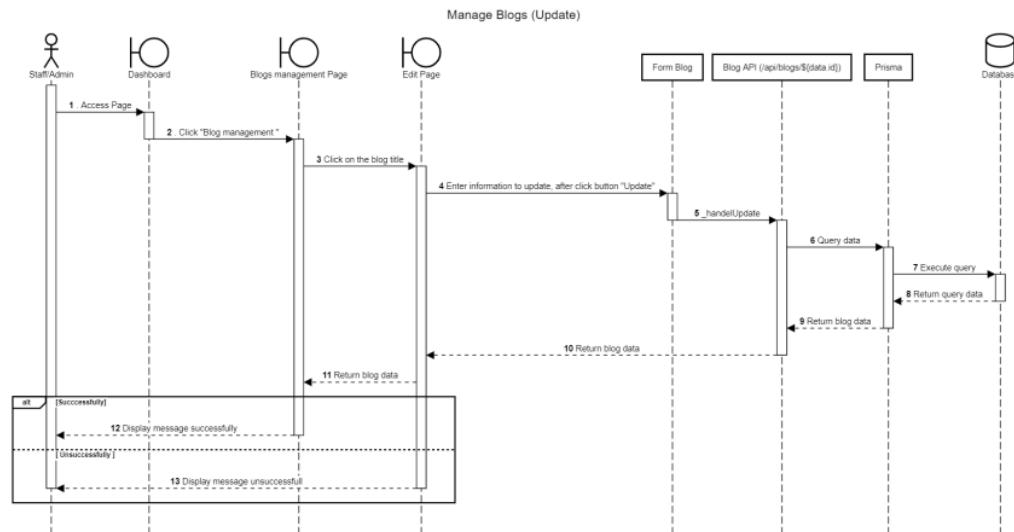


Figure 106 - Sequence Diagram Manage Blogs(Update)

3.16.5 Sequence Diagram Manage Blogs(Delete)

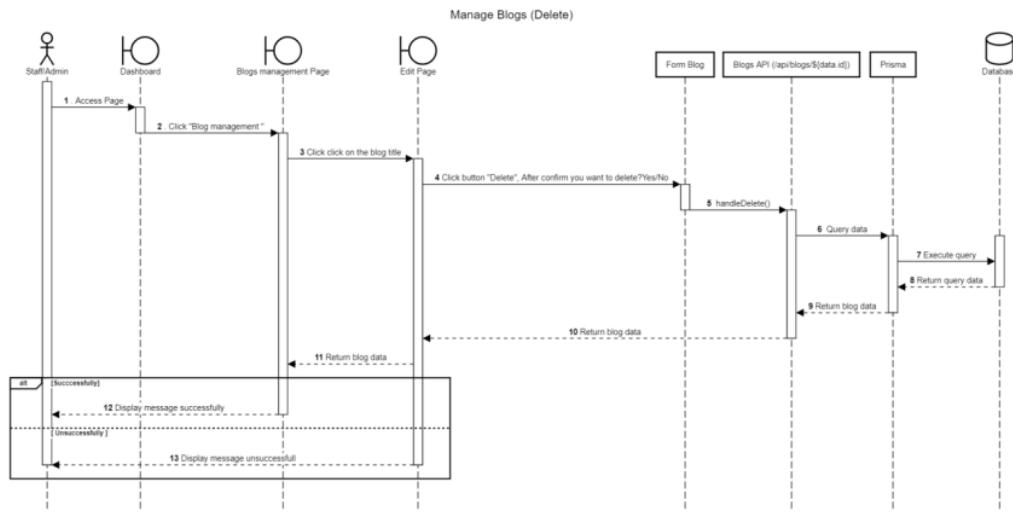


Figure 107 - Sequence Diagram Manage Blogs(Delete)

3.17 Manage Order

3.17.1 Class Diagram

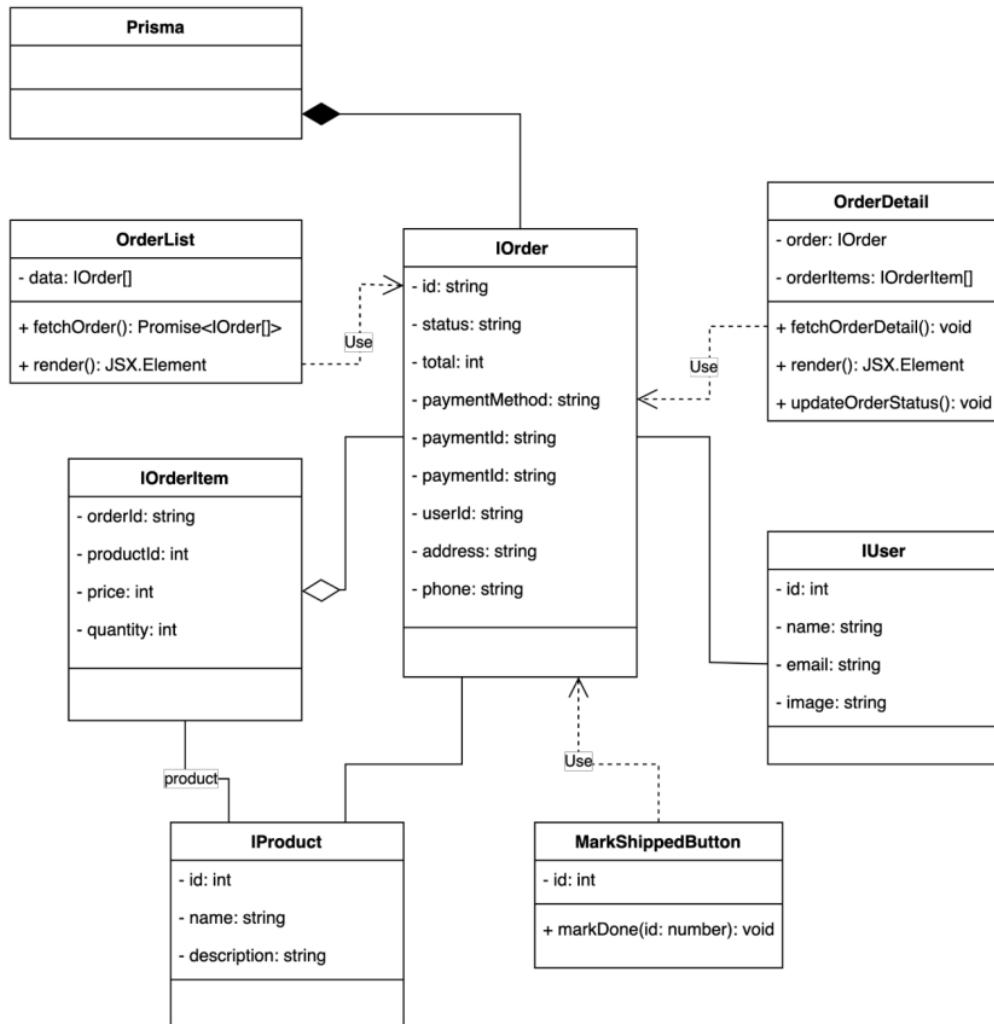


Figure 108 - Class Diagram - Manage Order

5

3.17.2 Sequence Diagram Manage Order (View order list)

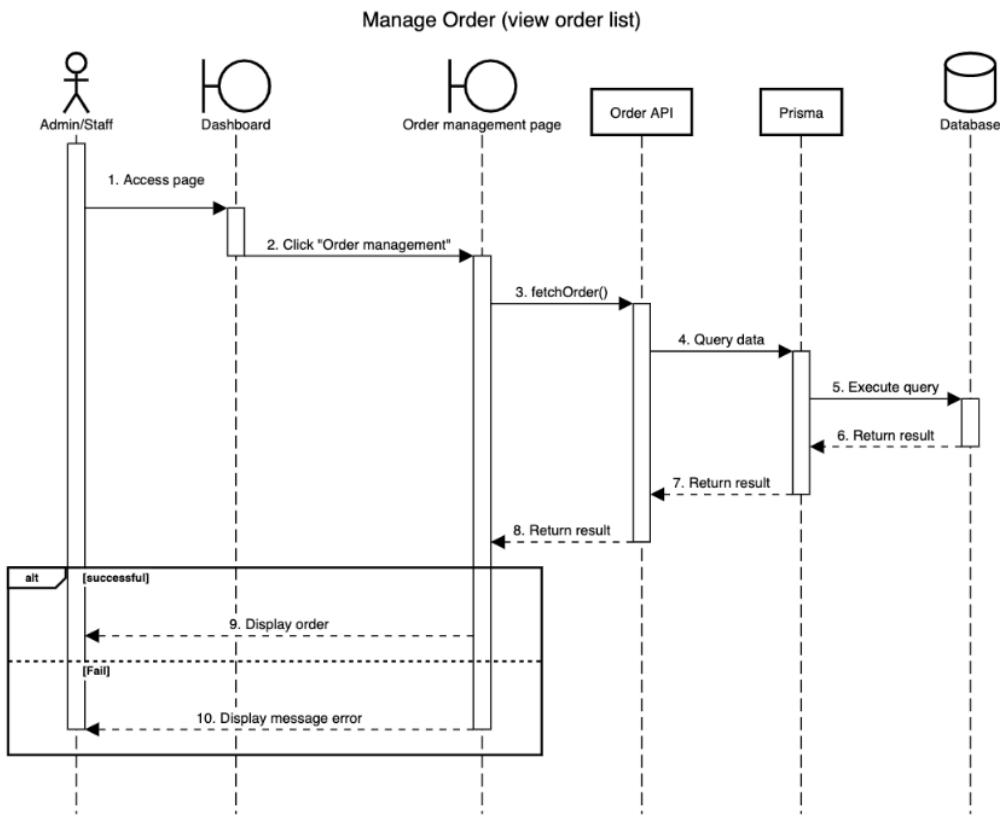


Figure 109 - Sequence Diagram Manage Order (View order list)

5

3.17.3 Sequence Diagram Manage Order (View order details)

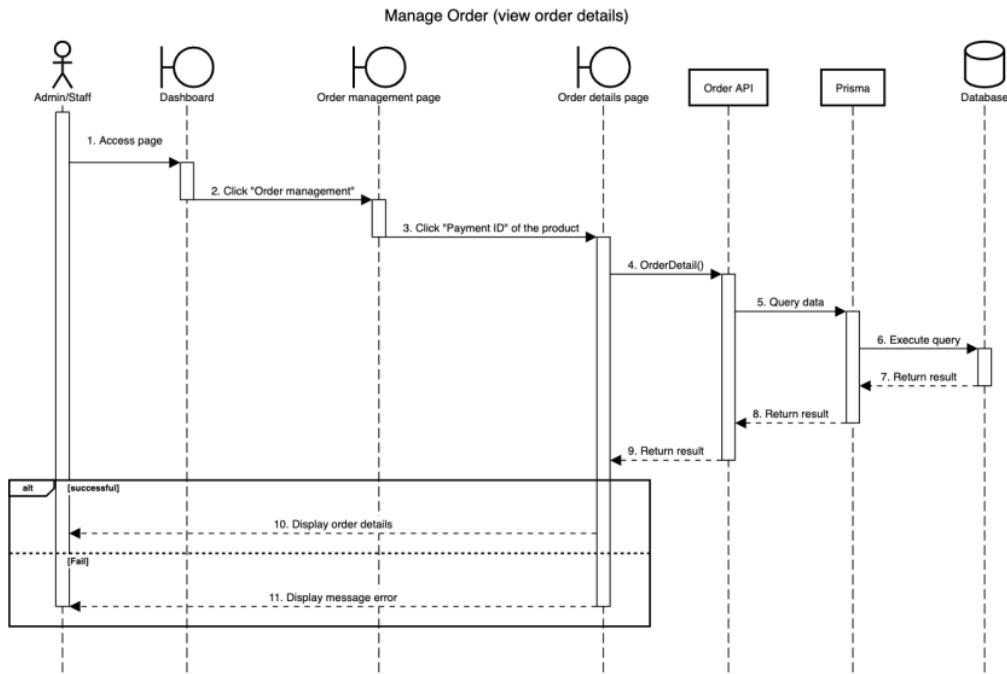


Figure 110 - Sequence Diagram Manage Order (View order details)

5

3.17.4 Sequence Diagram Manage Order (Update order status)

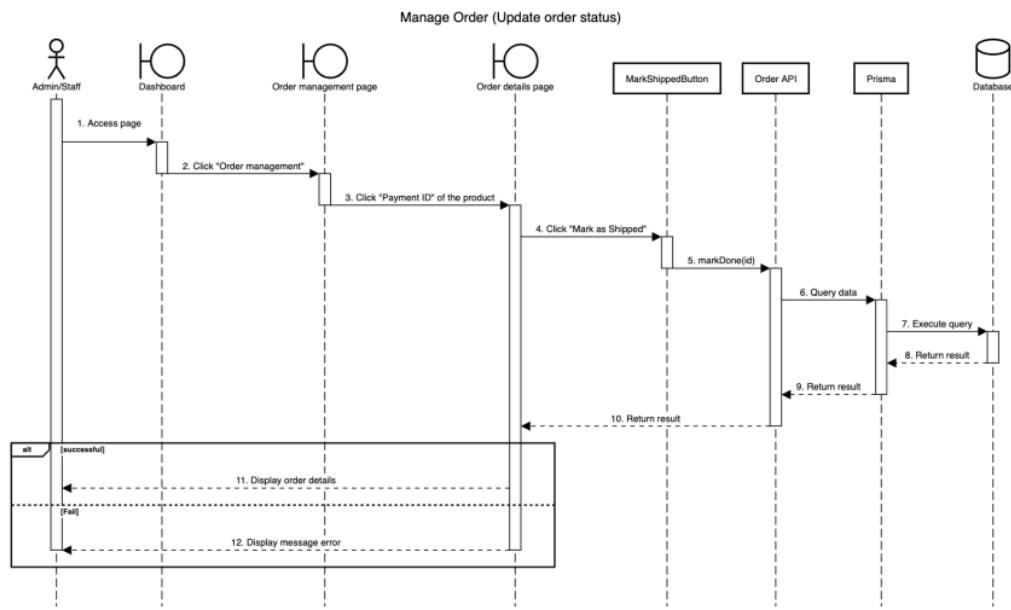


Figure 111 - Sequence Diagram Manage Order (Update order status)

3.18 Manage Product

3.18.1 Class Diagram

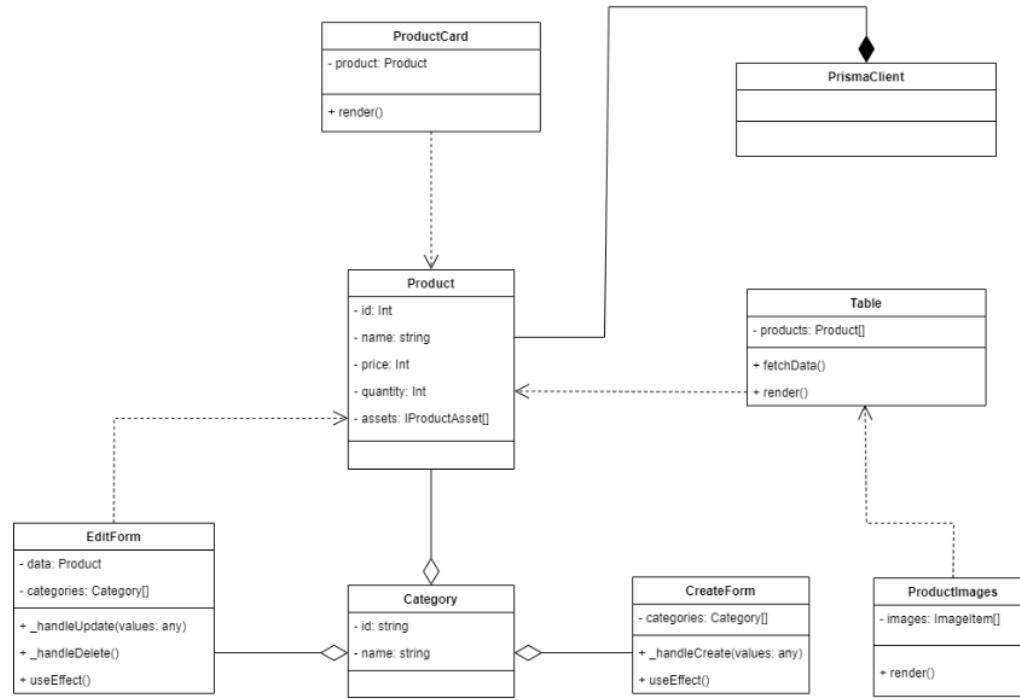


Figure 112 - Class Diagram - Manage Product

43

3.18.2 Sequence Diagram Manage Product (View)

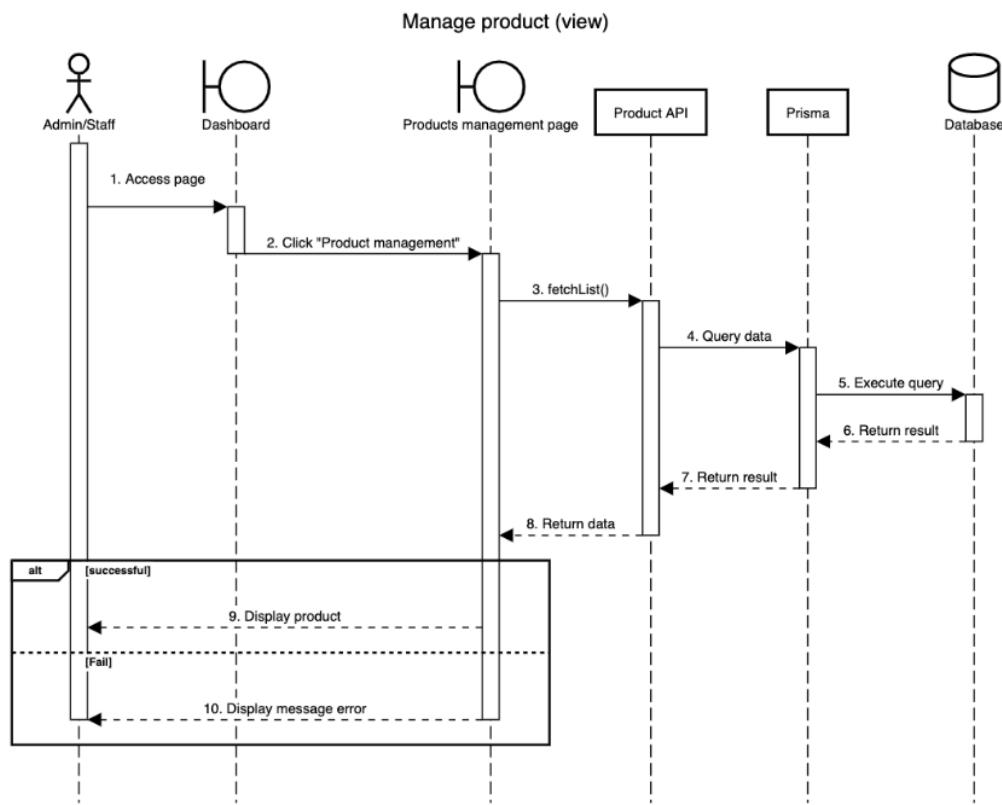


Figure 113 - Sequence Diagram Manage Product (View)

5

3.18.3 Sequence Diagram Manage Product (Update)

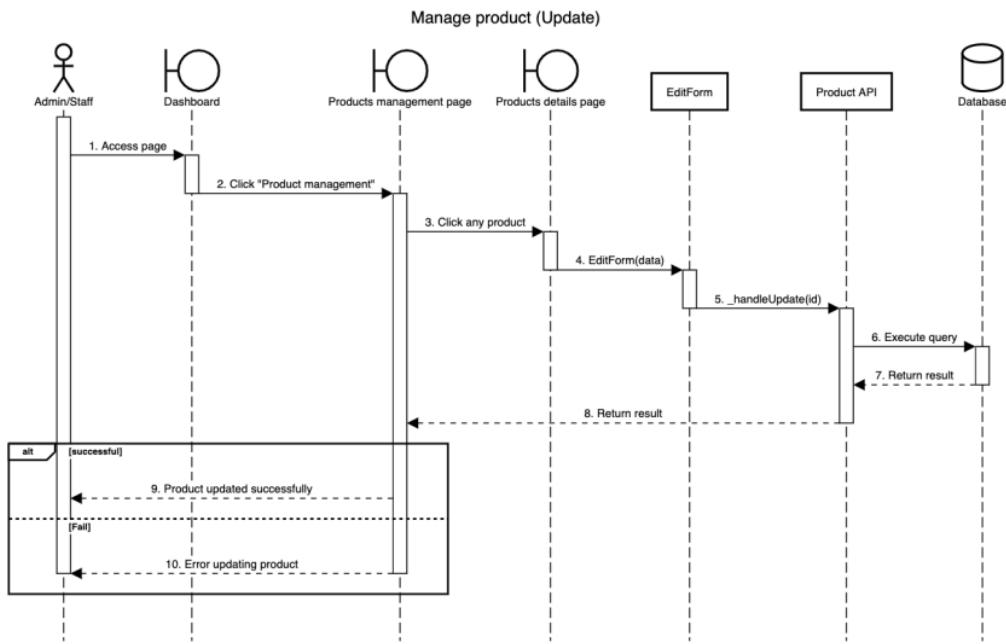


Figure 114 - Sequence Diagram Manage Product (Update)

3.18.4 Sequence Diagram Manage Product (Delete)

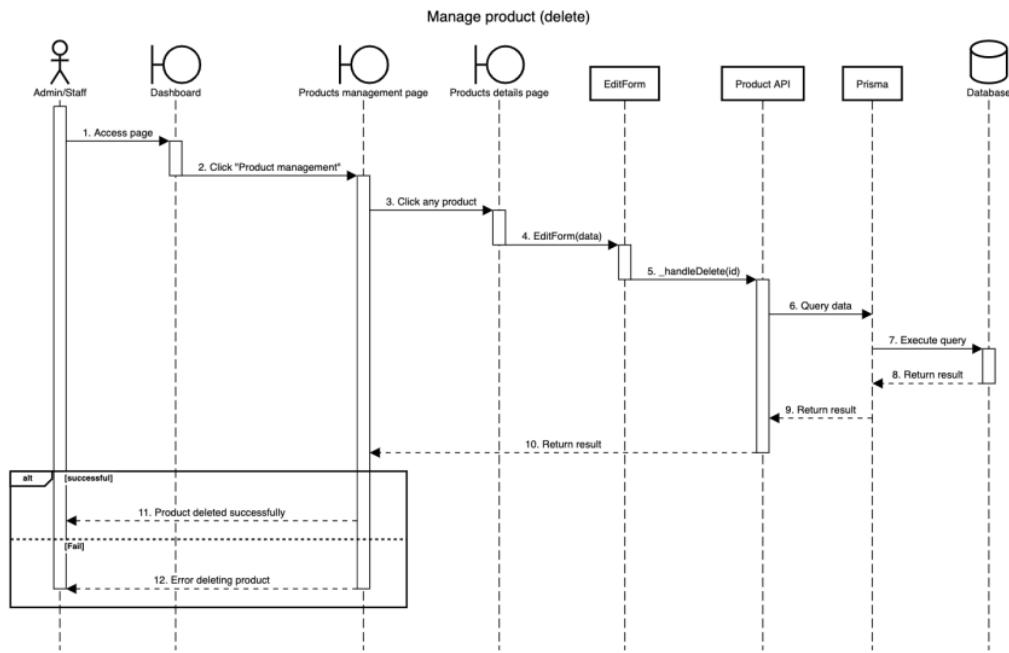


Figure 115 - Sequence Diagram Manage Product (Delete)

5

3.18.5 Sequence Diagram Manage Product (Add new product)

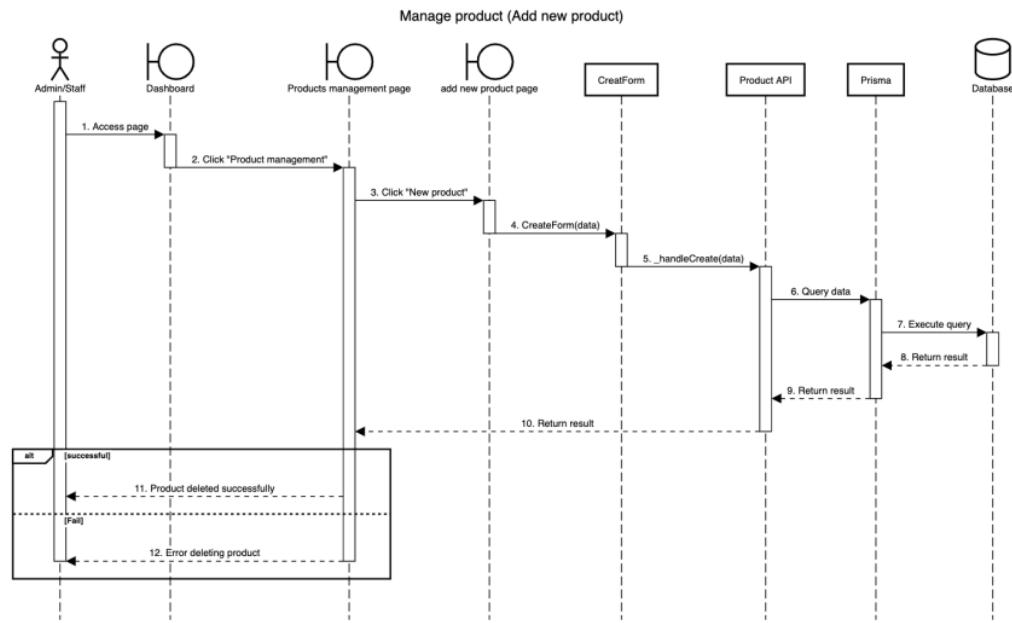
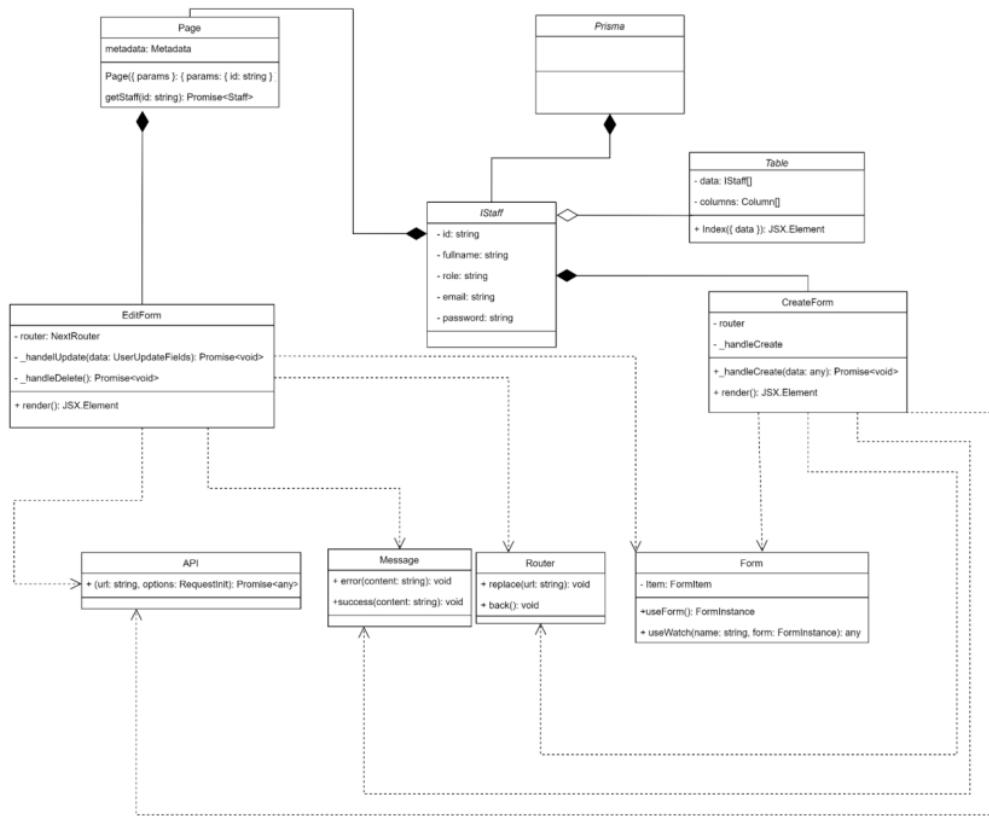


Figure 116 - Sequence Diagram Manage Product (Add new product)

3.19 Manage Staff

3.19.1 Class Diagram



15

Figure 117 - Class Diagram - Manage Staff

3.19.2 Sequence Diagram Manage Staff (View)

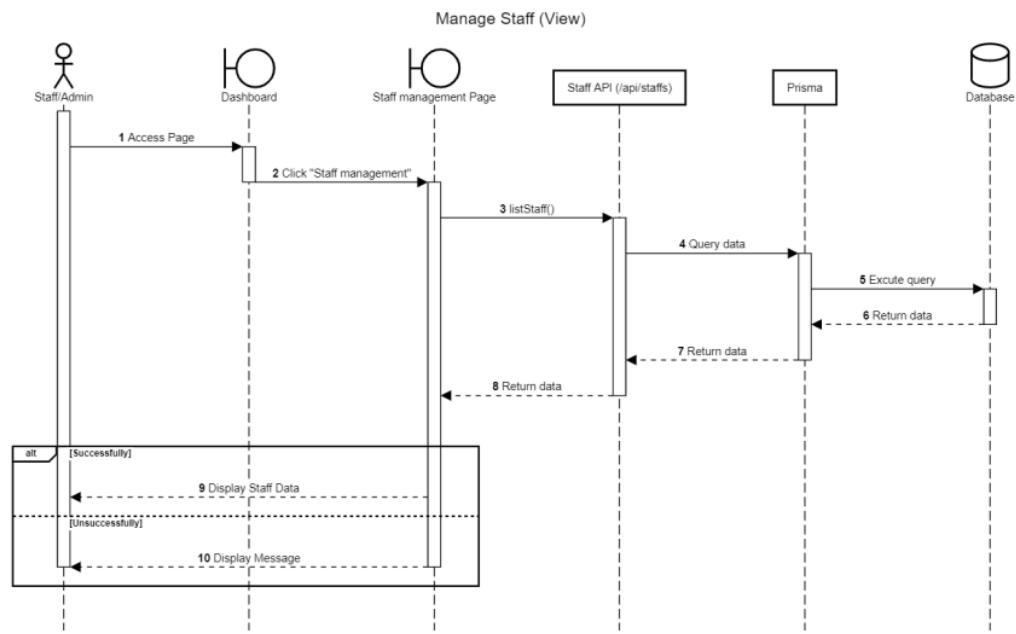


Figure 118 - Sequence Diagram Manage Staff (View)

3.19.3 Sequence Diagram Manage Staff (Create)

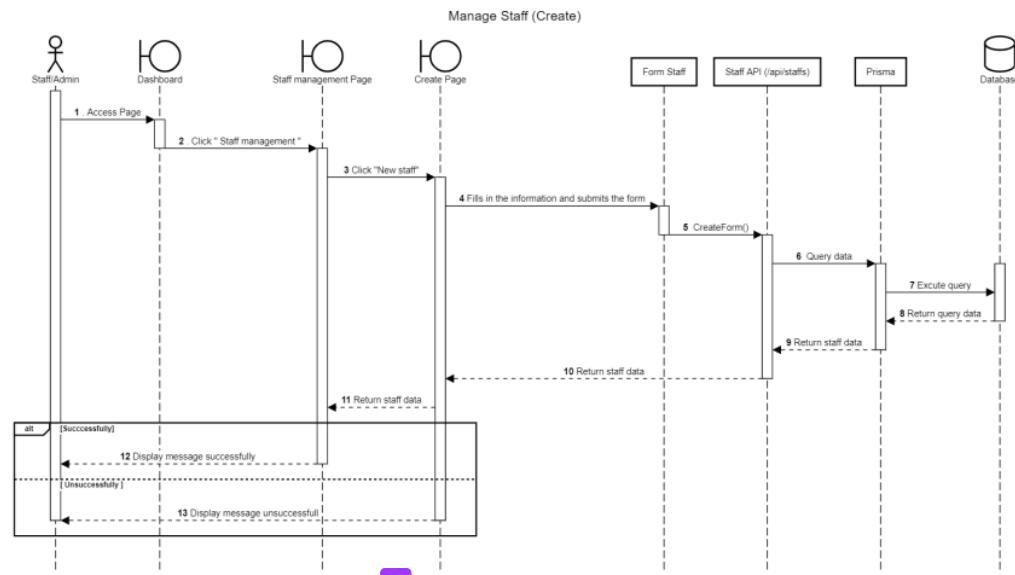


Figure 119 - Sequence Diagram Manage Staff (Create)

3.19.4 Sequence Diagram Manage Staff (Update)

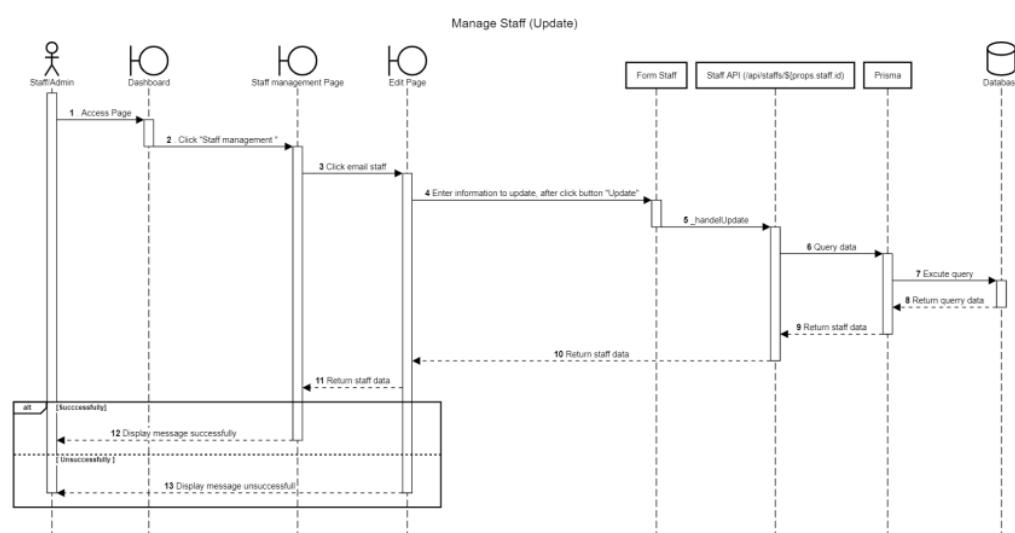


Figure 120 - Sequence Diagram Manage Staff (Update)

3.19.5 Sequence Diagram Manage Staff (Delete)

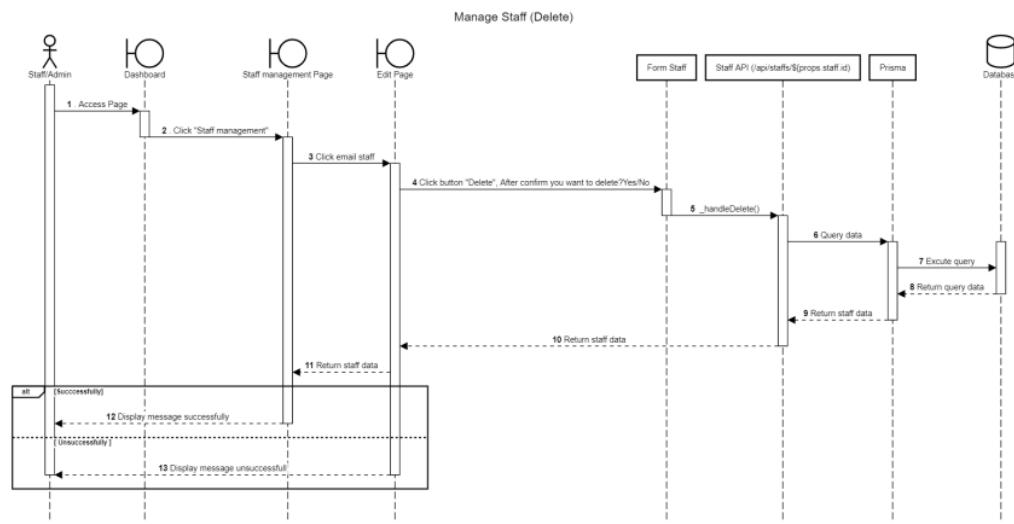


Figure 121 - Sequence Diagram Manage Staff (Delete)

3.20 Manage Customer

3.20.1 Class Diagram

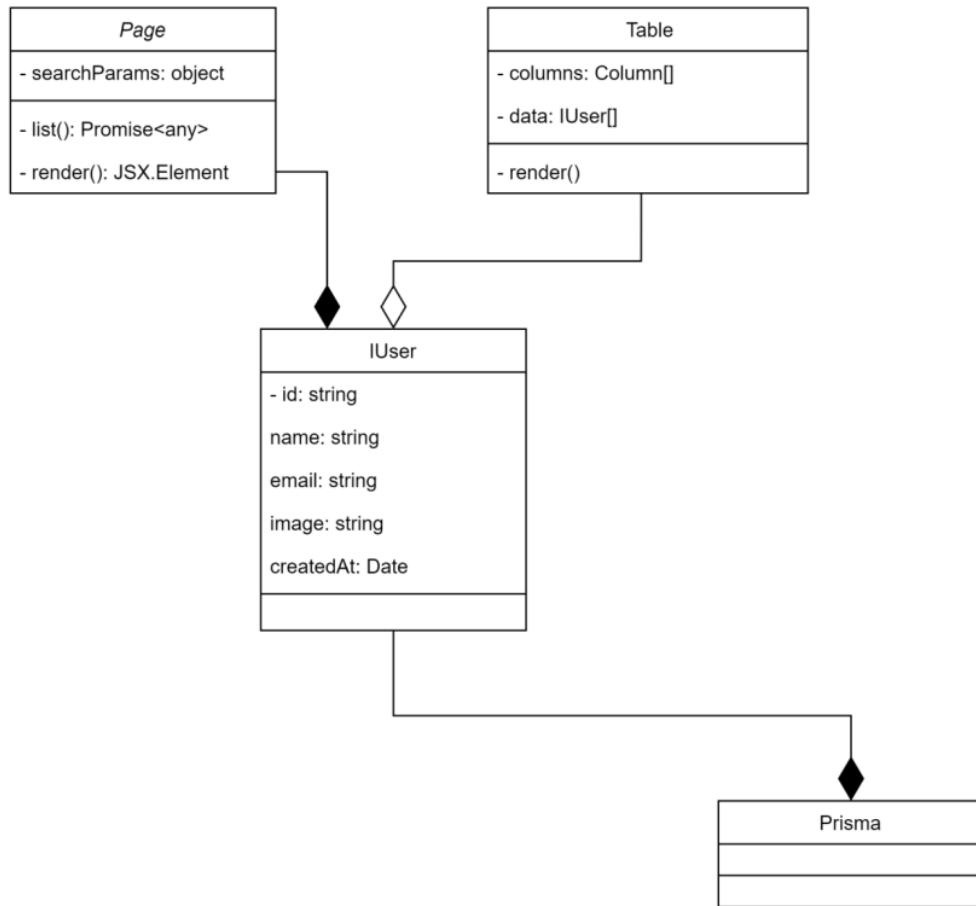


Figure 122 - Class Diagram - Manage Customer

3.20.2 Sequence Diagram Manage Customer (View)

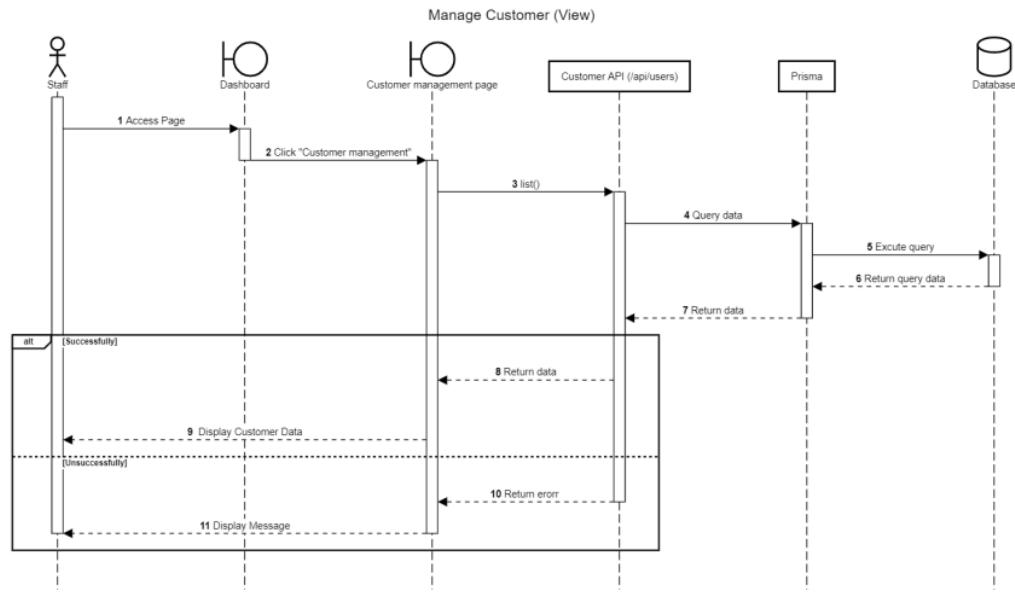


Figure 123 - Sequence Diagram Manage Customer (View)

3.21 Dashboard Statistics

3.21.1 Class Diagram

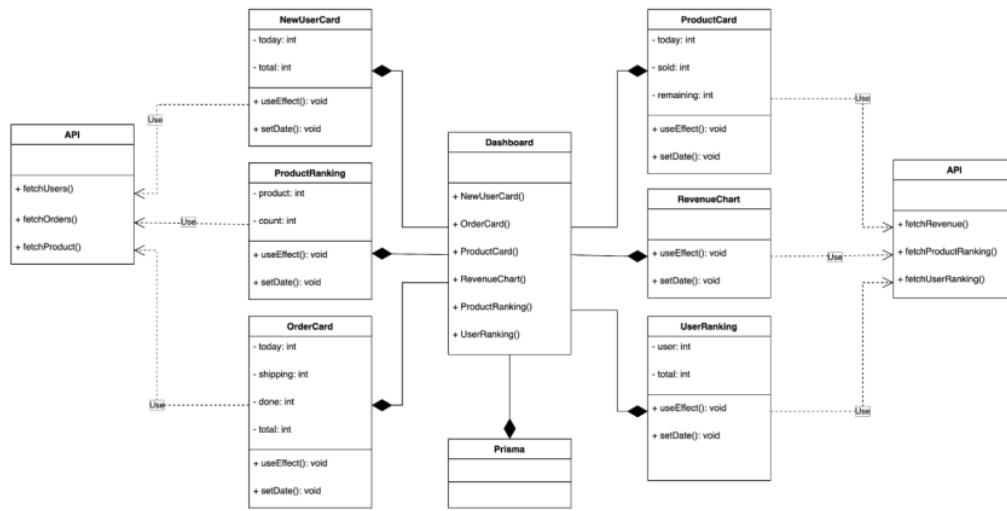


Figure 124 - Class Diagram - Dashboard Statistics

3.21.2 Sequence Diagram Dashboard Statistics

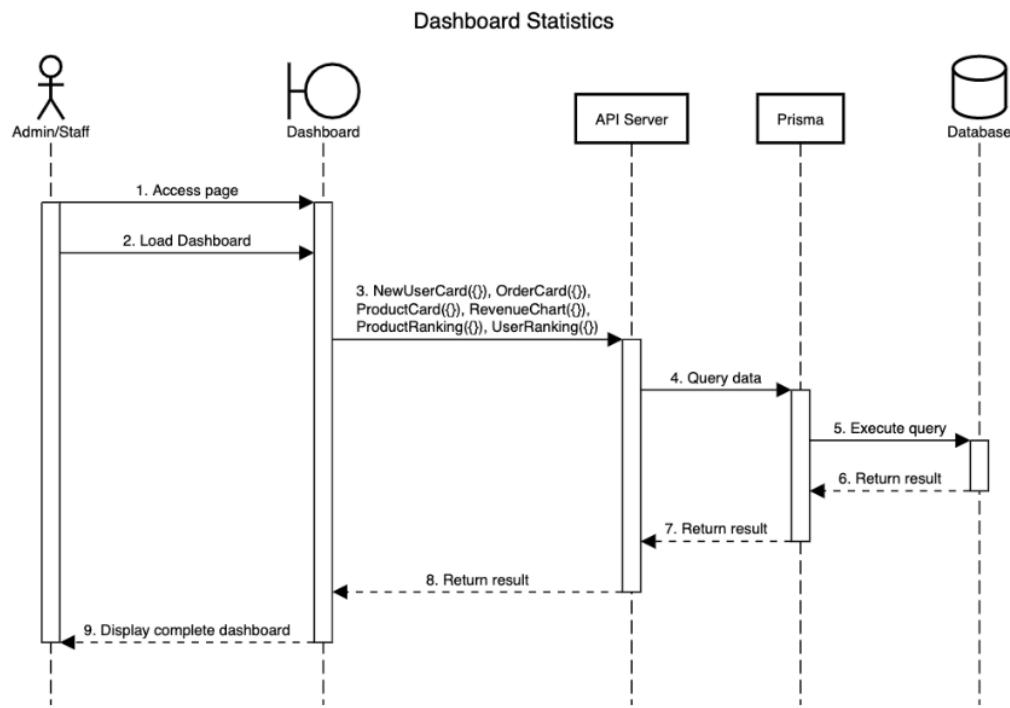


Figure 125 - Sequence Diagram Dashboard Statistics

3.22 Export File

3.22.1 Class Diagram

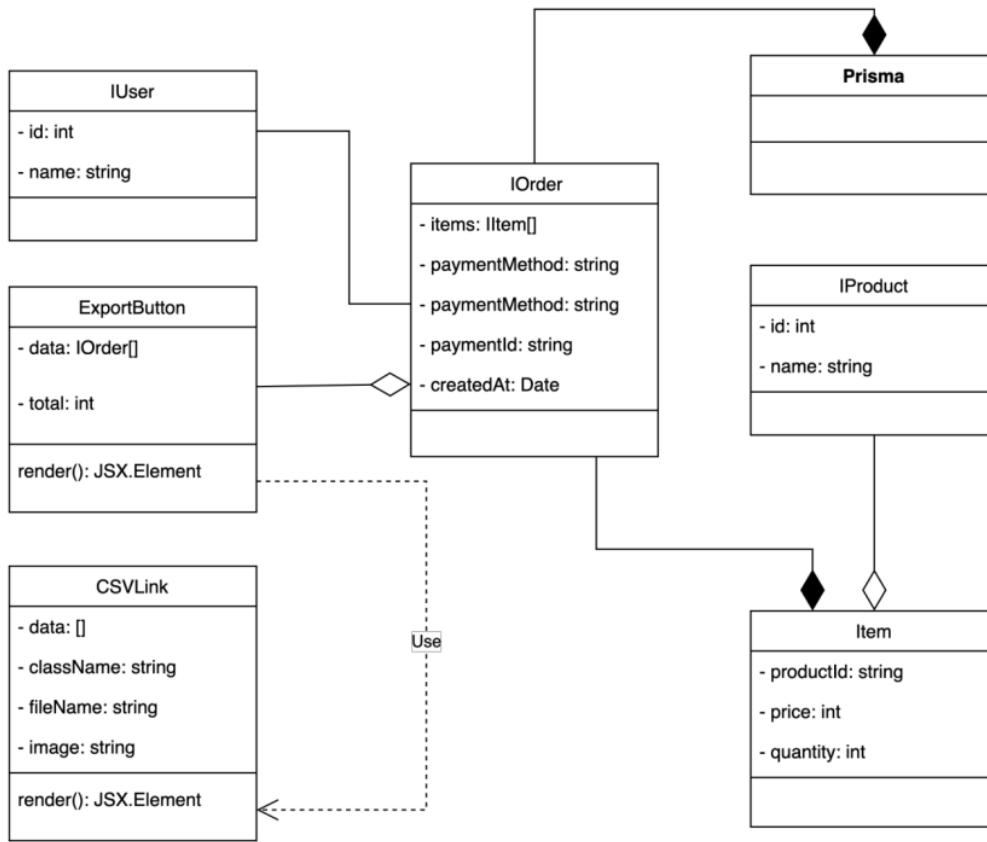


Figure 126 - Class Diagram - Export File

3.22.2 Sequence Diagram Export File

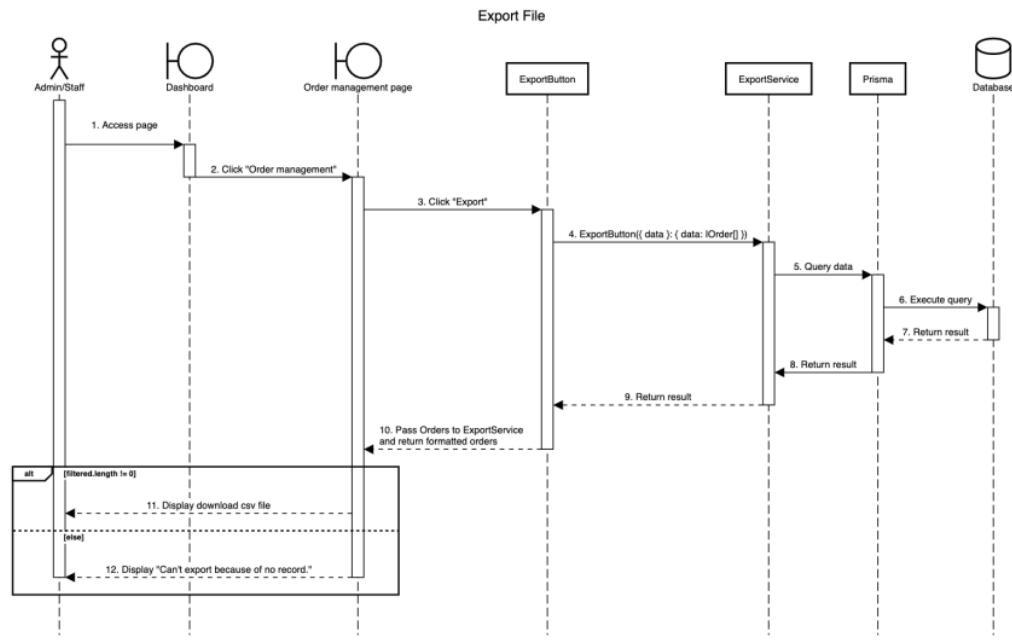


Figure 127 - Sequence Diagram Export File

3.23 Manage Category

3.23.1 Class Diagram

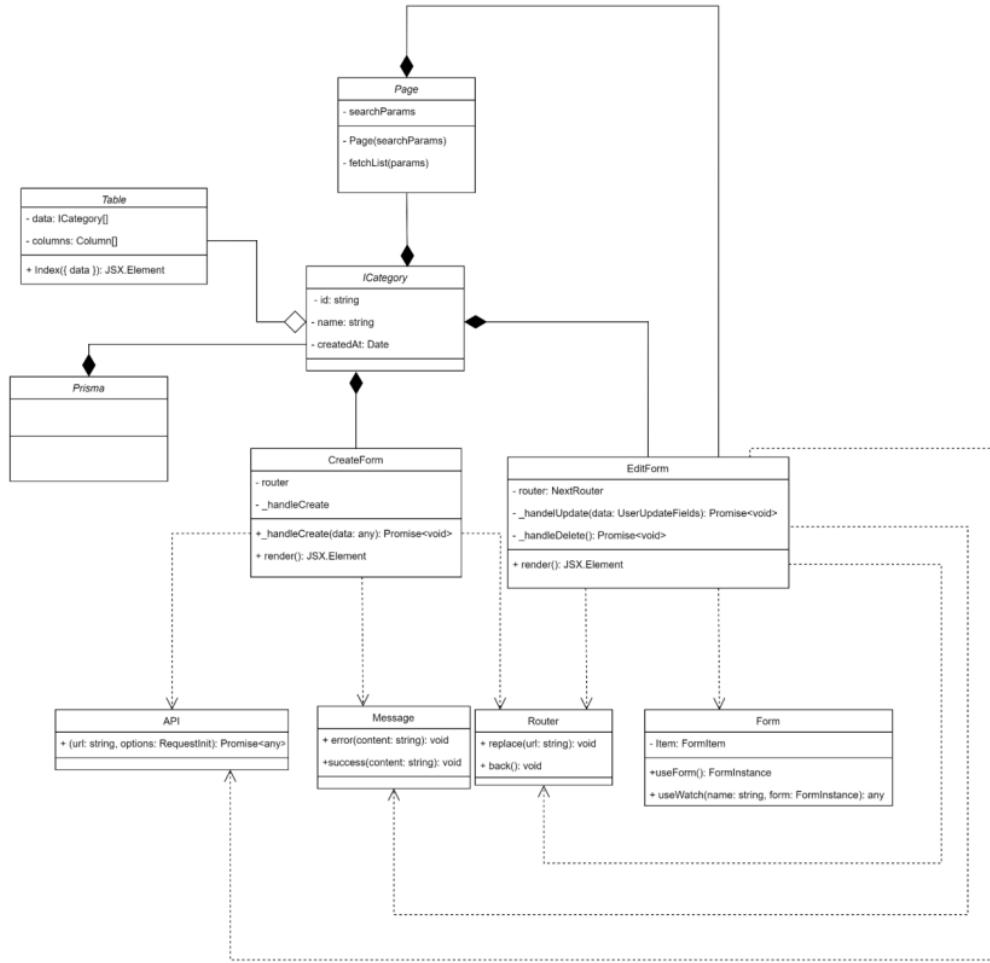


Figure 128 - Class Diagram - Manage Category

3.23.2 Sequence Diagram Manage Category (View)

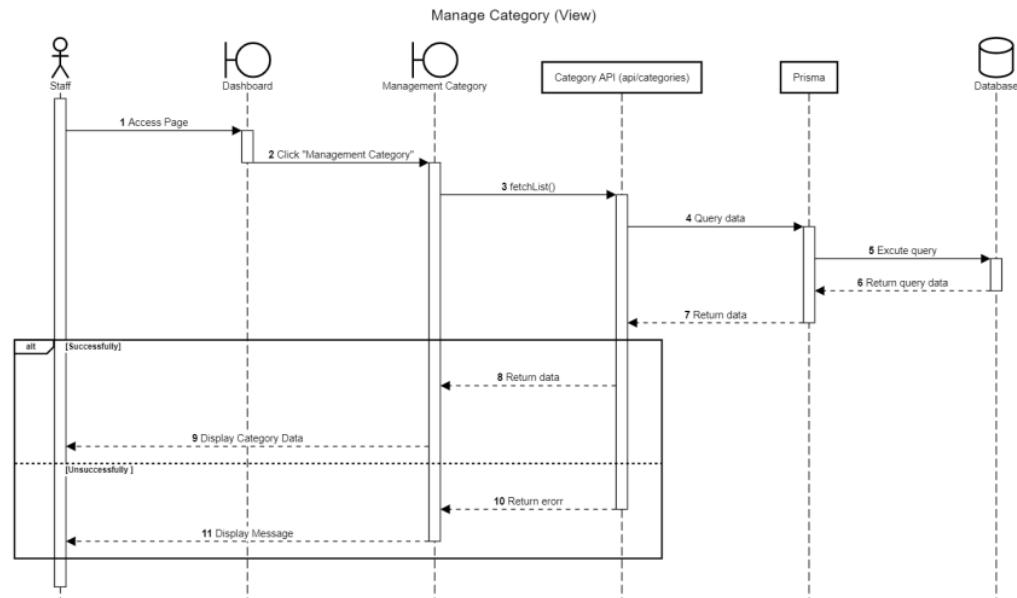


Figure 129 - Sequence Diagram Manage Category (View)

3.23.3 Sequence Diagram Manage Category (Create)

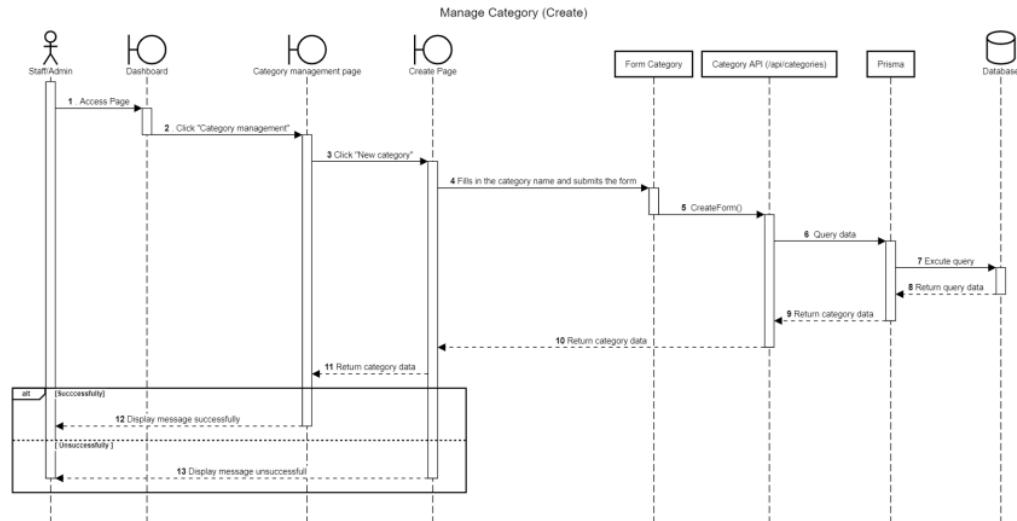


Figure 130 - Sequence Diagram Manage Category (Create)

3.23.4.Sequence Diagram Manage Category (Update)

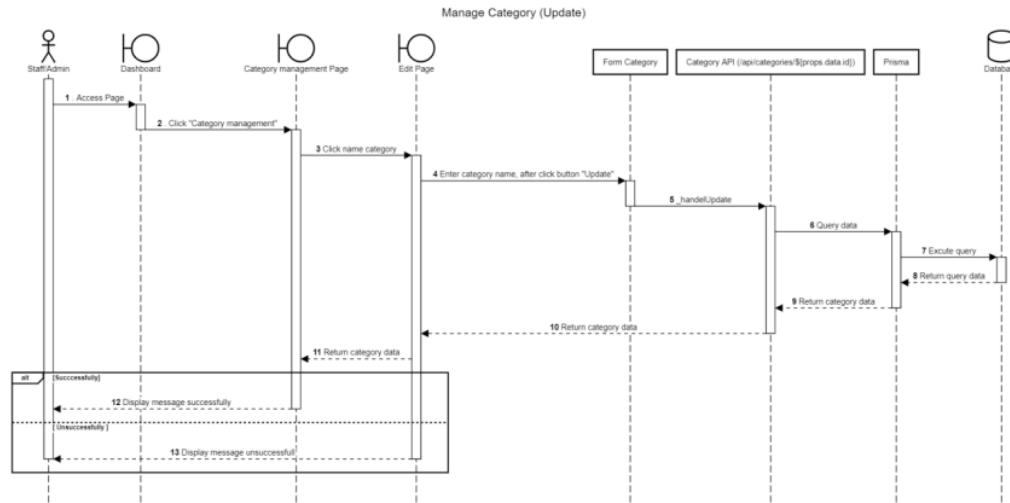


Figure 131 - Sequence Diagram Manage Category (Update)

3.20.5.Sequence Diagram Manage Category (Delete)

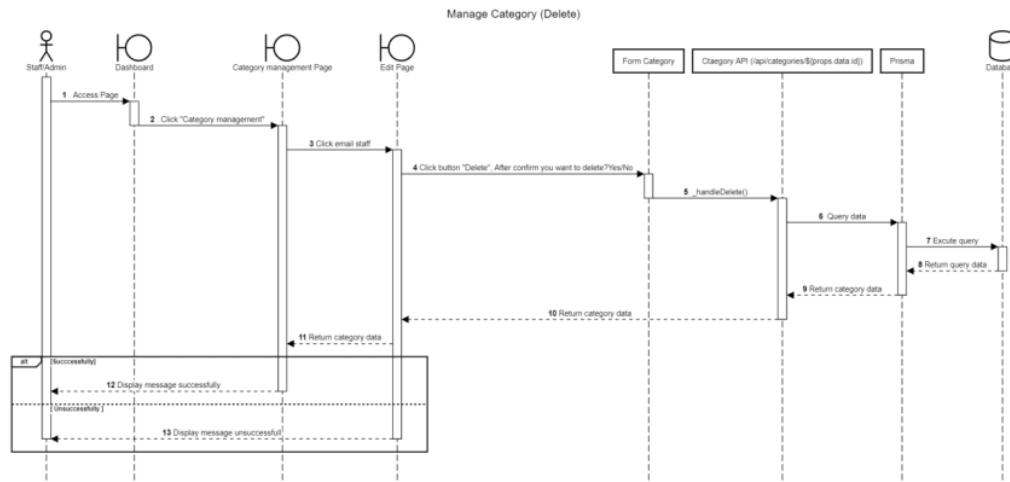


Figure 132 - Sequence Diagram Manage Category (Delete)

3.24 View blog detail

3.24.1 Class Diagram

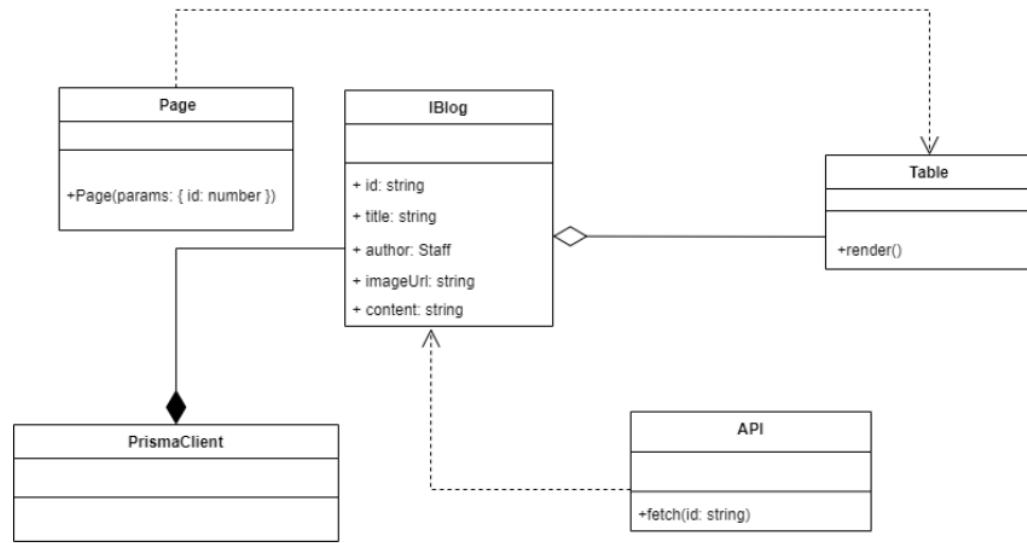


Figure 133 - Class Diagram - View blog detail

3.24.2 Sequence Diagram View blog detail

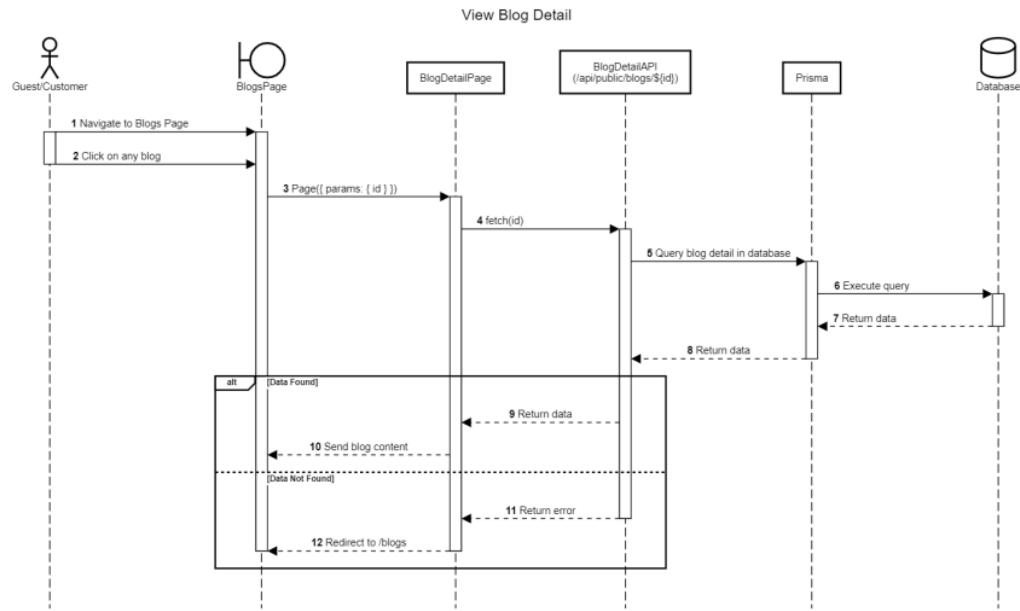


Figure 134 - Sequence Diagram View blog detail

V. Software Testing Documentation

1. Scope of Testing

The scope of testing encompasses the verification and validation of various features, functions, and non-functional requirements of the target system. The key areas to be tested include:

- **User Management:** Functions related to user authentication and profile management.
- **Order Management:** Services involved in order processing, status updates, and notifications.
- **Product Management:** APIs and batch jobs related to product recommendations and statistics export.
- **Dashboard:** Services generating revenue reports.
- **Search Optimization:** Services ensuring the relevance and speed of search results.
- **Payment Integration:** APIs handling secure payment transactions.
- **Chatbot Integration:** Services providing customer support and product recommendations through chat.
- **Data Backup:** Jobs ensuring data integrity and disaster recovery.

2. Test Strategy

The test strategy outlines the types of testing, the levels at which they will be performed, and the tools that will be used. This ensures comprehensive coverage and quality assurance for the project.

2.1 Testing Types

1. **Functional Testing:**
 - **Objective:** Validate that each function of the software operates in conformance with the requirement specification.
 - **Technique:** Black-box testing, user interface testing
 - **Completion Criteria:** All functional requirements are met without issues
2. **Performance Testing:**
 - **Objective:** Ensure the software performs well under expected workload
 - **Technique:** Load testing, stress testing
 - **Completion Criteria:** System meets performance benchmarks
3. **Security Testing:**
 - **Objective:** Identify vulnerabilities and ensure data protection
 - **Technique:** Penetration testing, vulnerability scanning
 - **Completion Criteria:** No critical security issues remain
4. **Usability Testing:**

- **Objective:** Ensure the software is user-friendly
 - **Technique:** User testing sessions, A/B testing
 - **Completion Criteria:** Users can accomplish tasks efficiently and effectively
5. **Regression Testing:** 28
- **Objective:** Verify that new changes do not adversely affect existing functionalities
 - **Technique:** Automated regression test suites
 - **Completion Criteria:** No critical or major issues detected in previously working functions
6. **Compatibility Testing:** 13
- **Objective:** Ensure software compatibility across different browsers, devices, and operating systems
 - **Technique:** Cross-browser testing, cross-device testing
 - **Completion Criteria:** Consistent behaviour across different environments

Testing Levels for Each Type:

- **Unit Testing:** Functional Testing, Security Testing (at the code level)
- **Integration Testing:** Functional Testing, Performance Testing, Security Testing
- **System Testing:** Functional Testing, Performance Testing, Usability Testing, Security Testing, Compatibility Testing
- **Regression Testing:** Performed at all levels as needed

2.2 Test Levels

Table 46 – Test Levels

Type of Tests	Test Level			
	Unit	Integration	System	Acceptance
Functional Testing 40	X	X	X	X
Performance Testing		X	X	
Security Testing	X	X	X	
Usability Testing			X	X
Compatibility Testing			X	

3. Test Plan

3.1 Human Resources

Table 47 - Human Resources

Worker/Doer	Role	Specific Responsibilities/Comments
Trần Chí Đô	Leader	Oversees the project, coordinates with stakeholders, leads design and planning, ensures team communication, reviews testers' work, resolves issues.
Quách Đăng Khoa	Tester	Conducts thorough testing, develops test cases and plans, reports bugs, verifies fixes, collaborates with developers to enhance functionality.
Trần Gia Cường	Tester	Focuses on functional and regression testing, documents test results, participates in User Acceptance Testing, shares insights with testers.
Trần Quốc Thái	Tester	Conducts performance and security testing, develops automated test scripts, maintains the test environment, improves testing process and software quality.

3.2 Test Environment

Table 48 - Test Environment

Purpose	Tool	Provider	Version
Code Repository	Github	GitHub, Inc.	N/A
IDE	Visual Studio Code	Microsoft	1.91.0
Spreadsheet	Google Sheet	Google	N/A
Test Case Management	Google Sheets	Google	N/A

Purpose	Tool	Provider	Version
Bug Tracking	Google Sheets	Google	N/A
Documentation	Google Docs	Google	N/A
Unit test	Manual	Team	N/A
Integration test	Manual	Team	N/A
System test	Manual	Team	N/A
Acceptance test	Manual	User	N/A

3.3 Test Milestones

Table 49 - Test Milestones

Milestone Task	Start Date	End Date
Testing Product Feedback module	01/07/2024	15/07/2024
Testing Payment module	01/07/2024	15/07/2024
Testing Product Management module	01/07/2024	15/07/2024
Testing Staff Management module	01/07/2024	15/07/2024
Testing Authentication module	01/07/2024	15/07/2024
Testing View module	01/07/2024	15/07/2024
Testing User Management module	01/07/2024	15/07/2024
Testing Order Management module	01/07/2024	15/07/2024
Testing Category Management module	01/07/2024	15/07/2024
Testing Blogs Management module	01/07/2024	15/07/2024

4. Test Cases

- *Test Cases (IT, ST, AT): Report5_Test_Report.xls*
- *Unit Test Cases: Report5_Unit_Test.xlsx*

5. Test Reports

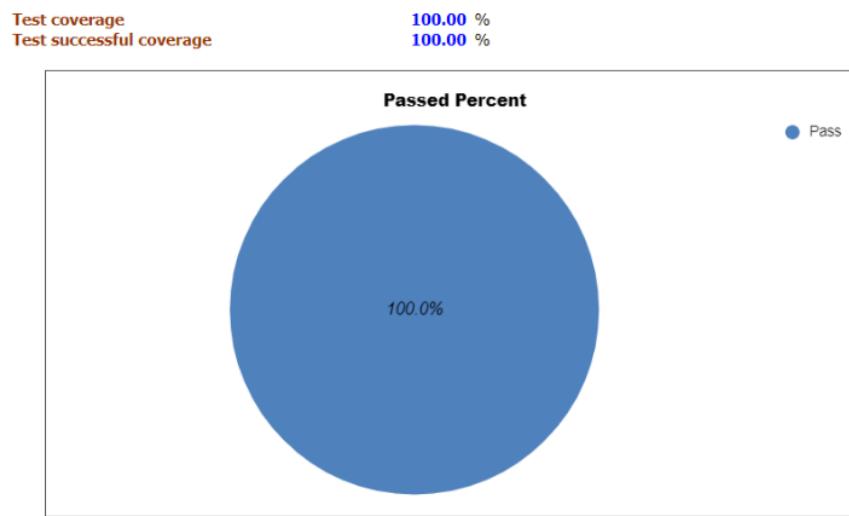


Figure 135 - Test Reports

VI. Release Package & User Guides

1. Deliverable Package

1.1 Source codes & documents

Table 50- Source codes & documents

No.	Deliverable Item	Description
1	Project Schedule/Tracking	A schedule that organizes tasks, resources, and deadlines in an optimal sequence to ensure timely project completion
2	Project Backlog	It typically includes a comprehensive breakdown of the tasks that must be finished
3	Source Codes	electronicstore.zip

No.	Deliverable Item	Description
4	Database Script(s)	Electronicstore.sql
5	Final Report Document	<p>Includes:</p> <ol style="list-style-type: none"> 1. SEP490_G6_Report1_Project Introduction.pdf 2. SEP490_G6_Report2_Project Management Plan.pdf 3. SEP490_G6_Report3_Software Design Description.pdf 4. SEP490_G6_Report4_Software Design Document.pdf 5. SEP490_G6_Report5_Test Documentation.pdf 6. SEP490_G6_Report6_Software User Guides.pdf 7. SEP490_G6_Report7_Final Project Report.pdf
6	Test Cases Document	SEP490_G6_Report5_Test Report.xlsx

1.2 Known Issues, Limitations & Restrictions

- To use the website's functions, users need a web browser and an active internet connection.
- Some website functions depend on network speed, which may result in delays in response time.
- Some functions such as search functions, suggestions depend on and services from Algolia.

2. Installation Guides

2.1 System Requirements

2.1.1 Client requirements

Table 51- Client requirements

Name	Minimal configuration
Operating system	Windows 10 or higher MacOS: 10 ⁷⁴ or higher
RAM	4GB or higher
CPU	Intel Core I3 or higher
Web Browser	Google Chrome, Safari (macOS, IOS), Edge, Opera, Firefox, etc.

2.1.2 Server requirements

Table 52- Server requirements

Name	Minimal configuration
Operating system	Windows 10 or higher MacOS: 10 or newer
RAM	8GB or higher
CPU	Intel Core i7 or higher
Web Browser	Google Chrome, Safari (macOS, IOS), Edge, Opera, Firefox, etc.
Database	Postgress
IDEs/Editors	Visual Studio Code
Technology	ReactJS, TailwindCSS, Ant Design (FrontEnd, NextJS), Web, Node JS(BackEnd), AI (Recommendation(Algolia)), AWS Lex, Kommunicate.

2.2 Installation Instruction

2.2.1 Visual Studio Code

Step 1: Download Docker Visual Studio Code

Step 2: Double-click on **VSCode-darwin-universal.zip**

Step 3: Double-click **Visual Studio Code**

Step 4: Create file **.env**

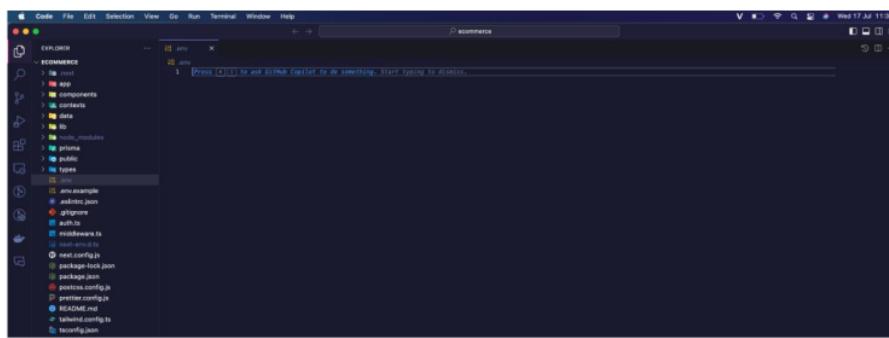
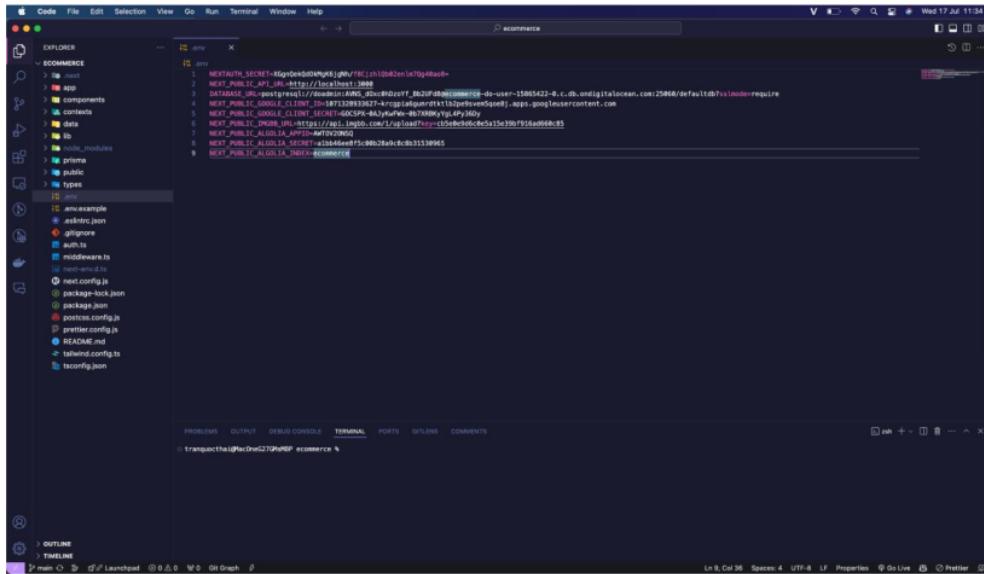


Figure 136 - Create file .env

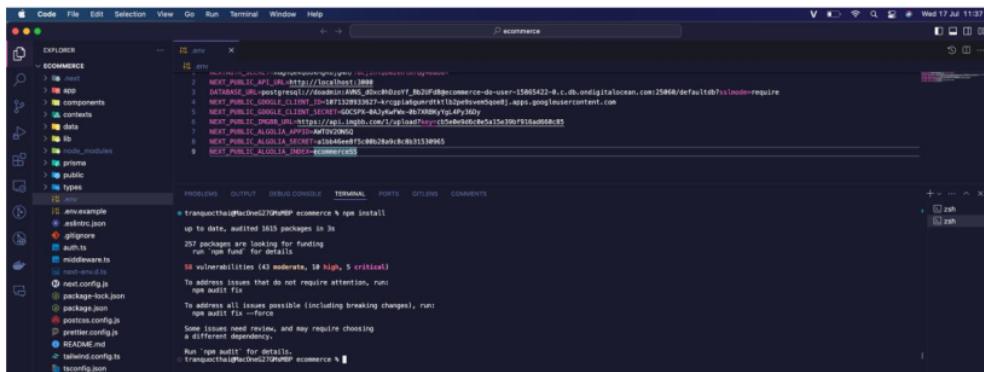
Step 5: Copy and Paste this code



```
NEXT_PUBLIC_SECRET=KeyGenerated@github/EC1ch10d2enla1a0g4ba8h-
NEXT_PUBLIC_API_URL=http://localhost:3000
DATABASE_URL=postgresql://admin:admin@db:5432/db?sslmode=require
NEXT_PUBLIC_ALOGIA_CLIENT_SECRET=40c594-43yJwvKc-8t7X0kYig4py4bOy
NEXT_PUBLIC_ALOGIA_CLIENT_SECRET=40c594-43yJwvKc-8t7X0kYig4py4bOy
NEXT_PUBLIC_UPLOAD_URL=https://api.imgur.com/2/upload?token=c5ed89dc5a15e390f916aa0d6c85
NEXT_PUBLIC_ALOGIA_SECRET=ab1a46edf7c00b289c8b931539965
NEXT_PUBLIC_ALOGIA_SECRET=ab1a46edf7c00b289c8b931539965
```

Figure 137 - Create file .env

Step 6: Click new terminal and run **npm install**



```
trinquecha@MacOneG270M:~/ecommerce % npm install
up to date, audited 1635 packages in 3s
297 packages are looking for funding
  run `npm fund` for details
58 vulnerabilities (43 moderate, 18 high, 5 critical)
To address issues that do not require attention, run:
  npx audit fix
To add all issues possible (including breaking changes), run:
  npx audit fix --force
Some issues need review, and may require choosing
  a different dependency.
Run `npm audit` for details.
trinquecha@MacOneG270M:~/ecommerce %
```

Figure 138 - run npm install

Step7: Run `npx prisma db seed`

Figure 139 - Run `npx prisma db seed`

46

Step 8: Run `npm run dev` and click <http://localhost:3000>

Figure 140 - Run `npm run dev`, and click `http://localhost:3000`

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3. User Manual

3.1 Term And Definitions

Table 53 - Term And Definitions

#	Term And Definitions	Description
1	Admin	An authorized user with administrative privileges.
2	Staff	Employees or personnel designated to perform tasks within the system.
3	Customer	A person who purchases goods or services on website.

#	Term And Definitions	Description
4	Guest	An unregistered or anonymous user accessing basic features of the website.

3.2 System Requirement

Recommended System Requirements:

Table 54- System Requirement

For Server	For Web Client
<ul style="list-style-type: none"> - Operating system: Windows 10 <small>or higher</small>⁶⁵ MacOS: 10 <small>or newer</small> - RAM: 8GB or higher - CPU: Intel Core I7 or higher - Storage: 10GB SSD available - Database: Firebase 	<ul style="list-style-type: none"> - Operating system: Windows 10 or higher MacOS: 10 <small>or newer</small> - Web Browser: Google Chrome, Safari (macOS, IOS), Edge, Opera, Firefox, etc.

3.3 Application Usage

3.3.1 Overview

Our system has 4 actors: Admin, Staff, Customer, Guest. Guest Actor has the following features:

Guest Actor has the following features:

1. View Electric Store's Home Page
2. View All Products
3. View Product Details and Simillar Product
4. Search By Keyword
5. Filter Product By Category and Sorts
6. View All Blogs and View blog details
7. Sign In and Sign Up

Customer Actor has the following features:

1. Sign Up, Sign In, Sign Out
2. View All Products
3. View Product Details and Simillar Product
4. Manage Cart
5. Checkout

6. Search By Keyword
7. Filter Product By Category and Sorts
8. Manage Profile
9. Chat with ChatBot AI
10. View the history of orders
11. View All Blogs and View Blog Details

Staff Actor has the following features:

1. Sign In, Sign Out
2. View dashboard
3. Manage Product
4. Manage Category
5. Manage Order
6. Manage Customer
7. Manage Blog

Admin Actor has the following features:

1. Sign In, Sign Out
2. View dashboard
3. Manage Staff
4. Manage Product
5. Manage Category
6. Manage Order
7. Manage Customer
8. Manage Blog

3.3.2 User guide for guest

3.3.2.1 View Electric Store's Home Page

- **Step 1:** Open a web browser and enter the address “**electricstore.com**” into the browser search bar.
- **Step 2:** The system will redirect you to the home page of "Electric Store".
- **Description:** Home page includes featured products, product categories, and other related information.

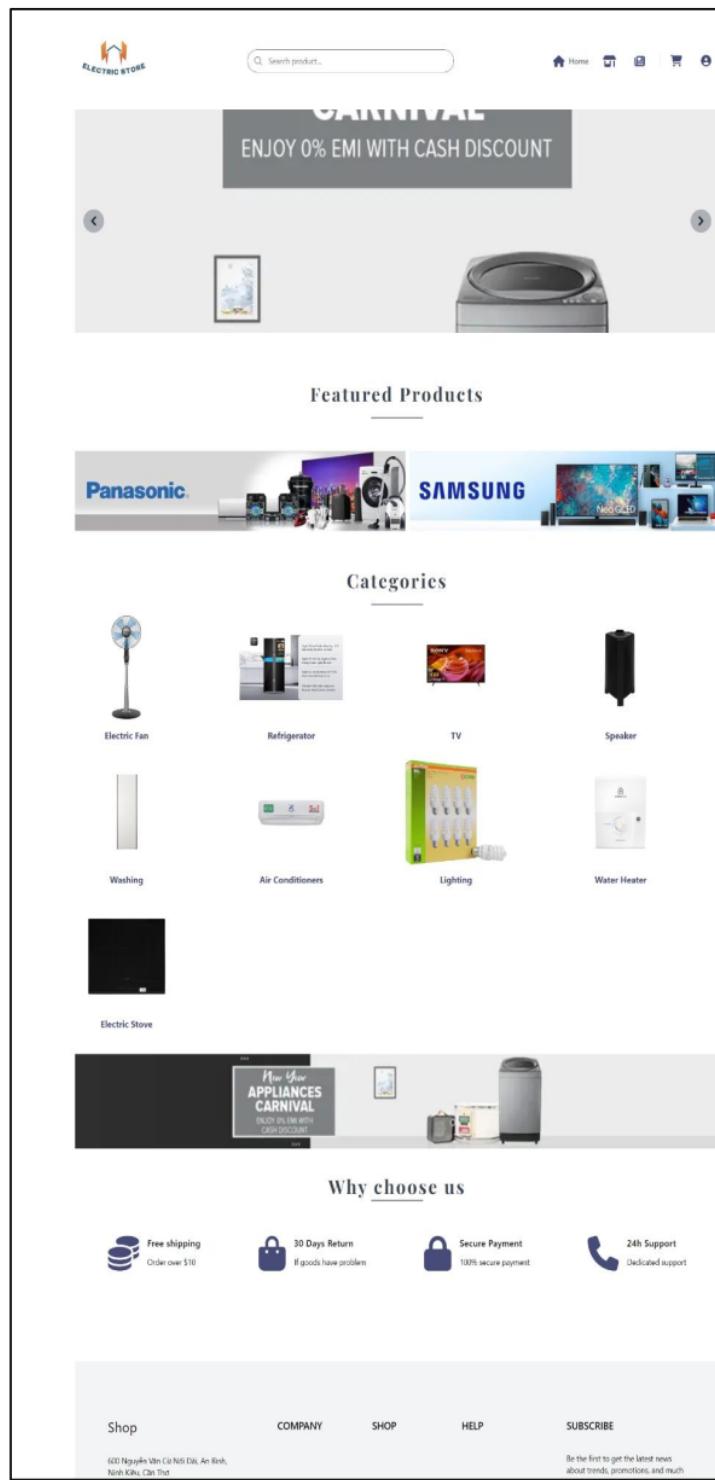


Figure 141- View Electric Store's Home Page

3.3.2.2: View All Products

- **Step 1:** Move the mouse to the navigation bar (Navbar) on the home page.
- **Step 2:** Select "Shop" from the navigation bar.

Description: The "Shop" page contains products classified into different categories.

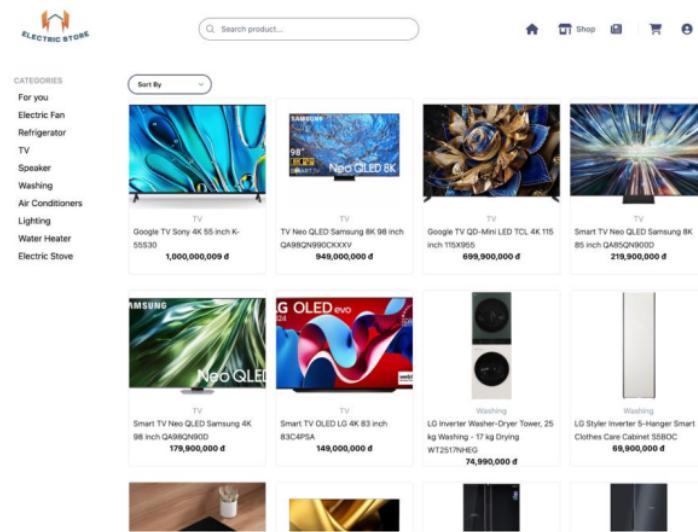


Figure 142- View All Products

3.3.2.3: View Product Details and Similar Product

- **Step 1:** Move the mouse to the navigation bar (Navbar) on the home page.
- **Step 2:** Select "Shop" from the navigation bar.
- **Step 3:** On the "Shop" page, select the product you want to see details about.

Description: Product details include the following information:

- ❖ Product's name
- ❖ Product Description
- ❖ Reviews and feedback from previous buyers
- ❖ Product price
- ❖ The number of products
- ❖ "Add to cart" button
- ❖ Product suggestions: By category, by behavior, by similar price

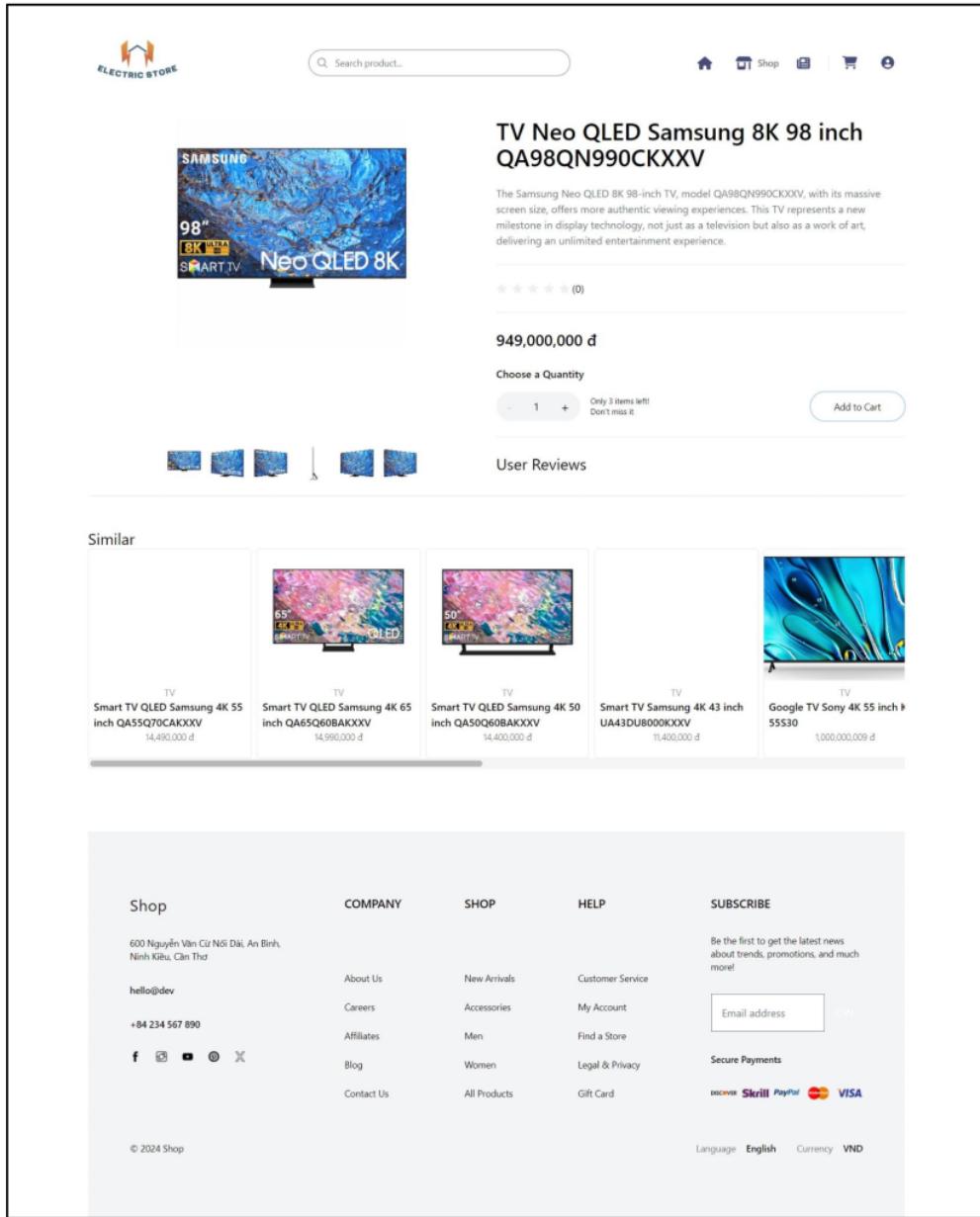


Figure 143- View Product Details and Simillar Product

3.3.2.4: Search By Keyword

64

- **Step 1:** On the homepage or any page, find the search bar (at the top of the page).
- **Step 2:** Enter keywords related to the product you want to search for.
- **Step 3:** Tap the magnifying glass icon or press "Enter" to start searching.

Description: The system will display products or content related to the keyword you entered.

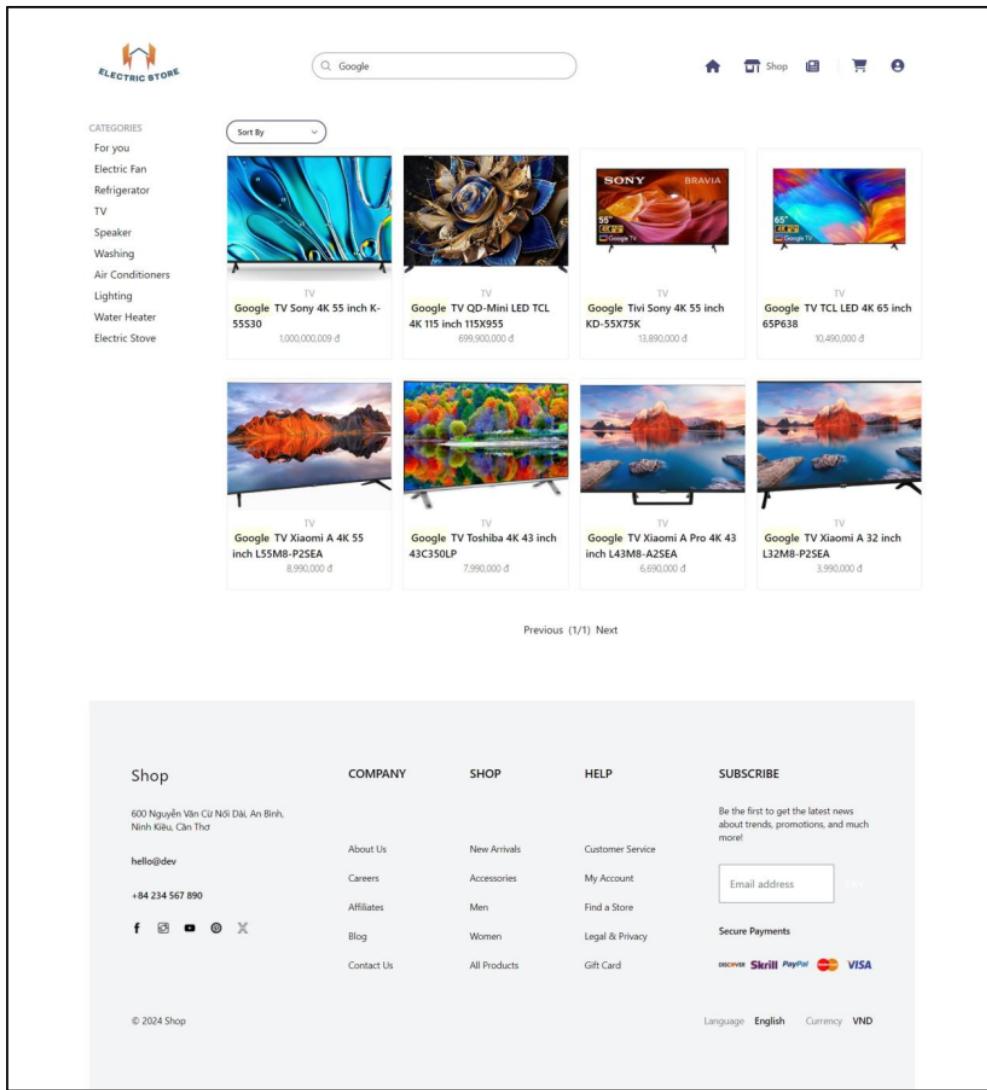


Figure 144- Search By Keyword

3.3.2.5: Filter Product By Category and Sorts

- **Step 1:** On the "Shop" page, find the category and select the product filter (located on the left side of the page).
- **Step 2:** Select product category or sorting criteria

Description: The system will display products that match the selected filtering and sorting criteria.

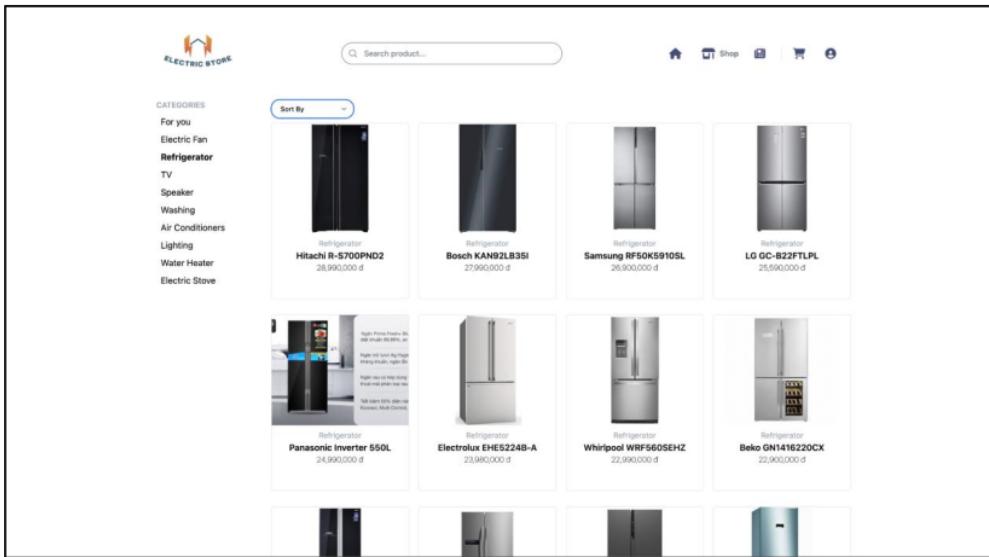


Figure 145 - Filter Product By Category and Sorts

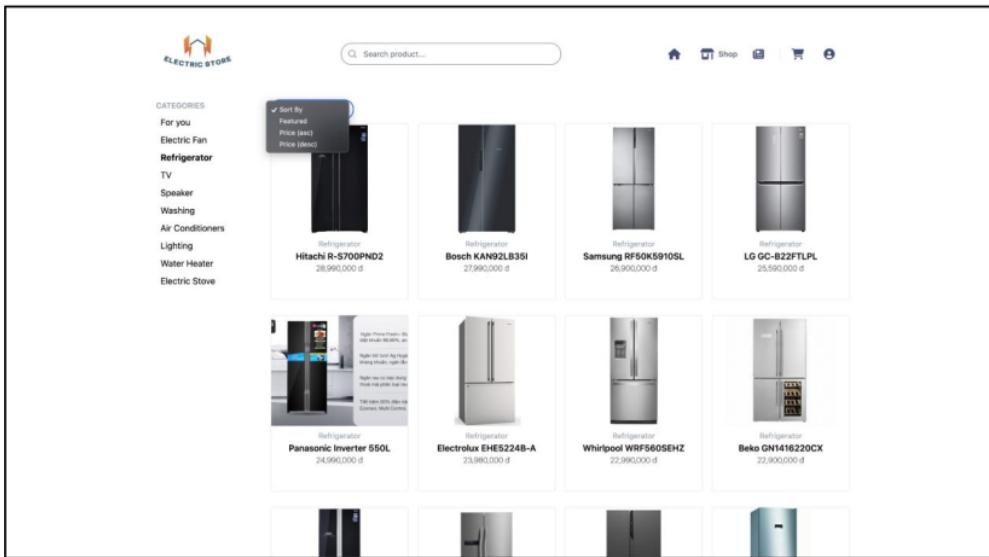


Figure 146- Filter Product By Category and Sorts

3.3.2.6: View All Blogs and View Blog Details

- **Step 1:** Move the mouse to the navigation bar (Navbar) on the home page.
- **Step 2:** Select "Blog" from the navigation bar.
- **Step 3:** To view details of a post, select the post you want from the blog page.

Description: The blog page displays all available articles. Post details include title, content, posting date, and author.

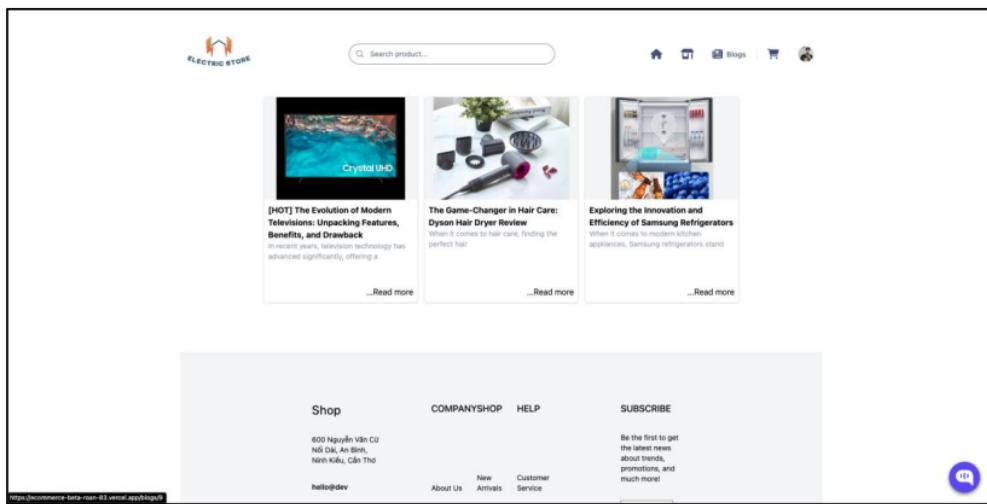


Figure 147- View All Blogs

Search product...
[Home](#)
[Cart](#)
[Blogs](#)

The Evolution of Modern Televisions: Unpacking Features, Benefits, and Drawbacks

Created at: 10:19:22 06/07/2018

In recent years, **television** technology has advanced significantly, offering a plethora of features that enhance the viewing experience. Modern TVs are no longer just devices for watching shows and movies; they are multifunctional entertainment hubs. This blog explores the various functions, benefits, and drawbacks of contemporary TVs.

Features of Modern TVs

- Smart TV Capabilities:** Modern TVs often come equipped with smart features, allowing users to access streaming services like Netflix, Hulu, and Amazon Prime directly from their TV without the need for external devices.
- High Definition and 4K Resolution:** The majority of new TVs support high-definition (HD) and 4K resolution, providing clearer and more detailed images compared to standard definition.
- OLED and QLED Technology:** These display technologies offer improved color accuracy, deeper blacks, and better contrast ratios, enhancing the overall picture quality.
- Voice Control and AI Integration:** Many TVs now support voice assistants like Alexa, Google Assistant, and Siri, allowing users to control their TV and other smart home devices with voice commands.
- Connectivity Options:** Modern TVs come with multiple HDMI ports, USB ports, Bluetooth, and Wi-Fi, making it easier to connect various devices such as gaming consoles, soundbars, and external storage.

Benefits of Modern TVs

- Enhanced Viewing Experience:** With features like 4K resolution and advanced display technologies, viewers can enjoy a more immersive and lifelike picture quality.
- Convenience and Accessibility:** Smart TVs eliminate the need for additional streaming devices, providing a more streamlined and user-friendly experience.
- Multi-Functionality:** Modern TVs can serve as a central hub for all your entertainment needs, from watching TV shows and movies to browsing the internet, playing games, and even controlling smart home devices.
- Space-Saving:** The slim design of modern TVs allows them to be mounted on walls, saving space and giving a clean, minimalist look to your living room.
- Future-Proofing:** Investing in a modern TV ensures that you are equipped with the latest technology, which will remain relevant and functional for years to come.

Drawbacks of Modern TVs

- Cost:** High-end smart TVs with advanced features like OLED and QLED technology can be quite expensive, making them a significant investment.
- Complexity:** The multitude of features and settings can be overwhelming for some users, leading to a steeper learning curve.
- Privacy Concerns:** With smart TVs connected to the internet and integrated with voice assistants, there is an increased risk of privacy breaches and data security issues.
- Software Updates:** Just like smartphones, smart TVs require regular software updates to function optimally. Failure to update can result in performance issues and compatibility problems.
- Reliability:** The more features a TV has, the higher the potential for something to go wrong. Complex electronics can sometimes be less reliable and more difficult to repair.

Conclusion

Modern **televisions** offer a wide range of features that enhance the viewing experience and provide added convenience. While the benefits of these advanced TVs are numerous, it is important to consider the potential drawbacks such as cost, complexity, and privacy concerns. By weighing the pros and cons, you can make an informed decision when choosing the right TV for your needs.

As technology continues to evolve, we can expect even more innovations in the world of television, further transforming our entertainment experiences. Whether you are a casual viewer or a tech enthusiast, there is undoubtedly a modern TV that will meet your requirements and preferences.

Shop

600 Nguyễn Văn Cừ Núi Dài, An Bình
Nhà Khu, Cần Thơ

hello@dev

+84 234 567 890

[f](#) [g](#) [t](#) [y](#) [x](#)

© 2024 Shop

COMPANY

About Us

Careers

Affiliates

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SHOP

New Arrivals

Accessories

Men

Women

All Products

HELP

Customer Service

My Account

Find a Store

Legal & Privacy

Gift Card

SUBSCRIBE

Be the first to get the latest news about trends, promotions, and much more!

Email address

Secure Payments

Language: English
Currency: VND

Figure 148- View Blog Details

3.3.2.7: Sign In and Sign Up

Sign In:

- **Step 1:** On the homepage or any page, find and select the gear icon and select the "Login" button (located in the top right corner).
- **Step 2:** Select a saved email or select "Use another account"
- **Step 3:** Click the "Continue" button to log in to the system.

Description: The "Sign In" feature allows guests to log in to the system.

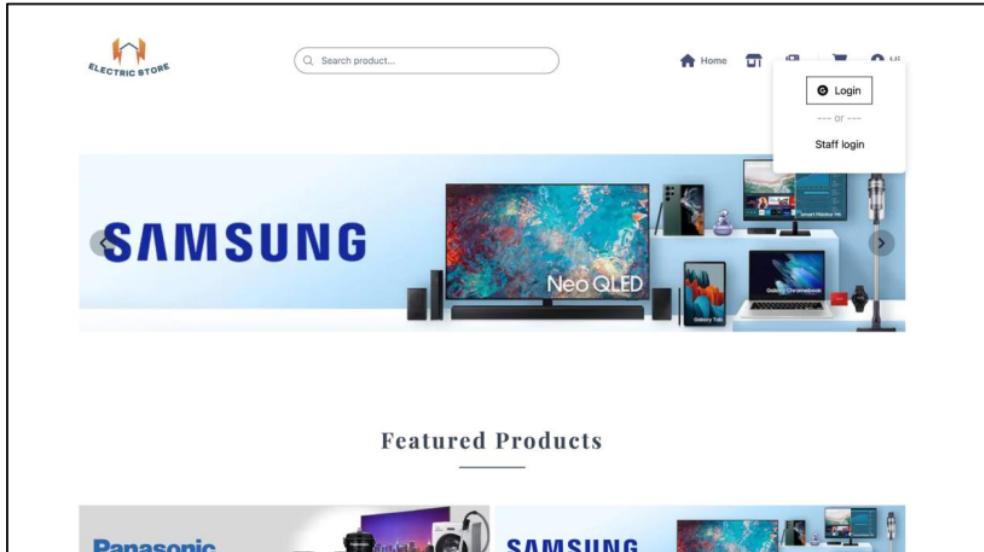


Figure 149 - **Sign In Step 1**

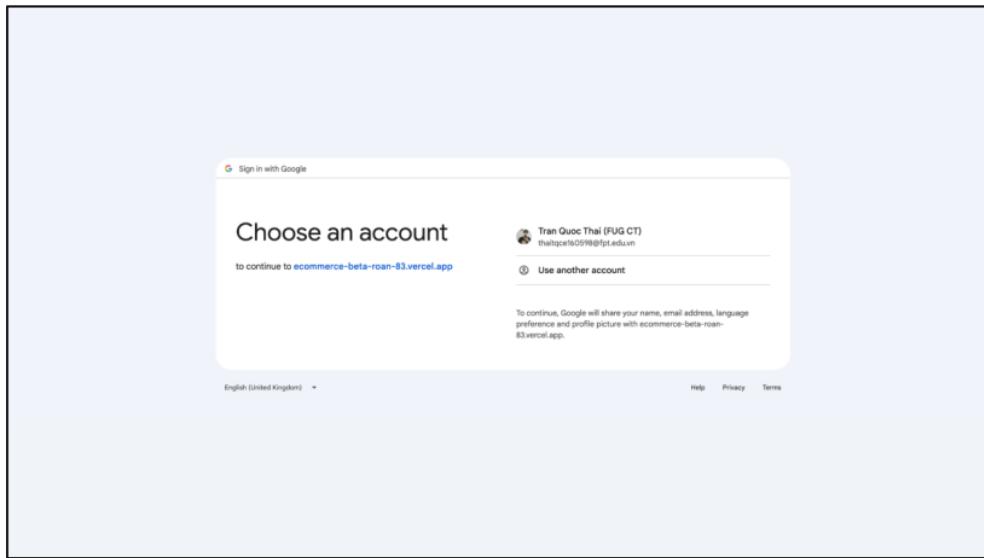


Figure 150 - **Sign In Step 2**

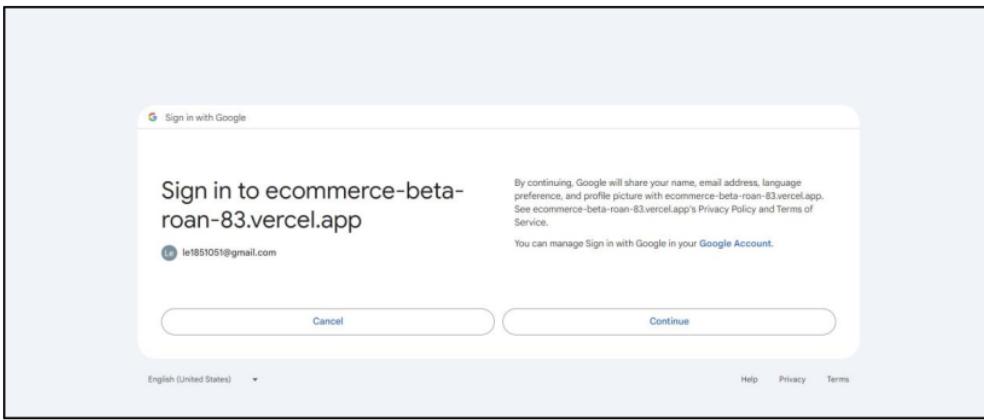


Figure 151 - Sign In Step 3

Sign Up:

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- **Step 1:** On the homepage or any page, find and select the "Login" button (located in the top right corner).
- **Step 2:** select "Use another account"
- **Step 3:** select "Create account"
- **Step 4:** Follow the instructions to create an account by email with Google.
- **Step 5:** Click the "Continue" button to log in to the system.

Description: The "Sign Up" feature allows guests to create a new account to become a customer.

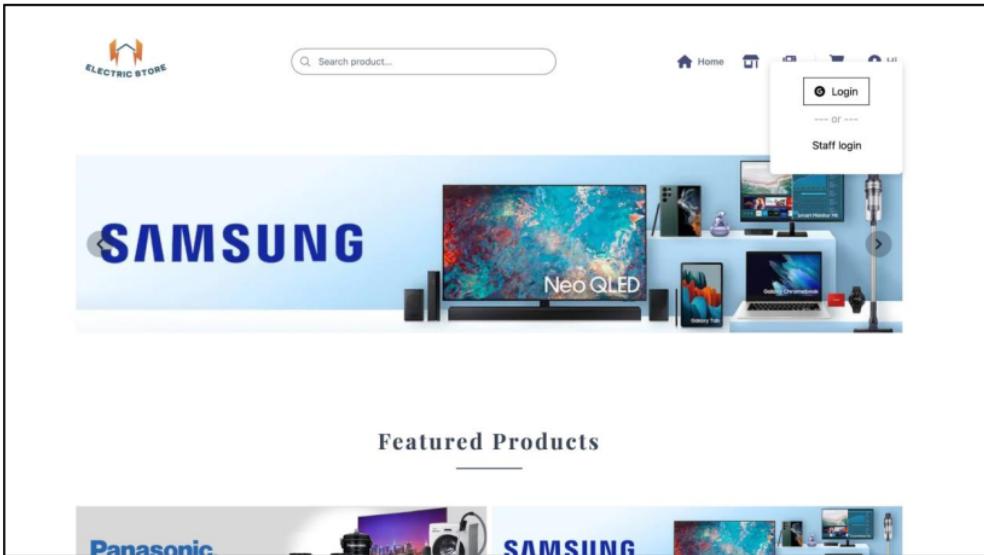
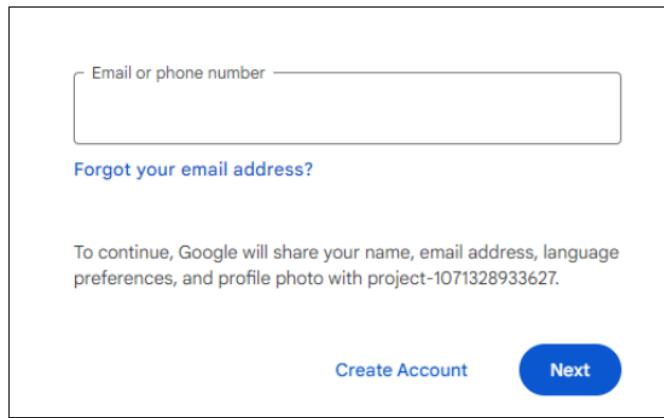


Figure 152 - Sign Up Step 1



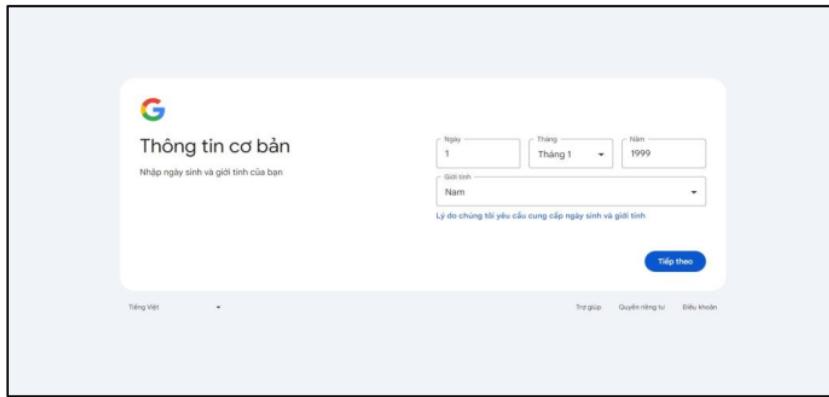
Email or phone number _____

[Forgot your email address?](#)

To continue, Google will share your name, email address, language preferences, and profile photo with project-1071328933627.

[Create Account](#) [Next](#)

Figure 153 - Sign Up Step 2



Thông tin cơ bản

Nhập ngày sinh và giới tính của bạn

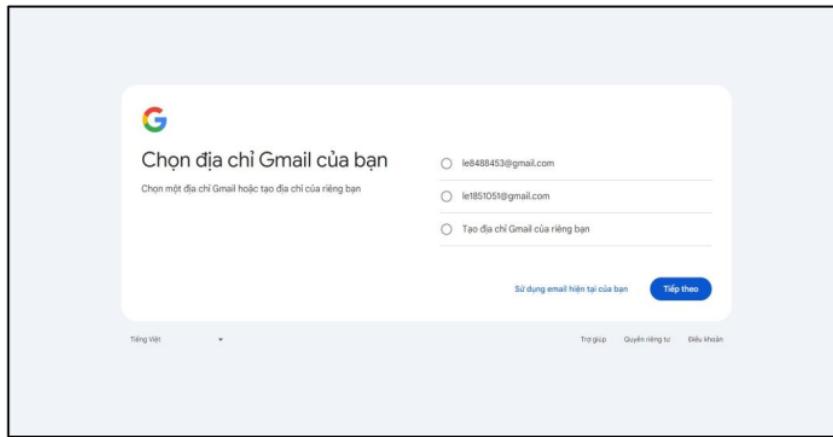
Ngày: 1 Tháng: Tháng 1 Năm: 1999
Giới tính: Nam

Lý do chúng tôi yêu cầu cung cấp ngày sinh và giới tính

[Tiếp theo](#)

Tiếng Việt | Trợ giúp | Quyền riêng tư | Điều khoản

Figure 154 - Sign Up Step 3



Chọn địa chỉ Gmail của bạn

Chọn một địa chỉ Gmail hoặc tạo địa chỉ của riêng bạn

le8488453@gmail.com
 le185105@gmail.com
 Tạo địa chỉ Gmail của riêng bạn

Bùi dụng email hiện tại của bạn [Tiếp theo](#)

Tiếng Việt | Trợ giúp | Quyền riêng tư | Điều khoản

Figure 155 - Sign Up Step 4



Figure 156 - Sign Up Step 5

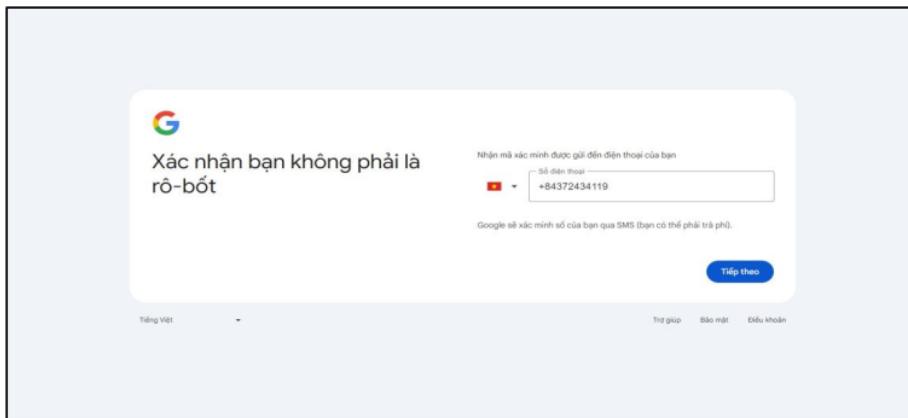


Figure 157 - Sign Up Step 6



Figure 158 - Sign Up Step 7

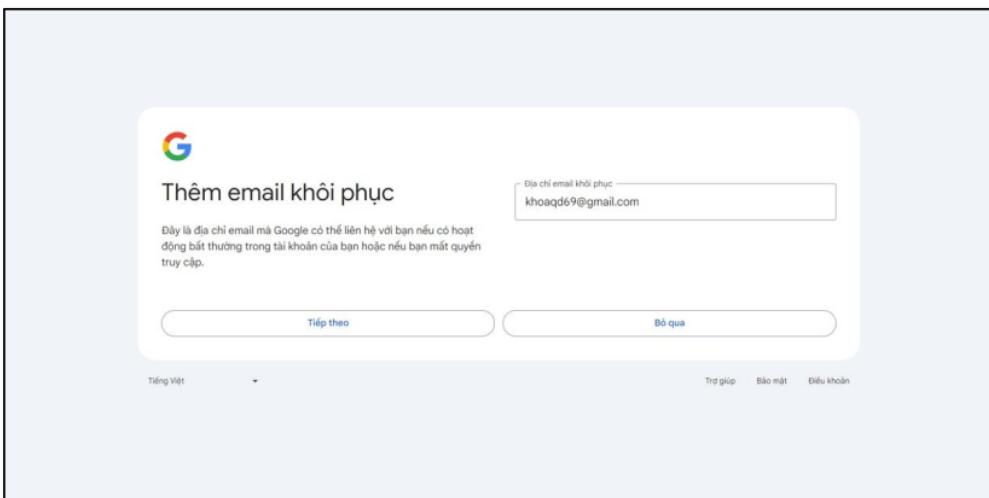


Figure 159 - Sign Up Step 8

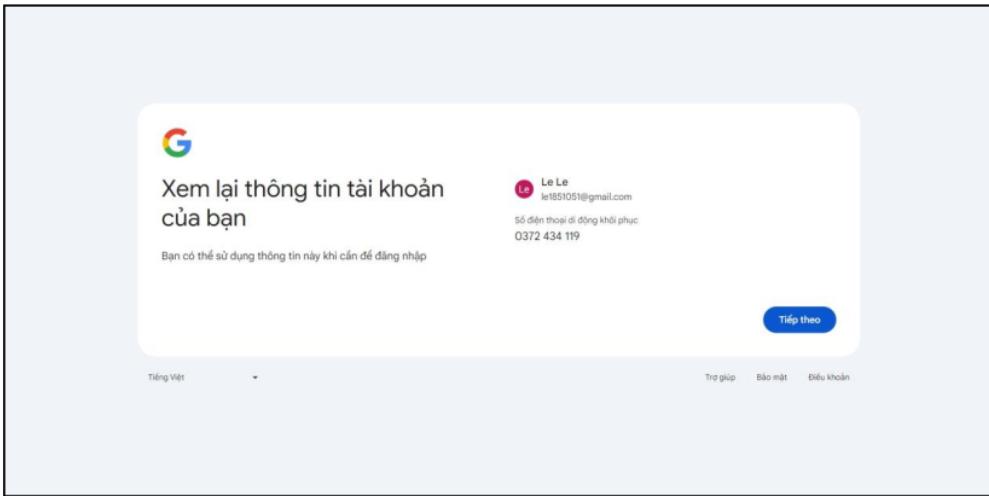


Figure 160 - Sign Up Step 9

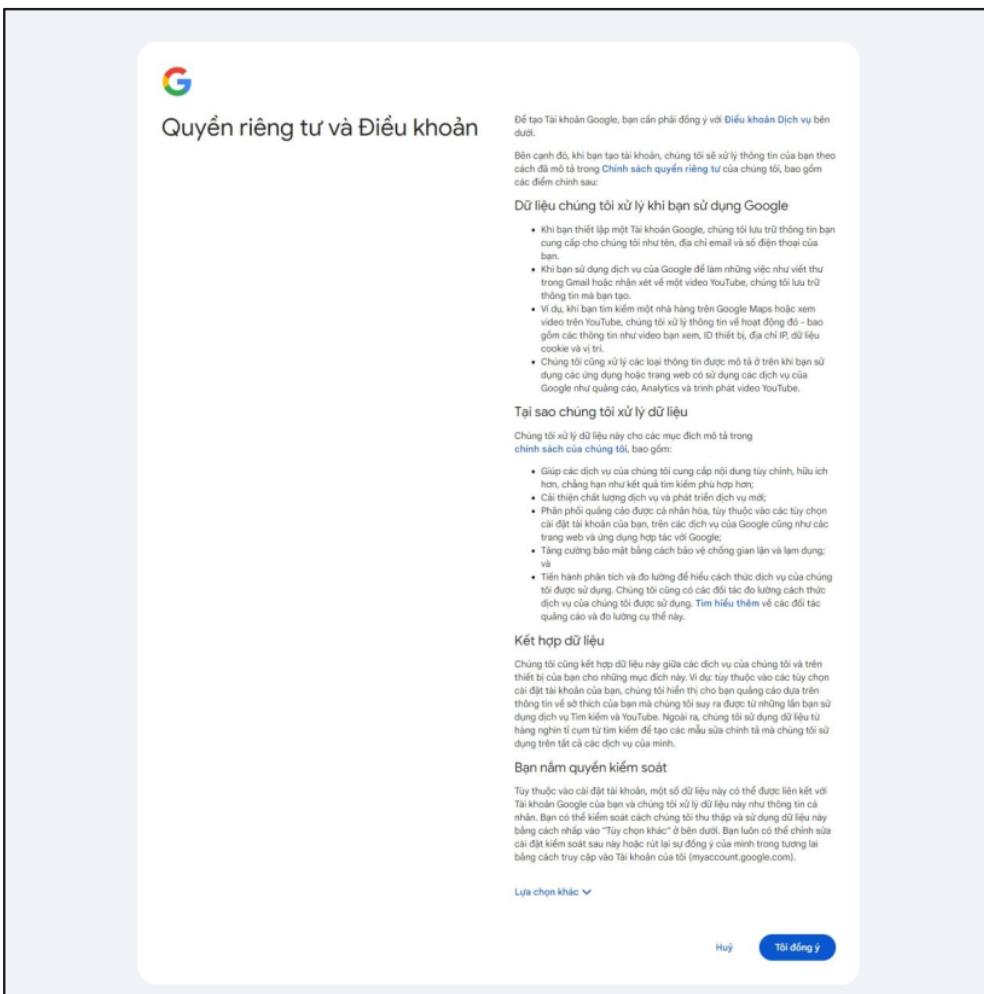


Figure 161 - Sign Up Step 10

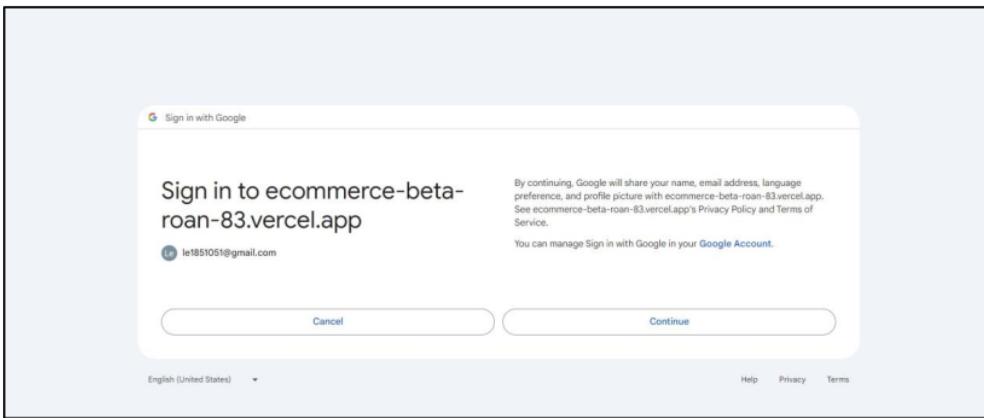


Figure 162 - Sign Up Step 11

Sign Out:

- **Step 1:** On any page, find and select the "Log out" button (located in the top right corner after logging in).
- **Step 2:** Confirm the logout action if requested.

Description: The "Log out" feature allows customers to log out the system.

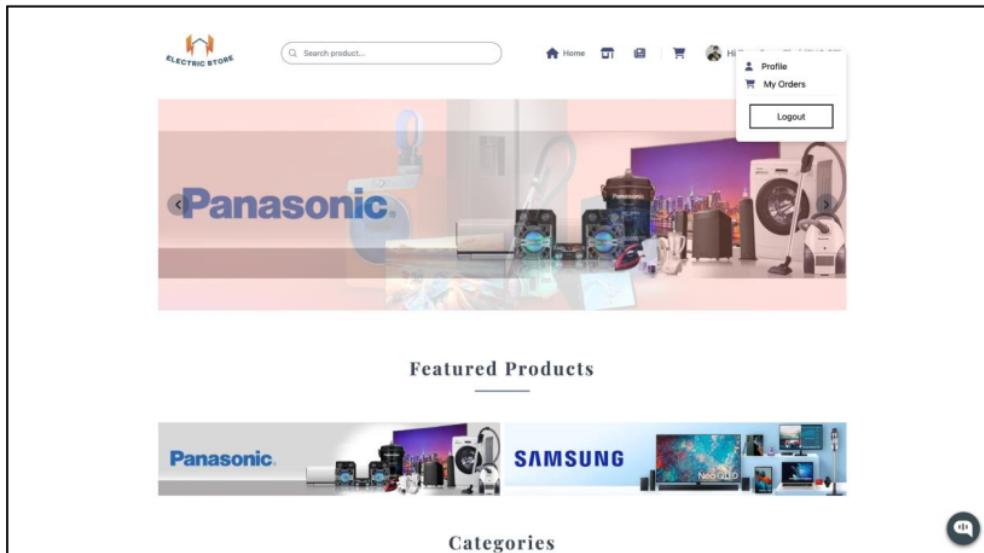


Figure 163 – Sign Out

3.3.2.8 Manage Cart

- **Step 1:** Find and select the "Cart" icon or button on any page.
- **Step 2:** On the Cart page, you can add, update or remove products from your cart.

Description: The "Manage Cart" feature allows customers to create, view, update, and delete products in their shopping cart.

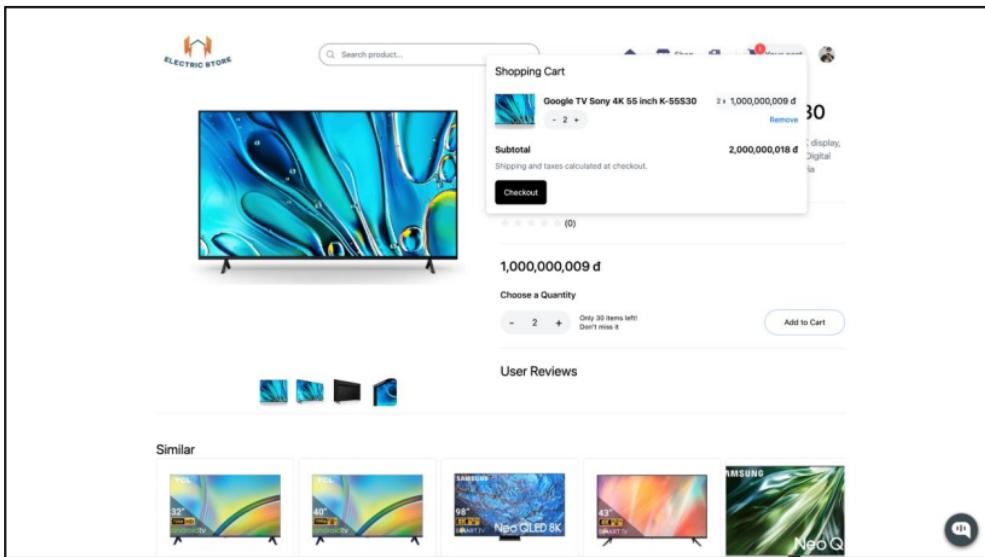


Figure 164 - Manage Cart

3.3.2.9 Checkout

- **Step 1:** On the Shopping Cart page, check the selected products and click the "Checkout" button.
- **Step 2:** Enter delivery and payment information as required.
- **Step 3:** Click VNPAY.
- **Step 4:** Follow the instructions to pay.

Description: The "Checkout" feature helps customers go through the process of purchasing products in the shopping cart.

Figure 165 – Checkout Step 1

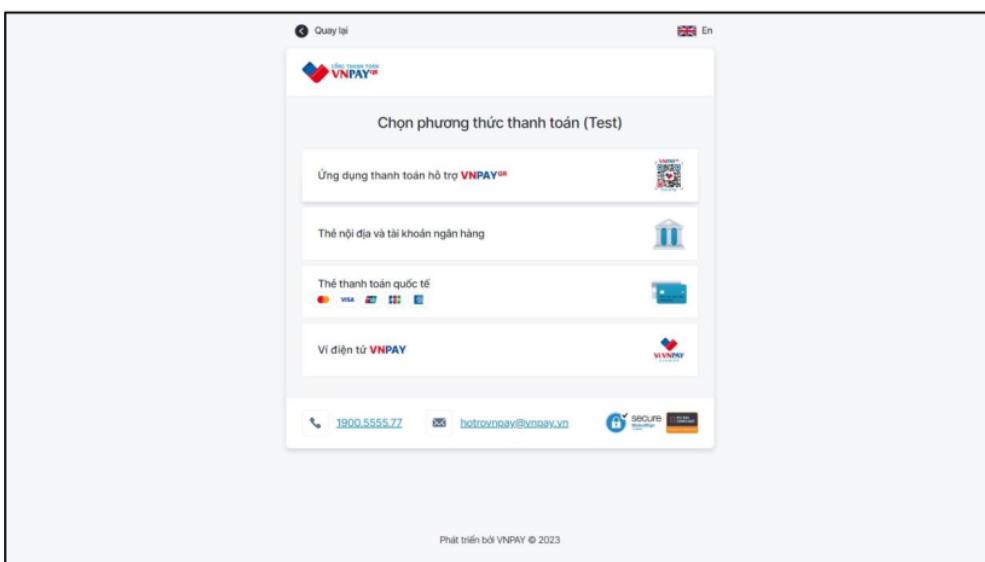


Figure 166 - Checkout Step 2

Thanh toán qua Ngân hàng NCB

Thông tin đơn hàng (Test)

Số tiền thanh toán
2.300.000 VND

Giá trị đơn hàng
2.300.000 VND

Phi giao dịch
0 VND

Mã đơn hàng
1721026728593

Nhà cung cấp
Công ty CTT HTT1 (Test)

Thẻ nội địa

Số thẻ
*****2198 NCB

Tên chủ thẻ
NGUYEN VAN A

Ngày phát hành
07/15

Mã khuyến mại
 Chọn hoặc nhập mã

Điều khoản sử dụng dịch vụ

Hủy thanh toán Tiếp tục

1900 5555 77 hotrovnpay@vnpay.vn

Phát triển bởi VNPay © 2023

Figure 167 - Checkout Step 3

Điều khoản sử dụng

(Người dùng đang thực hiện giao dịch trên môi trường kiểm thử của VNPay, vui lòng không sử dụng ngoài mục đích kiểm thử và tự chịu trách nhiệm trong trường hợp Nhà cung cấp không giải quyết hóa đơn, dịch vụ khi thanh toán thành công).

Quý Khách hàng đang sử dụng Dịch vụ Công thanh toán VNPay được cung cấp bởi Công ty Cổ phần Giải pháp Thanh toán Việt Nam (VNPay).

Các dữ liệu cá nhân liên quan tới dịch vụ gồm: thông tin thẻ/kiểm thử* và các dữ liệu cá nhân khác mà Quý Khách hàng cung cấp sẽ được VNPay chuyển tới Ngân hàng phát hành/Tổ chức chuyển mạch và Đơn vị ban hành tương ứng cho mục đích cung cấp dịch vụ Công thanh toán VNPay, bao gồm: Xử lý giao dịch thanh toán và cung ứng hàng hóa/dịch vụ; Quản lý nợ nần; Trả soát khiếu nại; Triển khai các chương trình ưu đãi; Giới thiệu dịch vụ và chăm sóc khách hàng.

Quý Khách hàng vui lòng đọc các quyền, nghĩa vụ của chủ thẻ dữ liệu và các nội dung khác liên quan đến bảo vệ dữ liệu cá nhân của Quý Khách hàng tại "Chính sách bảo vệ dữ liệu cá nhân" được nêu chi tiết [tại đây](#).

(*): Thông tin thẻ/kiểm thử được quy định là dữ liệu cá nhân nhạy cảm (theo Nghị định số 13/2023/NĐ-CP được Chính phủ ban hành ngày 17/4/2023 về bảo vệ dữ liệu cá nhân).

Không đồng ý Đồng ý & Tiếp tục

35

Phát triển bởi VNPay © 2023

Figure 168 - Checkout Step 4

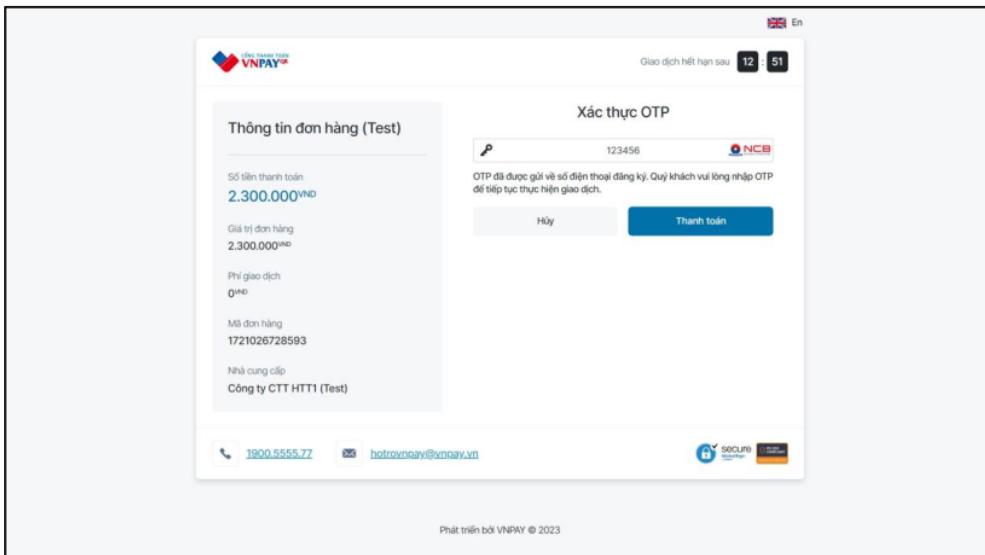


Figure 169 - Checkout Step 5

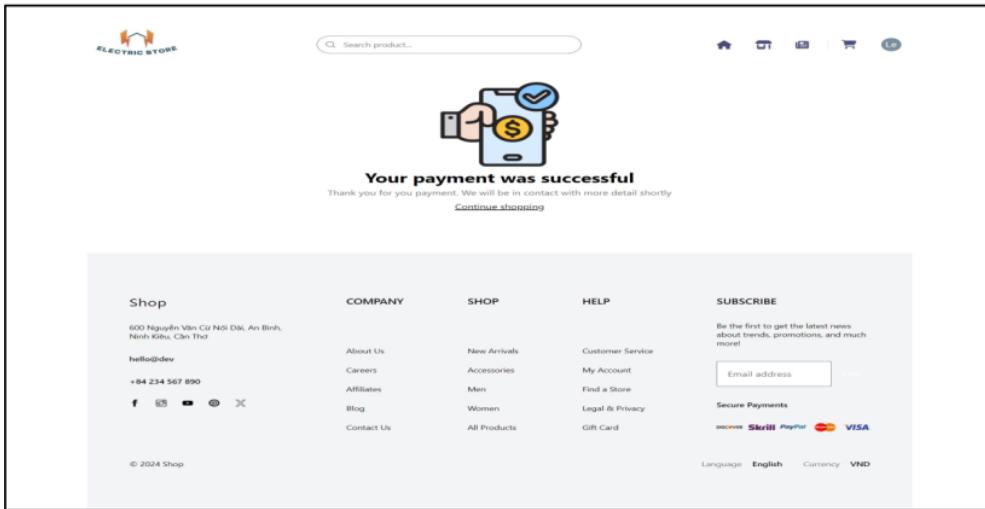


Figure 170 - Checkout Step 6

3.3.2.10: Filter Product By Category and Sorts

- **Step 1:** On the "Shop" page, find the category and select the product filter (located on the left side of the page).
- **Step 2:** Select product category or sorting criteria

Description: The system will display products that match the selected filtering and sorting criteria.

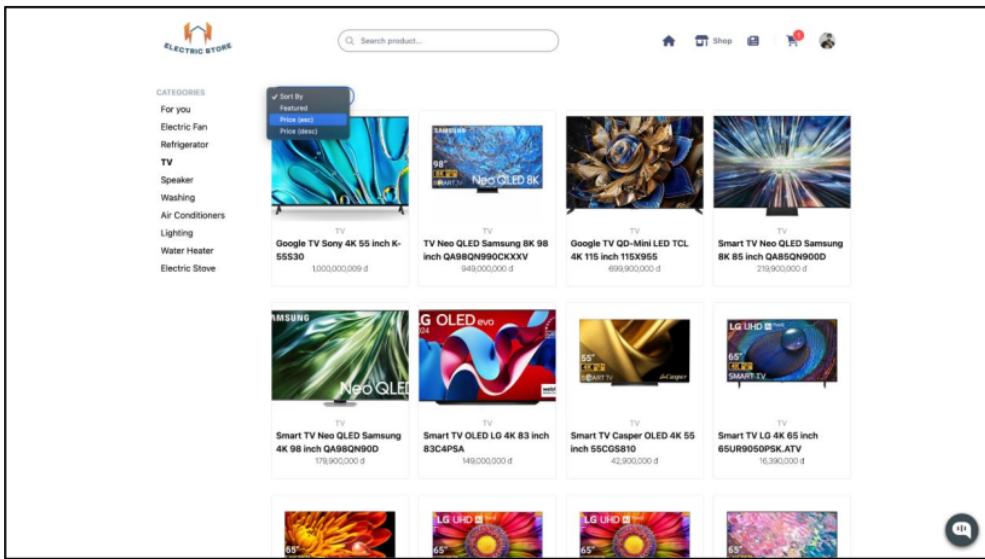


Figure 171 - Filter Product By Category and Sorts Step 1

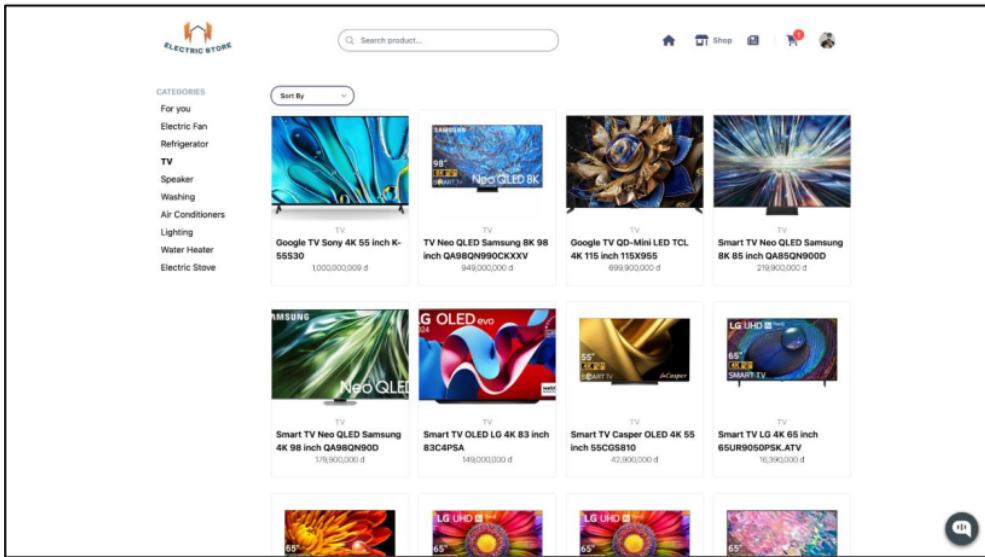


Figure 172 - Filter Product By Category and Sorts step 2

3.3.2.11: Manage Profile

- **Step 1:** On any page, find and select the "Profile" icon or button (usually located in the top right corner after logging in).
- **Step 2:** On the Profile page, you can view and update your personal information.

Description: The "Manage profile" feature allows customers to view and update their personal profile information.

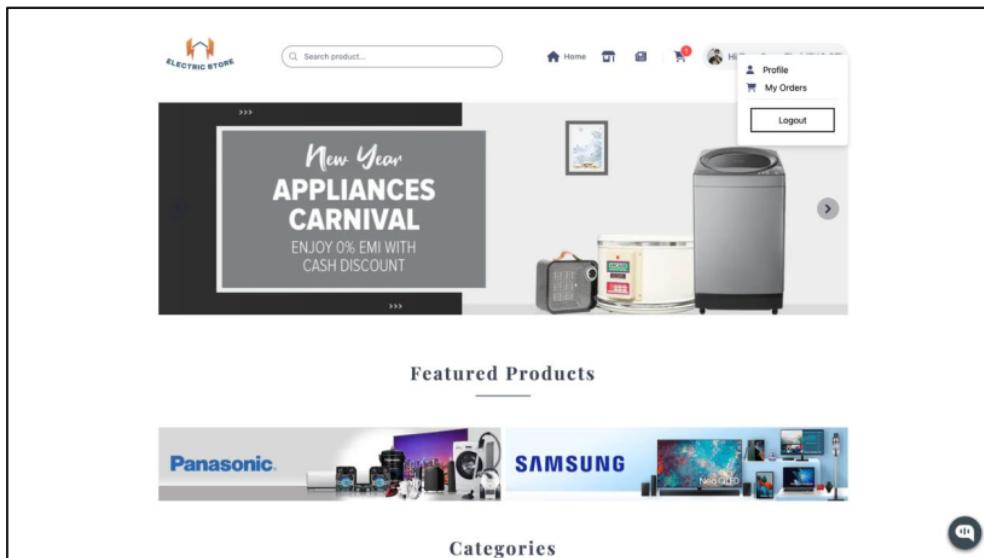


Figure 173 - Manage Profile step 1

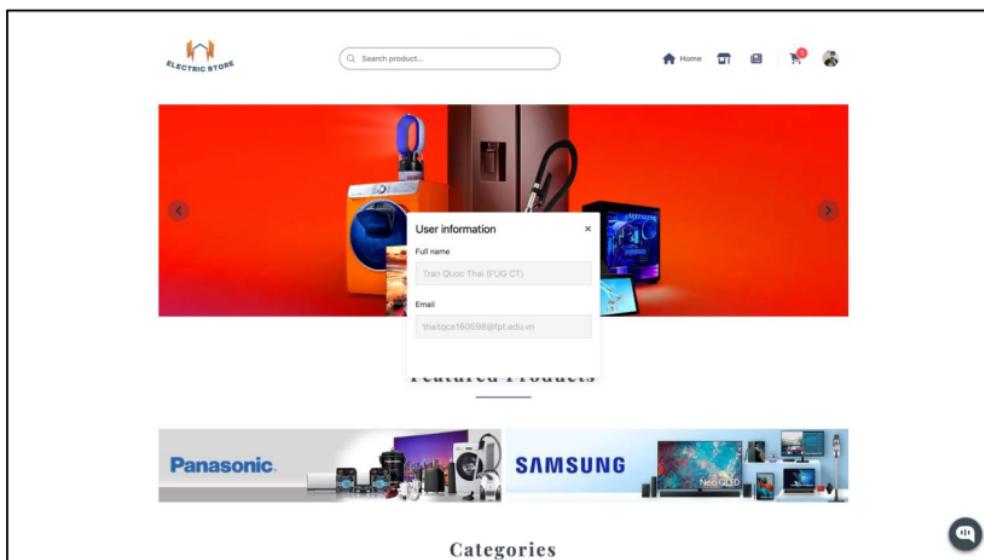


Figure 174 - Manage Profile step 2

3.3.2.12: Chat with ChatBot AI

- **Step 1:** On any page, find and select the chat icon or button (usually located in the lower right corner).
- **Step 2:** Enter your question or problem in the chat window.

- **Step 3:** ChatBot AI will respond and provide support or information.

Description: The "Chat with AI ChatBot" feature allows customers to interact with AI chatbots for support on any page.

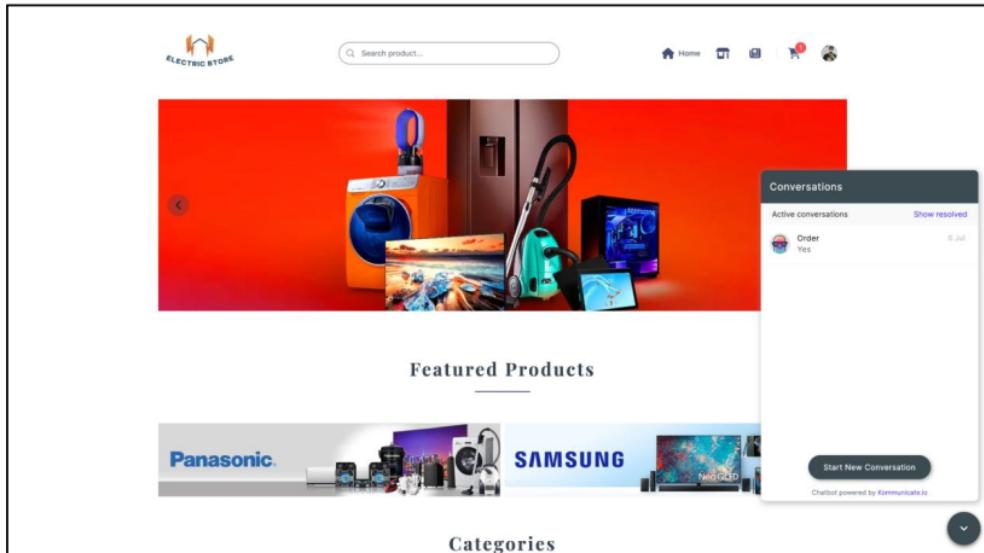


Figure 175 - Chat with ChatBot AI Step 1

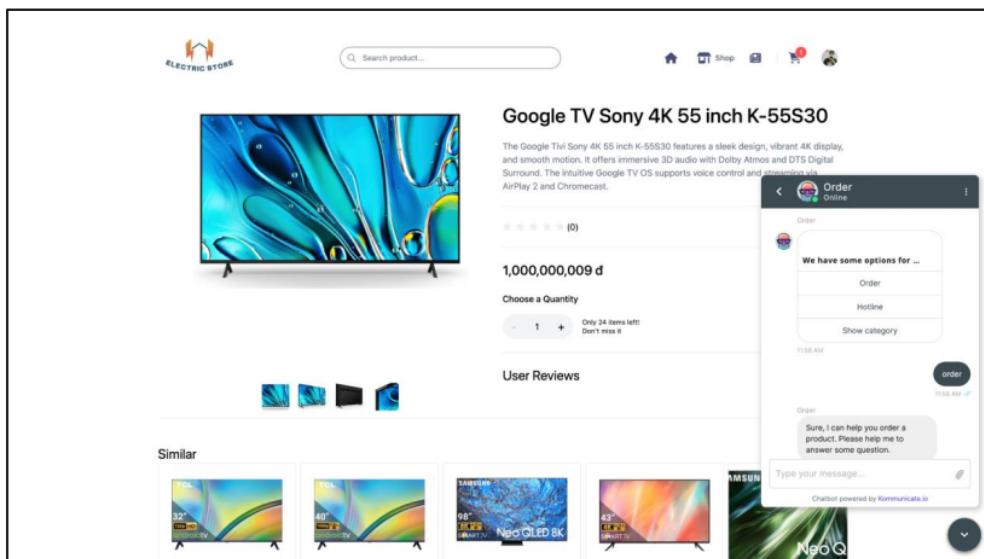


Figure 176 - Chat with ChatBot AI Step 2

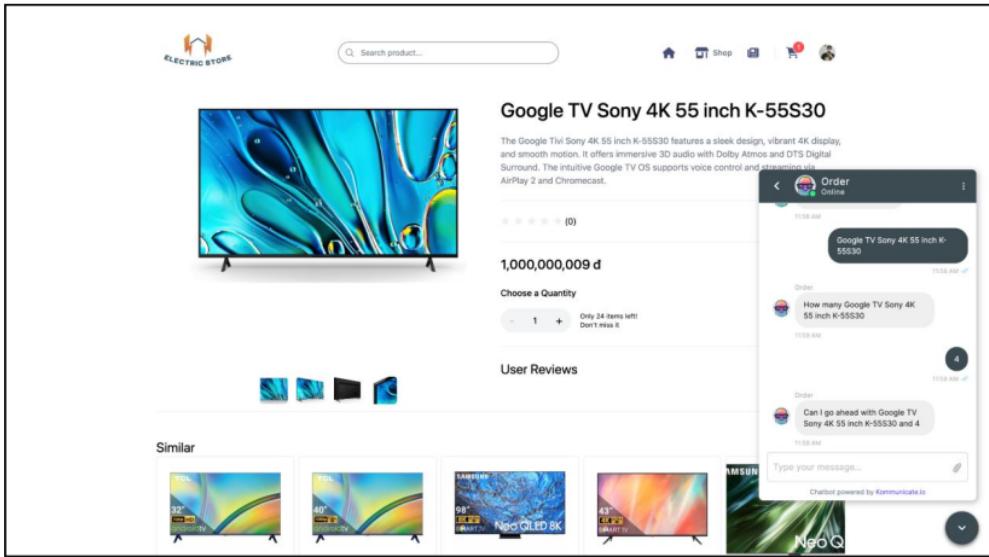


Figure 177 - Chat with ChatBot AI Step 3

3.3.2.13: View the history of orders

- **Step 1:** On any page, find and select the User icon and select "My Order" (located in the Profile menu).
- **Step 2:** On the Order History page, you can view a list of completed orders.

Description: The "View order history" feature displays a list of orders that have been made by customers.

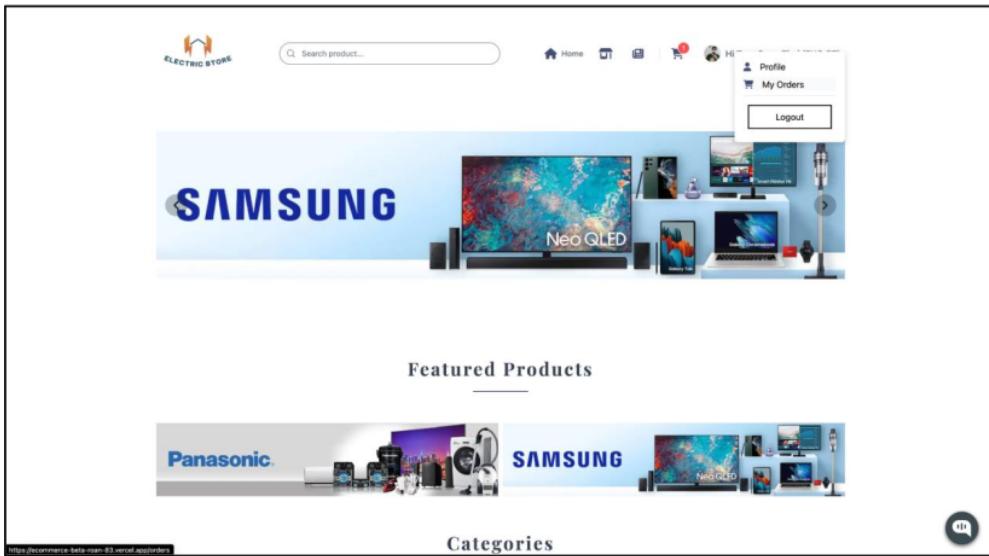


Figure 178 - View the history of orders step 1

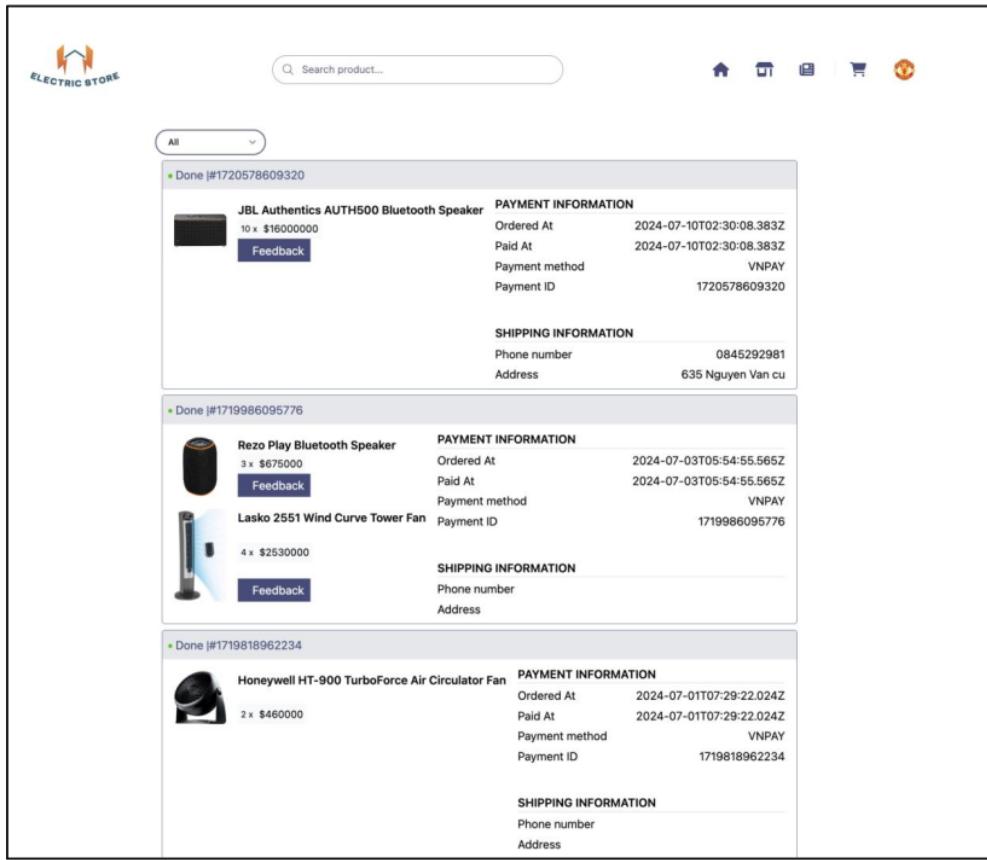


Figure 179 - View the history of orders step 2

3.3.4 User guide for Staff

3.3.4.1 Sign In, Sign Out

Sign In:

- **Step 1:** On the home page, move the mouse to the upper right corner and select "Login Staff".
- **Step 2:** The system will redirect you to the login page.
- **Step 3:** Enter login information (email and password) in the corresponding fields.
- **Step 4:** Click the "Sign in with credentials" button to log in to the system.

Description: If your account is an Admin role, you will be redirected to the Admin page. If your account is a Staff role, you will be redirected to the Staff page.

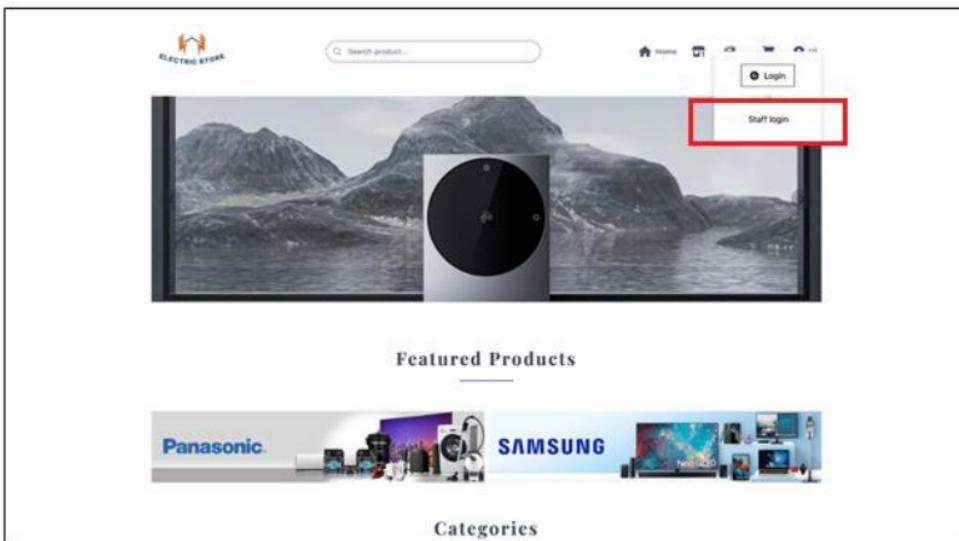


Figure 180 – Sign In for Staff Step 1

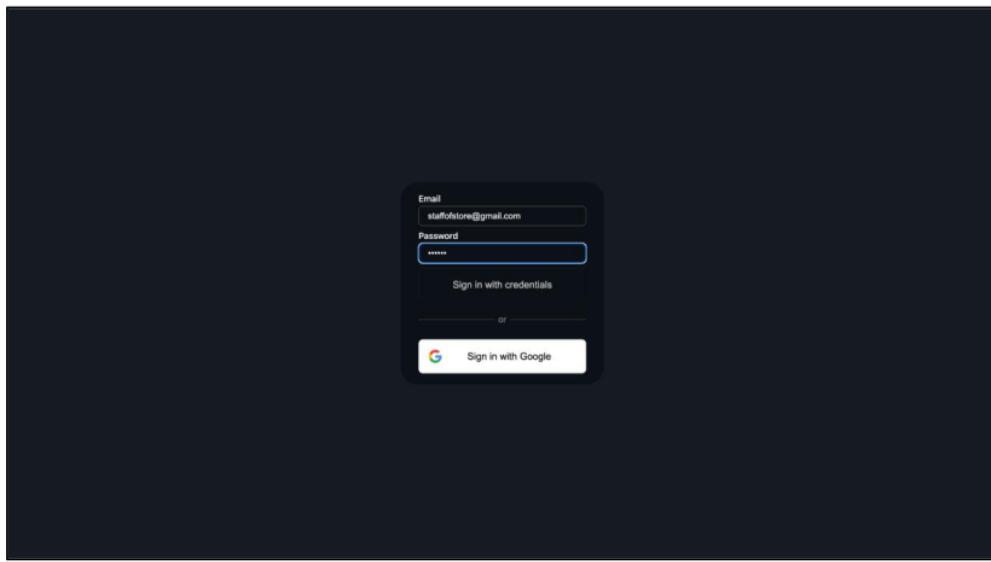


Figure 181 - Sign In for Staff Step 2

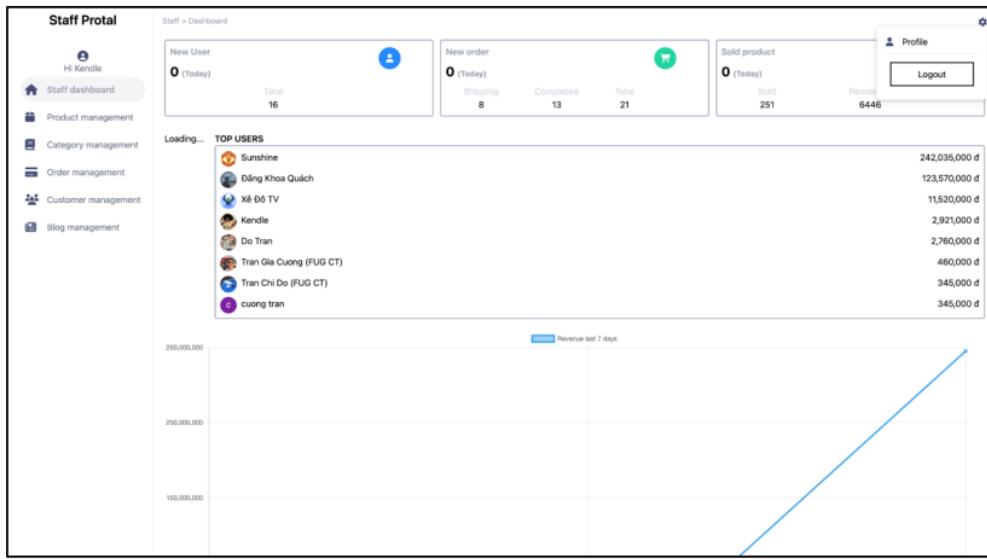


Figure 182 - Sign In for Staff Step 3

Sign Out:

- **Step 1:** On any page, find and select the "Logout" button (located in the top right corner after logging in).
- **Step 2:** Confirm the logout action if requested.

Description: The "Log out" feature allows Staff to exit the system.

3.3.4.2 View dashboard

- **Step 1:** After logging in, on the left sidebar.
- **Step 2:** select "Staff dashboard".

Description: The dashboard displays statistical data and information about the number of orders and revenue during the month.

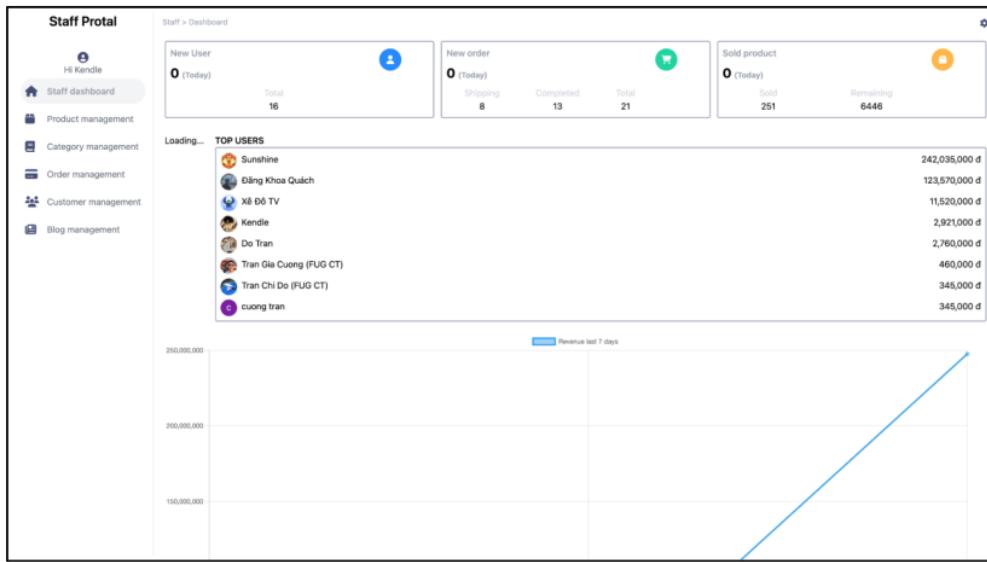


Figure 183 - View dashboard for staff and admin

3.3.4.3 Manage Product

- **Step 1:** On the left sidebar, select "Product Management".
- **Step 2:** Here, you can create, view, update and delete product information.

Description: The "Product Management" feature allows Staff to manage all product information on the system.

Product management					
	Name	Quantity	Price	Categories	
	Panasonic Inverter 550L	20	24,990,000 ₫	Refrigerator	Edit
	Google Tivi Sony 4K 55 inch KD-55X75K	10	13,890,000 ₫	TV	Edit
	Smart Tivi NanoCell LG 4K 55 inch 55NANO78SQA	10	11,390,000 ₫	TV	Edit
	Beko GN1416220CX	18	22,990,000 ₫	Refrigerator	Edit
	Smart TV QLED Samsung 4K 65 inch QA65Q80BAKXXV	16	14,990,000 ₫	TV	Edit
	Google TV TCL LED 4K 65 inch 65P638	10	10,490,000 ₫	TV	Edit
	Hitachi R-S700PN02	9	28,990,000 ₫	Refrigerator	Edit
	Smart TV Samsung Crystal UHD 4K 43 inch UA43AU7002XXXV	10	7,990,000 ₫	TV	Edit

Figure 184 - Manage Products – View and List Products

Figure 185 - Manage Products – Create Product

Figure 186 - Manage Products – Create Product

3.3.4.4 Manage Category

- **Step 1:** On the left sidebar, select "Category Management".
- **Step 2:** Here, you can create, view, update and delete product categories.

Description: The "Category Management" feature allows Staff to manage product categories on the system.

Staff Portal	
Staff > Categories	
Product Categories	
+ New category	
Name	Created at
Electric Fan	2024-06-14T07:31:03.221Z
Refrigerator	2024-06-17T09:05:47.281Z
TV	2024-06-17T09:58:24.136Z
Speaker	2024-06-17T11:24:01.360Z
Washing	2024-06-17T11:29:11.509Z
Air Conditioners	2024-06-19T07:06:53.777Z
Lighting	2024-06-14T07:28:45.963Z
Water Heater	2024-07-10T06:09:55.519Z
Electric Stove	2024-07-10T06:22:26.954Z

Figure 187 - Manage Category - View and List Product Categories

Staff Portal	
Staff > Categories > Create	
Category Name	<input type="text"/>

Figure 188 - Manage Category – Create new Product Categories

3.3.4.5 Manage Order

- **Step 1:** On the left sidebar, select "Order Management".
- **Step 2:** Here, you can view, update, and export orders information

Description: The "Order Management" feature allows Staff to track and process orders on the system.

Order management					
Payment ID	Payment Method	Status	Total	Created at	
1720590435859	vnpay	+ Done	31,200,000 ₫	12:47:15 10-07-2024	
1720590147258	vnpay	+ Done	10,800,000 ₫	12:42:26 10-07-2024	
1720578609320	vnpay	+ Done	160,000,000 ₫	09:30:08 10-07-2024	
1720577425578	vnpay	+ Done	42,900,000 ₫	09:10:25 10-07-2024	
1720577380496	vnpay	+ Done	2,760,000 ₫	09:09:39 10-07-2024	
1720496773579	vnpay	+ Done	13,800,000 ₫	10:46:12 09-07-2024	
1720496534112	vnpay	+ Paid	5,750,000 ₫	10:42:13 09-07-2024	
1720423686336	vnpay	+ Done	15,500,000 ₫	14:28:05 08-07-2024	
1720423090029	vnpay	+ Done	2,300,000 ₫	14:18:09 08-07-2024	
1720420558371	vnpay	+ Done	2,760,000 ₫	13:35:57 08-07-2024	

Figure 189 - Manage Order – View and list Orders

Order management																
Jul 2024 Aug 2024 > 30																
Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Status	Total	Created at
30	1	2	3	4	5	6	29	30	31	1	2	3	4	+ Done	31,200,000 ₫	12:47:15 10-07-2024
7	8	9	10	11	12	13	4	5	6	7	8	9	10	+ Done	10,800,000 ₫	12:42:26 10-07-2024
14	15	16	17	18	19	20	11	12	13	14	15	16	17	+ Done	160,000,000 ₫	09:30:08 10-07-2024
21	22	23	24	25	26	27	18	19	20	21	22	23	24	+ Done	42,900,000 ₫	09:10:25 10-07-2024
28	29	30	31	1	2	3	25	26	27	28	29	30	31	+ Done	2,760,000 ₫	09:09:39 10-07-2024
4	5	6	7	8	9	10	1	2	3	4	5	6	7			
1720496773579 1720496534112 1720423686336 1720423090029 1720420558371																
vnpay vnpay vnpay vnpay vnpay																
+ Done + Done + Done + Done + Done																
13,800,000 ₫ 5,750,000 ₫ 15,500,000 ₫ 2,300,000 ₫ 2,760,000 ₫																
10:46:12 09-07-2024 10:42:13 09-07-2024 14:28:05 08-07-2024 14:18:09 08-07-2024 13:35:57 08-07-2024																

Figure 190 - Manage Order – Select the date of statistics and export the order statistics file

3.3.4.6 Manage Customer

- Step 1:** On the left sidebar, select "Customer Management".
- Step 2:** Here, you can view and update customer information.

Description: The "Customer Management" feature allows Staff to track and manage customer information.

User management				
ID	Full name	Email	Created at	
ctfbshu48000011xtpeo87269	Xâ Đô TV	tranchido.tvb2018@gmail.com	12:28:58 15-06-2024	⋮
cbl0y8d0000zx4tdef9zr7n	cuong tran	trangiacuong216@gmail.com	13:16:10 17-06-2024	⋮
clerfmp00002zsbsvrlccj3	Tran Quec Thai (FUG CT)	thatptpe160598@fpt.edu.vn	16:15:39 17-06-2024	⋮
ckirse7g00003nbsuy4iy43o	Béng Khoa Quách	quachdangkhoaqd@gmail.com	16:25:23 17-06-2024	⋮
cklueunjn00008gsqpr0iy87v	Tran Chi Do (FUG CT)	dotcce160549@fpt.edu.vn	17:52:46 17-06-2024	⋮
clappyfe00000ppg47bbxy1gl	Bevis	bevis.pr@gmail.com	13:08:58 22-06-2024	⋮
clx74sad0000xsbvlgmrm4n	Sunshine	trangiacuong2018@gmail.com	23:32:42 24-06-2024	⋮
clySeekrg000213gkcs5tmxp	Kendle	kendle.pr@gmail.com	12:29:31 03-07-2024	⋮
clyBzIT7v0000kkifSag34asn	Tran Gia Cuong (FUG CT)	cuongtgcce160088@fpt.edu.vn	00:43:22 06-07-2024	⋮
clylhcqj0007kd3verchcf05	Quach Dang Khoa (FUG CT)	khoaqpce160561@fpt.edu.vn	16:31:03 06-07-2024	⋮

Figure 191 - Manage Customer – view and list customer information

Staff Portal		Staff > Users > ClySeekrg000213gkcs5tmxp														
																
		<table> <tr> <td>ID</td><td>clySeekrg000213gkcs5tmxp</td></tr> <tr> <td>Full Name</td><td>Kendle</td></tr> <tr> <td>Email</td><td>kendle.pr@gmail.com</td></tr> <tr> <td>Phone</td><td></td></tr> <tr> <td>Country</td><td></td></tr> <tr> <td>City</td><td></td></tr> <tr> <td>Address</td><td></td></tr> </table>	ID	clySeekrg000213gkcs5tmxp	Full Name	Kendle	Email	kendle.pr@gmail.com	Phone		Country		City		Address	
ID	clySeekrg000213gkcs5tmxp															
Full Name	Kendle															
Email	kendle.pr@gmail.com															
Phone																
Country																
City																
Address																

Figure 192 - Manage Customer – view and list customer information

3.3.4.7 Manage Blog

- Step 1:** On the left sidebar, select "Blog Management".
- Step 2:** Here, you can create, view, update and delete blog posts.

Description: The "Blog management" feature allows Staff to manage all article content on the system.

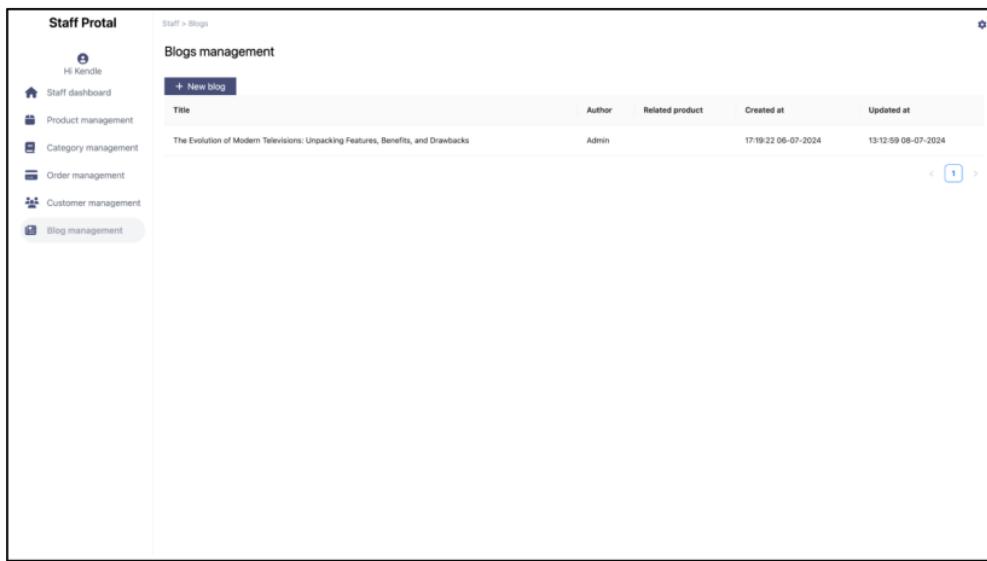


Figure 193 - Manage Blog – view and list blogs



Figure 194 - Manage Blog – Create new blog

The Evolution of Modern Televisions: Unpacking Features, Benefits, and Drawbacks

Tag: Blog

Cover photo:

Content:

In recent years, television technology has advanced significantly, offering a plethora of features that enhance the viewing experience. Modern TVs are no longer just devices for watching shows and movies; they are multifunctional entertainment hubs. This blog explores the various functions, benefits, and drawbacks of contemporary TVs.

Features of Modern TVs:

- Smart TV Capabilities:** Modern TVs often come equipped with smart features, allowing users to access streaming services like Netflix, Hulu, and Amazon Prime directly from their TV without the need for external devices.
- High Definition and 4K Resolution:** The majority of new TVs support high-definition (HD) and 4K resolution, providing clearer and more detailed images compared to standard definition.
- OLED and QLED Technology:** These display technologies offer improved color accuracy, deeper blacks, and better contrast ratios, enhancing the overall picture quality.
- Voice Control and AI Integration:** Many TVs now support voice assistants like Alexa, Google Assistant, and Siri, allowing users to control their TV and other smart home devices with voice commands.
- Connectivity Options:** Modern TVs come with multiple HDMI ports, USB ports, Bluetooth, and Wi-Fi, making it easier to connect various devices such as gaming consoles, soundbars, and external storage.
- Benefits of Modern TVs:**
- Enhanced Viewing Experience:** With features like 4K resolution and advanced display technologies, viewers can enjoy a more immersive and lifelike picture quality.
- Convenience and Accessibility:** Smart TVs eliminate the need for additional streaming devices, providing a more streamlined and user-friendly experience.
- Multi-Functionality:** Modern TVs can serve as a central hub for all your entertainment needs, from watching TV shows and movies to browsing the internet, playing games, and even controlling smart home devices.
- Space-Saving:** The slim design of modern TVs allows them to be mounted on walls, saving space and giving a clean, minimalist look to your living room.
- Future-Proofing:** Investing in a modern TV ensures that you are equipped with the latest technology, which will remain relevant and functional for years to come.
- Drawbacks of Modern TVs:**
- Cost:** High-end smart TVs with advanced features like OLED and QLED technology can be quite expensive, making them a significant investment.
- Complexity:** The multitude of features and settings can be overwhelming for some users, leading to a steeper learning curve.
- Privacy Concerns:** With smart TVs connected to the internet and integrated with voice assistants, there is an increased risk of privacy breaches and data security issues.
- Software Updates:** Just like smartphones, smart TVs require regular software updates to function optimally. Failure to update can result in performance issues and compatibility problems.
- Reliability:** The more features a TV has, the higher the potential for something to go wrong. Complex electronics can sometimes be less reliable and more difficult to repair.
- Conclusion:**
- Modern televisions offer a wide range of features that enhance the viewing experience and provide added convenience. While the benefits of these advanced TVs are numerous, it is important to consider the potential drawbacks such as cost, complexity, and privacy concerns. By weighing the pros and cons, you can make an informed decision when choosing the right TV for your needs.
- As technology continues to evolve, we can expect even more innovations in the world of television, further transforming our entertainment experiences. Whether you are a casual viewer or a tech enthusiast, there is undoubtedly a modern TV that will meet your requirements and preferences.

Update

Delete

Figure 195 - Manage Blog – Update and Delete Blog Posts

3.3.5 User guide for Admin

3.3.5.1 Sign In, Sign Out

Sign In:

- **Step 1:** On the home page, move the mouse to the upper right corner and select "Login Staff".
- **Step 2:** The system will redirect you to the login page.
- **Step 3:** Enter login information (email and password) in the corresponding fields.
- **Step 4:** Click the "Sign in with credentials" button to log in to the system.

Description: If your account is an Admin role, you will be redirected to the Admin page. If your account is a Staff role, you will be redirected to the Staff page.

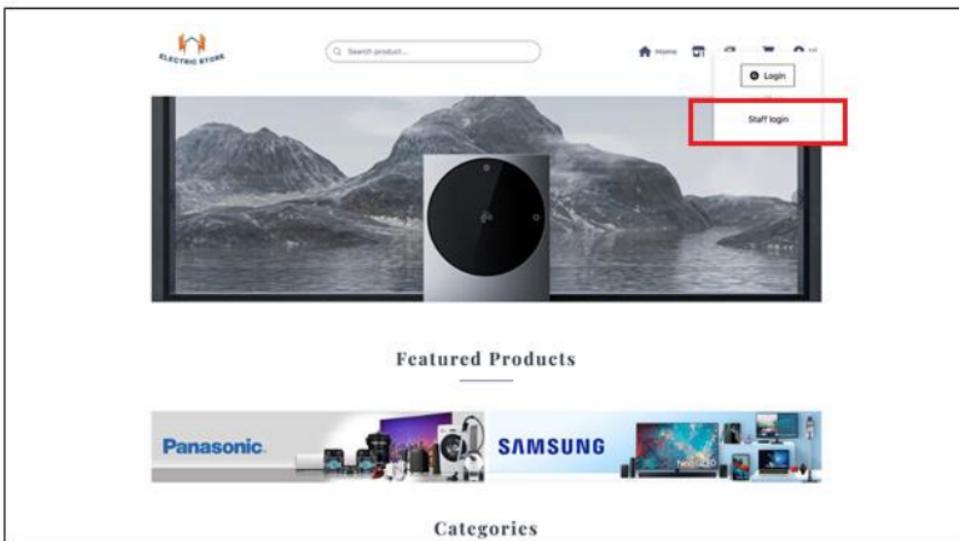


Figure 196 – Sign In for Admin Step 1

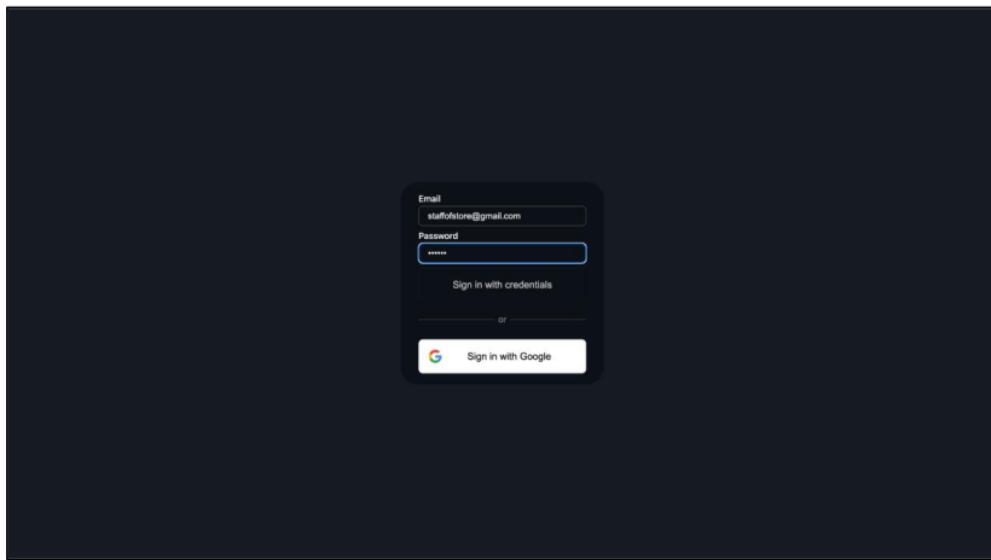


Figure 197 - Sign In for Admin Step 2

Sign Out:

- **Step 1:** On any page, find and select the "Logout" button (located in the top right corner after logging in).
- **Step 2:** Confirm the logout action if requested.

Description: The "Log out" feature allows Staff to exit the system.

3.3.5.2 View dashboard (Admin)

- **Step 1:** After logging in, on the left sidebar
- **Step 2:** select "Admin dashboard".

Description: The dashboard displays statistical data and information about the number of orders and revenue during the month

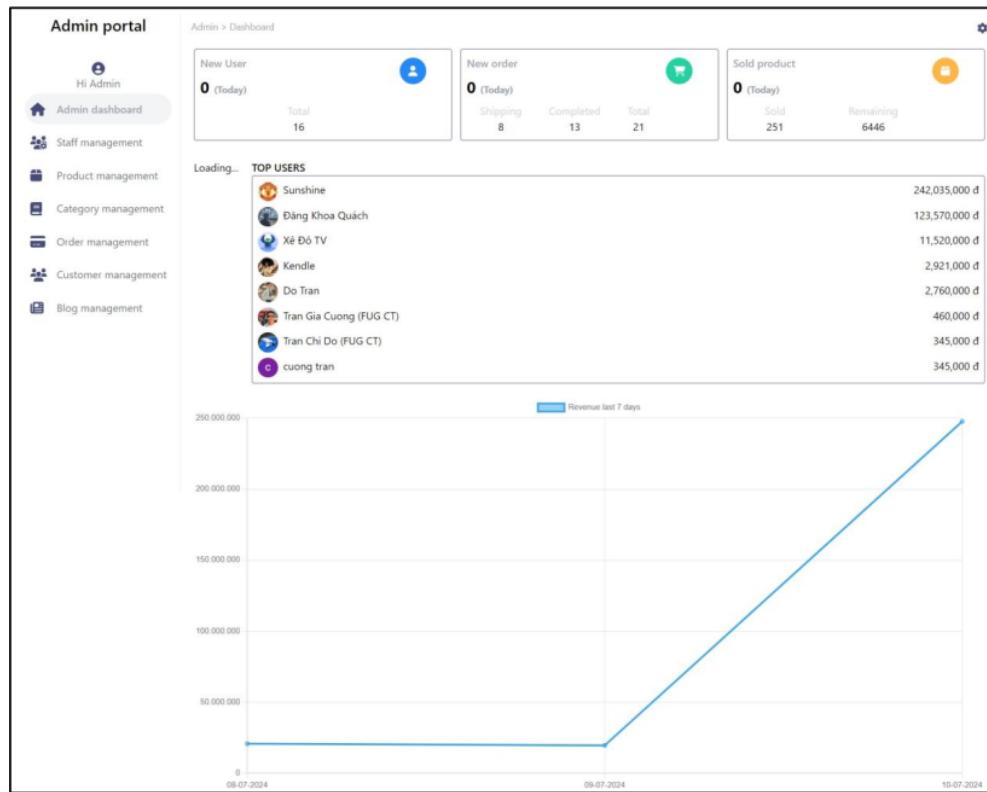


Figure 198 - View dashboard for Admin

3.3.5.3 Manage Staff

- **Step 1:** On the left sidebar, select "Staff Management".
- **Step 2:** Here, you can create, view, update and delete employee information.

Description: The "Employee Management" feature allows Admin to manage all employee information on the system.

Admin portal					
Admin > Staffs					
Staffs					
+ New staff					
	id	Full name	email	Created at	Updated at
	1	Admin	admin	12:45:18 14-06-2024	08:57:36 22-06-2024
	4	staff1	staff1@gmail.com	16:18:13 01-07-2024	15:29:48 14-07-2024
	5	Tory Teo	staff2@gmail.com	19:41:22 03-07-2024	13:51:38 09-07-2024
	10	STAFF	staff@gmail.com	15:35:33 12-07-2024	15:35:33 12-07-2024
	11	admin	admin@gmail.com	13:21:32 14-07-2024	13:21:32 14-07-2024
	12	Kendle	staffofstore@gmail.com	14:35:44 14-07-2024	14:35:44 14-07-2024
< 1 >					

Figure 199 - Manage Staff – View and list Staffs

Admin portal					
Admin > Staffs > Create					
Staffs / Create Staff					
+ Full Name					
<input type="text"/>					
Email					
<input type="text"/>					
Password					
<input type="password"/>					
Confirm Password					
<input type="password"/>					
Create					

Figure 200 - Manage Staff – Create new Staff

Admin portal					
Admin > Staffs > 1					
Full name					
<input type="text"/>					
Email					
<input type="text"/>					
Password					
<input type="password"/>					
Confirm Password					
<input type="password"/>					
Update Delete					

Figure 201 - Manage Staff – Update and delete Staff

3.3.5.4 Manage Product (Admin)

- **Step 1:** On the left sidebar, select "Product Management".
- **Step 2:** Here, you can create, view, update and delete product information.

Description: The "Product Management" feature allows Admin to manage all product information on the system.

The screenshot shows the Admin portal's Product management section. The left sidebar includes links for Admin dashboard, Staff management, Product management (which is selected and highlighted in blue), Category management, Order management, Customer management, and Blog management. The main area displays a table of products with columns for Name, Quantity, Price, and Categories. The products listed are:

Name	Quantity	Price	Categories
Panasonic Inverter 550L	20	24,990,000 ₫	Refrigerator
Google Tivi Sony 4K 55 inch KD-55X75K	10	13,890,000 ₫	TV
Smart Tivi NanoCell LG 4K 55 inch 55NANO76SQA	10	11,390,000 ₫	TV
Beko GN141620CK	18	22,900,000 ₫	Refrigerator
Smart TV QLED Samsung 4K 65 inch QA65Q60BA00V	16	14,990,000 ₫	TV
Google TV TCL LED 4K 65 inch 65P638	10	10,490,000 ₫	TV
Hitachi R-S700FND2	9	28,990,000 ₫	Refrigerator
Smart TV Samsung Crystal UHD 4K 43 inch UA43AU7002XXV	10	7,900,000 ₫	TV
Smart TV LG 4K 65 inch 65UR8050PSB	10	15,390,000 ₫	TV
Panasonic NR-D501XV	7	17,990,000 ₫	Refrigerator

At the bottom right, there is a pagination control with a page number input field set to 10 / page.

Figure 202 - Manage Product – view and list products

Admin portal

Hi Admin

Admin > Products > Create

* Product Name:

* Quantity:

* Category:

* Price: 0 VND

* Description:

Images:

+ Upload

Create

Figure 203 - Manage Product – Create new product

Admin portal

Hi Admin

Admin > Products > 4

* Product Name: Panasonic Inverter 550L

* Quantity: 20

* Category: Refrigerator

* Price: 24.990.000 VND

* Description: Panasonic 550 liter refrigerator NR-

Images:

+ Upload

Update Delete

Figure 204 - Manage Product – Create new product

3.3.5.5 Manage Category (Admin)

- **Step 1:** On the left sidebar, select "Category Management".
- **Step 2:** Here, you can create, view, update and delete product categories.

Description: The "Category Management" feature allows Admin to manage product categories on the system.

Admin portal		
Admin > Categories		
Product Categories		
	+ New category	
Name		Created at
Electric Fan		2024-06-14T07:31:03.221Z
Refrigerator		2024-06-17T09:05:47.281Z
TV		2024-06-17T09:58:24.136Z
Speaker		2024-06-17T12:24:01.360Z
Washing		2024-06-17T13:29:11.509Z
Air Conditioners		2024-06-19T07:06:53.777Z
Lighting		2024-06-14T07:28:45.963Z
Water Heater		2024-07-10T06:09:55.519Z
Electric Stove		2024-07-10T06:22:26.954Z

Figure 205 - Manage Category – View and list Product Categories (Admin)

Admin portal		
Admin > Categories > Create		
* Category Name	<input type="text"/>	
	<input type="button" value="Create"/>	

Figure 206 - Manage Category – Create new Product Category (Admin)

Admin portal		
Admin > Categories > 2		
* Category Name	<input type="text" value="Electric Fan"/>	
	<input type="button" value="Update"/> <input type="button" value="Delete"/>	

Figure 207 - Manage Category – Create new Product Category (Admin)

3.3.5.6 Manage Order (Admin)

- **Step 1:** On the left sidebar, select "Order Management".
- **Step 2:** Here, you can view and update order information.

Description: The "Order Management" feature allows Admin to track and process orders on the system.

Payment ID	Payment Method	Status	Total	Created at
1720590435859	vnpay	Done	31,200,000 ₫	12:47:15 10-07-2024
1720590147258	vnpay	Done	10,800,000 ₫	12:42:26 10-07-2024
1720578609320	vnpay	Done	160,000,000 ₫	09:30:08 10-07-2024
1720577425578	vnpay	Done	42,900,000 ₫	09:10:25 10-07-2024
1720577380496	vnpay	Done	2,760,000 ₫	09:09:39 10-07-2024
1720496773579	vnpay	Done	13,800,000 ₫	10:46:12 09-07-2024
1720496534112	vnpay	Paid	5,750,000 ₫	10:42:13 09-07-2024
1720423686336	vnpay	Done	15,500,000 ₫	14:28:05 08-07-2024
1720423090029	vnpay	Done	2,300,000 ₫	14:18:09 08-07-2024
1720420558371	vnpay	Done	2,760,000 ₫	13:35:57 08-07-2024

Figure 208- Manage Order (Admin) Step 1

Order summary (1)	
JBL Authentics AUTH500 Bluetooth Speaker 2 x \$1600000 The JBL Authentics AUTH500IKAS Bluetooth Speaker combines luxury and performance with its 270W output, featuring three tweeters, three midrange drivers, and two woofers. It weighs 14 kg, it offers Bluetooth 5.3 connectivity, dual speaker pairing, and IPX4 water resistance. Control is easy via onboard buttons or the JBL One app, and it supports continuous use with a power cord, AUX, and Type-C ports. Perfect for premium audio experiences in any setting. Qty: 2	
Total	32,000,000 ₫

Figure 209 - Manage Order (Admin) Step 2

3.3.5.7 Manage Customer

- **Step 1:** On the left sidebar, select "Customer Management".

- **Step 2:** Here, you can view and update customer information.

Description: The "Customer Management" feature allows Admin to track and manage customer information.

ID	Full name	Email	Created at
clxfohu48000011xtpeo87269	Xé Đô TV	tranchido.tvb2018@gmail.com	12:29:58 15-06-2024
clxli0yb80000zx41drf9zr7n	cuong tran	trangiacuong216@gmail.com	13:16:10 17-06-2024
clxifrmq00002z8ssvrfccj3	Tran Quoc Thai (FUG CT)	thaitqc160598@fpt.edu.vn	16:15:39 17-06-2024
clxirse7g00003ntuuy4y4jo	Dang Khoa Quach	quachdangkhoa96@gmail.com	16:25:28 17-06-2024
clxkawnjm00008gsqvz0ly67v	Tran Chi Do (FUG CT)	dotcce160549@fpt.edu.vn	17:52:46 17-06-2024
clxpypy5e0000pg47rbvyx1gi	Bevis	bevis.pf@gmail.com	13:08:58 22-06-2024
clxt74sad00000lx5b5vigrm8n	Sunshine	trangiacuong2018@gmail.com	23:32:42 24-06-2024
clx5ekrg000213gkct51mxop	Kindle	kendle.pf@gmail.com	12:29:31 03-07-2024
clyb2t17v00000kf5aq34as0	Tran Gia Cuong (FUG CT)	cuongtgc160068@fpt.edu.vn	00:43:22 06-07-2024
cl9wiccup0001k03varch0f5	Quach Dang Khoa (FUG CT)	khoaqdce160561@fpt.edu.vn	16:31:03 06-07-2024

Figure 210 - Manage Customer – View and list customers (Admin)

ID	clxfohu48000011xtpeo87269
Full Name	Xé Đô TV
Email	tranchido.tvb2018@gmail.com
Phone	
Country	
City	
Address	

Figure 211 - Manage Customers – View customer information (Admin)

3.3.5.8 Manage Blog (Admin)

- **Step 1:** On the left sidebar, select "Blog Management".
- **Step 2:** Here, you can create, view, update and delete blog posts.

Description: The "Blog management" feature allows Admin to manage all article content on the system.

The screenshot shows the 'Blogs management' section of the Admin portal. On the left is a sidebar with links: Admin dashboard, Staff management, Product management, Category management, Order management, Customer management, and Blog management (which is selected). The main area shows a table with one row of data:

Title	Author	Related product	Created at	Updated at
The Evolution of Modern Televisions: Unpacking Features, Benefits, and Drawbacks	Admin		17:19:22 06-07-2024	13:12:59 08-07-2024

A blue '+ New blog' button is located at the top left of the main area.

Figure 212 - Manage Blog – View and list blogs (Admin)

The screenshot shows the 'Create new blog' page. The sidebar on the left is identical to Figure 212. The main form has three sections: 'Title' (with placeholder 'Blog title...'), 'Tag' (with a dropdown menu), and 'Content' (with a rich text editor toolbar containing bold, italic, strike, code, clear marks, clear nodes, paragraph, h1-h6, bullet list, ordered list, code block, blockquote, horizontal rule, hard break, undo, redo, purple, and Add image options). At the bottom right is a black 'Create' button.

Figure 213 - Manage Blog – Create new blog (Admin)

VII. Reference

- | | |
|-----------------|---|
| [1] Nextjs | https://nextjs.org/docs |
| [2] ReactJS | https://react.dev/ |
| [3] TailwindCSS | https://tailwindcss.com/ |
| [4] Ant Design | https://ant.design/ |
| [5] Node JS | https://nodejs.org/ |

[6] Postgresql	https://www.postgresql.org/
[7] Algolia	https://www.algolia.com/
[8] VNPay	https://vnpay.vn/
[9] AWS Lex	https://aws.amazon.com/vi/lex/
[10] Kommunicate	https://www.kommunicate.io/
[11] Prisma	https://www.prisma.io/
[12] Digital Ocean(VPS)	https://www.digitalocean.com/solutions/vps-hosting
[13] NextAuth	https://next-auth.js.org/
[14] Github	https://github.com/
[15] DienMayXanh	https://www.dienmayxanh.com/
[16] NguyenKim	https://www.nguyenkim.com/
[17] Midea mart	https://mediamart.vn/

SEP490_G6_Report7_Final Project Report.pdf

ORIGINALITY REPORT



PRIMARY SOURCES

1	www.coursehero.com Internet Source	1 %
2	Submitted to University of Greenwich Student Paper	1 %
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11	listens.online Internet Source	<1 %
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17	Submitted to Universiti Malaysia Sarawak Student Paper	<1 %
18	Submitted to Central Queensland University Student Paper	<1 %
19	Submitted to Higher Education Commission Pakistan Student Paper	<1 %

20	ds.libol.fpt.edu.vn Internet Source	<1 %
21	Submitted to University of Wales Institute, Cardiff Student Paper	<1 %
22	www.algolia.com Internet Source	<1 %
23	Submitted to National College of Ireland Student Paper	<1 %
24	Submitted to American University in Cairo Student Paper	<1 %
25	Submitted to Birzeit University Main Library Student Paper	<1 %
26	Submitted to Victoria University Student Paper	<1 %
27	Submitted to Manchester Metropolitan University Student Paper	<1 %
28	Submitted to Valencia College Student Paper	<1 %
29	Submitted to Wentworth Institute Student Paper	<1 %
30	kontactr.com Internet Source	<1 %

31	Submitted to Taibah University Student Paper	<1 %
32	Submitted to Colorado Technical University Online Student Paper	<1 %
33	Submitted to University of West London Student Paper	<1 %
34	Submitted to HELP UNIVERSITY Student Paper	<1 %
35	Submitted to RMIT University Student Paper	<1 %
36	Submitted to University of Cape Town Student Paper	<1 %
37	export.arxiv.org Internet Source	<1 %
38	Submitted to University of Technology, Sydney Student Paper	<1 %
39	Submitted to Middlesex University Student Paper	<1 %
40	Submitted to UNITEC Institute of Technology Student Paper	<1 %
41	steemit.com Internet Source	<1 %

42	www.fastercapital.com Internet Source	<1 %
43	Submitted to Informatics Education Limited Student Paper	<1 %
44	Submitted to Southern New Hampshire University - Continuing Education Student Paper	<1 %
45	Submitted to Griffith College Student Paper	<1 %
46	Submitted to Southampton Solent University Student Paper	<1 %
47	Submitted to University of Manouba Student Paper	<1 %
48	Submitted to Zambia Centre for Accountancy Studies Student Paper	<1 %
49	Submitted to Australian National University Student Paper	<1 %
50	Submitted to Edith Cowan University Student Paper	<1 %
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