VIETNAM NATIONAL UNIVERSITY, HANOI UNIVERSITY OF ENGINEERING AND TECHNOLOGY



INITIAL DEMO REPORT FOR ONLINE ECOMMERCE WEBSITE

SEMESTER 232

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1. Introduction

1.1. Motivation

In today's competitive and convenience-driven society, consumers prefer the ease of shopping remotely rather than venturing out. This shift is evident, with Southeast Asia recording the highest mobile Internet usage in the region, averaging 3.6 hours per day per person, according to Google and Temasek's research.

Acknowledging this trend, our team proposes the development of an online ecommerce platform to cater to this demand. Key features include robust search functionality for easy product discovery, high-quality images, and detailed descriptions to aid decision-making. Additionally, seamless product management and payment processes, along with review and rating features, will enhance user experience and credibility.

User account registration and management will allow for order tracking and purchase history access. Statistical analysis tools will provide insights into customer behavior for continuous improvement, while diverse payment methods will offer flexibility. Furthermore, customer support features will be integrated to address inquiries promptly.

In line with regulations, our platform will prioritize security and privacy to ensure user data protection. Through these efforts, our ecommerce website, Market Swift, aims to provide users with a convenient, secure, and efficient online shopping experience.

1.2. Purpose

The purpose of this software requirement specification is to offer a comprehensive outline of the necessities for an online ecommerce website. This document delineates the primary use cases for web customers engaging in online purchases, encompassing both the client and seller components.

The online ecommerce website serves as a virtual marketplace for a diverse array of goods, facilitating global transactions. It operates as an internet-based enterprise with an extensive inventory spanning categories such as books, electronics, groceries, and more.

Sellers utilize this platform to broaden their reach to a global audience, providing enhanced flexibility and market access. The convenience of online shopping has surged in popularity over the past decade, allowing customers to easily explore various products, brands, and price points from the comfort of their homes. This trend has solidified the online shopping website's position as a dominant force in the digital marketplace.

1.3. Scope of users

The e-commerce platform functions as a hub for the sale of diverse goods and facilitates secure transactions between sellers and customers worldwide. Operating as a virtual entity, it offers customers an extensive selection of products for online browsing and purchase, while providing sellers with a platform to showcase and sell their products. Its key benefits include the convenience of remote shopping, the ability to compare prices, brands, and customer feedback, and the opportunity for retailers to expand their reach to a global audience.

The platform features a robust database that stores customer information and purchase histories. Its review section promotes transparency by showcasing product performance and user experiences through ratings and detailed reviews, including optional product images, fostering trust and community engagement.

Ensuring secure transactions and timely product delivery are core components. Driving sales growth is prioritized, necessitating the implementation of various strategies such as cost-effective management, enhancing customer loyalty and satisfaction, and harnessing internet resources for technological advancements, marketing, and business expansion. Continuous research and development efforts, particularly in logistics, are essential for sustained business development. Exploring new markets and investing in innovative ventures are also viable strategies.

Ultimately, the goal of the e-commerce website is to offer a seamless and user-friendly platform that caters to the needs of both customers and sellers, enabling convenient product selection from a wide range of offerings.

2. Product Features

2.1. Register an account

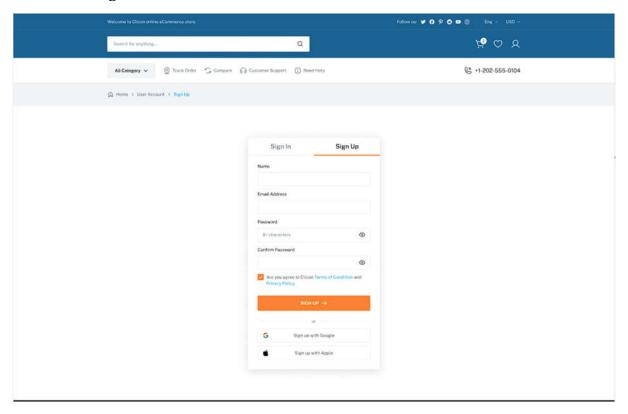


Figure 1. Register an account

2.2. Login

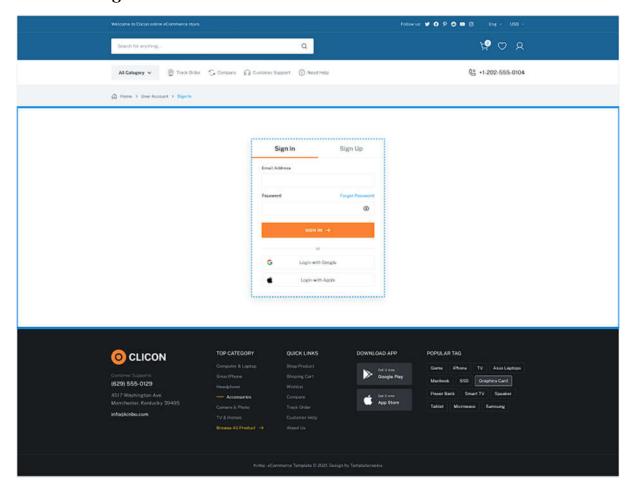


Figure 2. Login Form

2.3. Edit account information

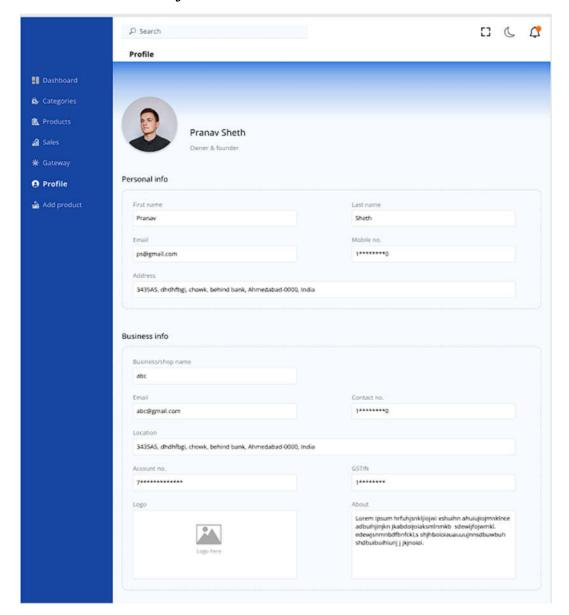


Figure 3. Edit Account Information

2.4. Search items

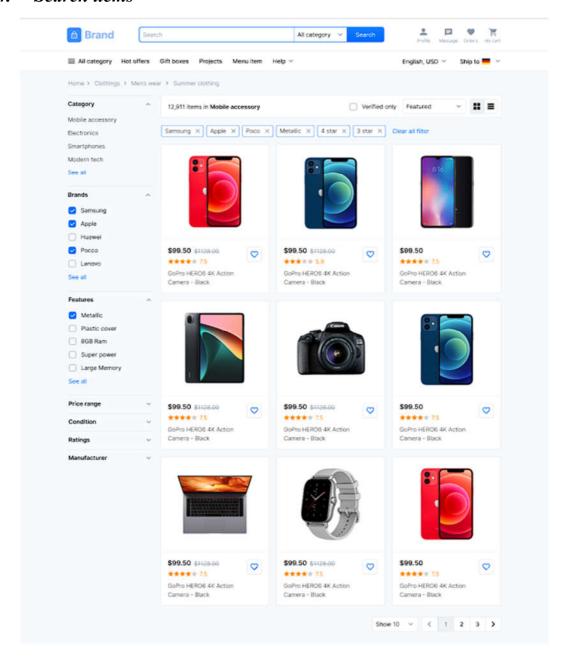


Figure 4. Search items

2.5. View items

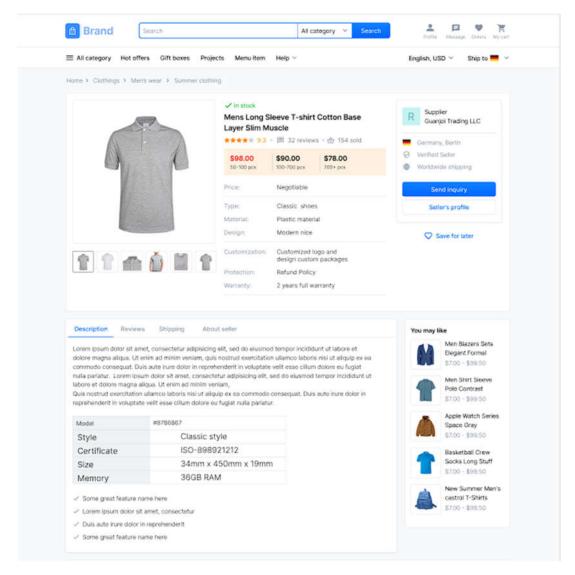


Figure 5. View items

2.6. Add items to cart

(a Button "My cart" in View Items)

2.7. View cart

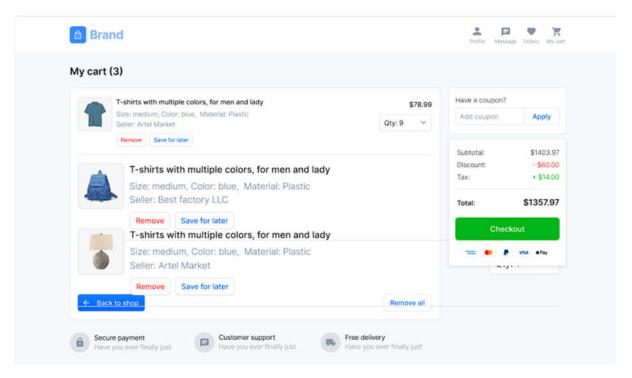


Figure 6. View cart

2.8. Buy items

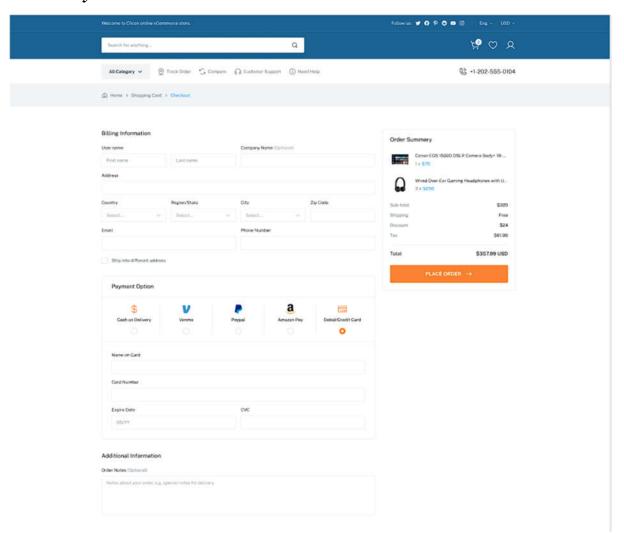


Figure 7. Buy items

2.9. Shipping tracking

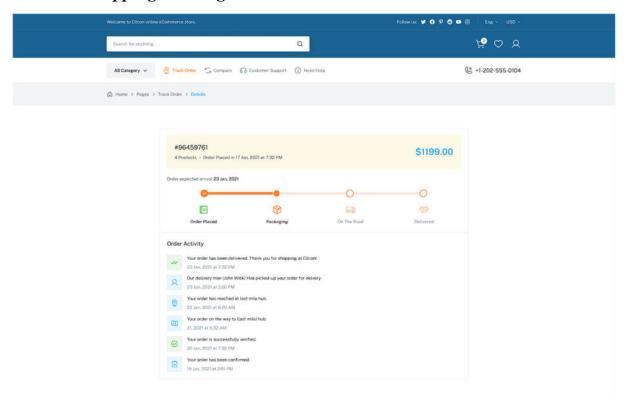


Figure 8. Shipping tracking

2.10. Order cancellation

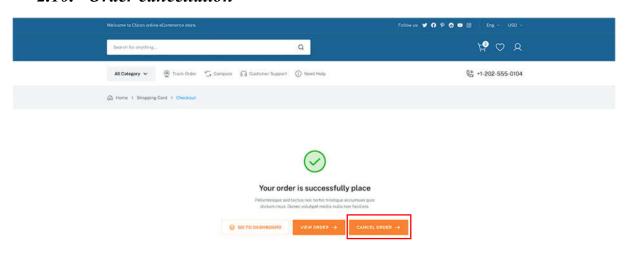


Figure 9. Order Cancellation

2.11. Order returns

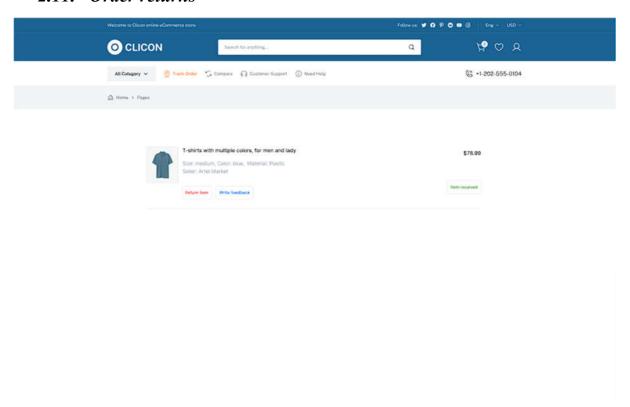


Figure 10. Order return

2.12. Order confirmation and reviews

(In 2.11. Order return we also have options to confirm and write feedback)

2.13. Upload listings

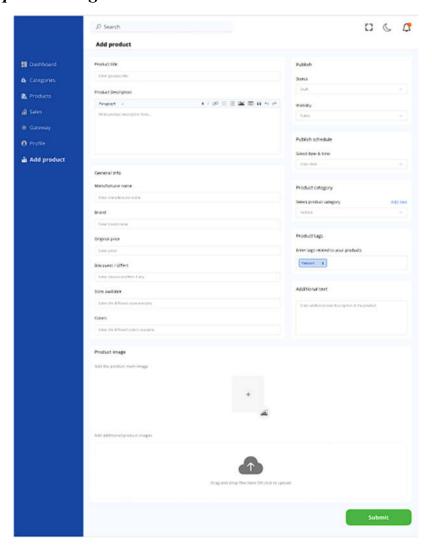


Figure 11. Upload listings

2.14. Edit items

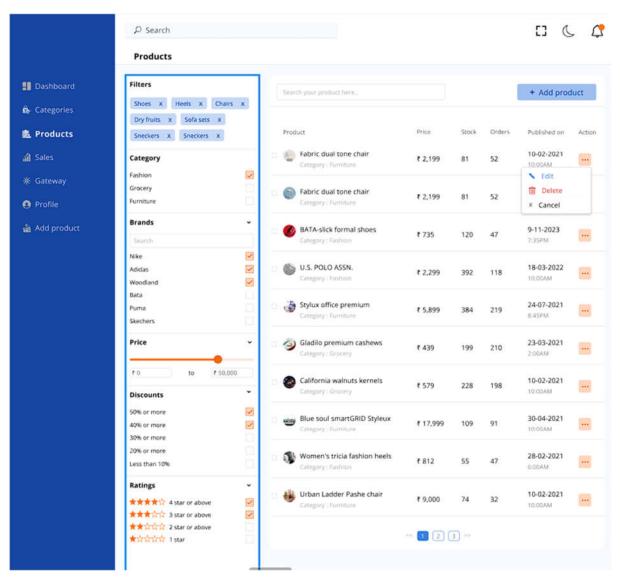


Figure 12. Edit items

2.15. Items classification

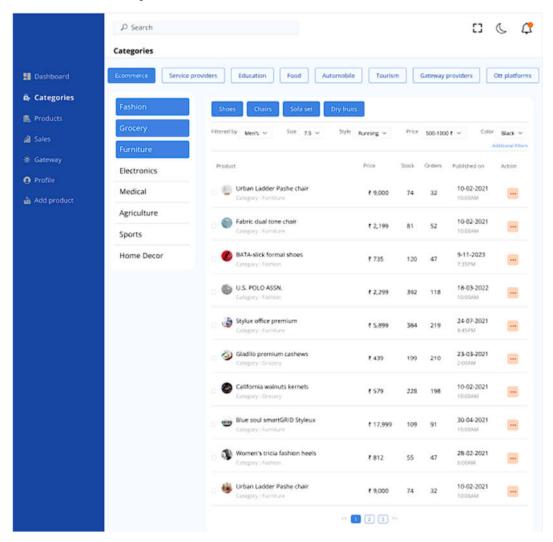


Figure 13. Items classification

2.16. View order from customers

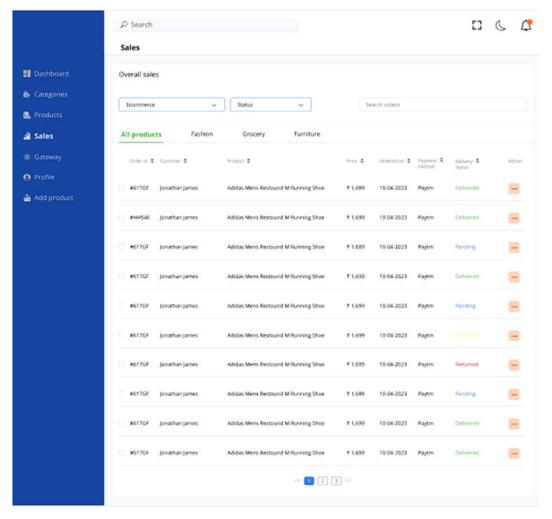


Figure 14. View order from customers

3. Features Explaination

3.1. Register an account

Registering an account on the ecommerce website provides users with a personalized experience and allows them to access various features tailored to their preferences. The basic flow of this feature involves users providing necessary information such as name, email, and password, followed by account verification via email or phone. An alternative flow may include social media login options for added convenience. Special requirements might involve captcha verification to prevent bot registrations. Preconditions may include agreeing to terms of service and privacy policies. Post-conditions typically involve successful account creation and redirection to the user's dashboard. Extension points could include options for users to customize their account settings further, such as profile pictures or notification preferences.

3.2. Login

Logging in is a fundamental feature that enables users to access their accounts securely. The basic flow involves users entering their credentials (email/username and password) and verifying them against stored data. An alternative flow may include password reset

options in case of forgotten credentials. Special requirements might involve two-factor authentication for enhanced security. Pre-conditions include having a registered account, while post-conditions involve successful authentication and redirection to the user's dashboard. Extension points may include options for users to stay logged in across sessions or to log in using biometric authentication methods.

3.3. Edit account information

Editing account information allows users to update their personal details, such as contact information or shipping addresses, to ensure accurate transactions. The basic flow involves users accessing their account settings, making the desired changes, and saving the updates. An alternative flow may include verification steps for sensitive changes, such as updating payment information. Special requirements might involve confirming changes via email or SMS for security purposes. Pre-conditions include being logged into the user account, while post-conditions involve updated account information being reflected in the system. Extension points may include options for users to manage privacy settings or preferences for communication.

3.4. Search items

Searching for items is a pivotal feature that enables users to find products of interest efficiently. The basic flow involves users entering keywords or selecting categories to initiate the search, followed by displaying relevant results. An alternative flow may include advanced search filters for precise refinement of results. Special requirements might involve implementing search algorithms for typo tolerance or synonym recognition. Pre-conditions include being on the homepage or search page, while post-conditions involve displaying search results based on user queries.

3.5. View items

Viewing items allows users to explore detailed information about products before making a purchase decision. It involves users clicking on product listings from search results or category pages to view their details, including images, descriptions, pricing, and reviews. An alternative flow may include recommendations for related or similar items based on user browsing history. Special requirements might involve implementing zoom functionality for product images or video demonstrations. Pre-conditions include being on a product listing page, while post-conditions involve displaying comprehensive product information.

3.6. Add items to cart

Adding items to the cart enables users to collect desired products for purchase. After browsing product listings, click on the "Add to Cart" button for selected items, and the selected item will be added to your wishlist, or cart. Special requirements might involve implementing quantity selection and size/color variants for certain products. Preconditions include being logged into the user's account, while post-conditions involve items being added to the cart and reflected in the user's cart view. Extension points may include options for users to save items for later.

3.7. View cart

Viewing the cart allows users to review the items they've added for purchase. To view their cart, users navigating to the cart page, where they can see a summary of their

selected items, quantities, and total prices. When users navigating to the cart item, a quick preview of the cart contents without leaving the current page. Special requirements might involve real-time updating of cart contents as users add or remove items. Pre-conditions include having items added to the cart, while post-conditions involve displaying the cart contents for review.

3.8. Buy items

Buying items is the pivotal step where users finalize their purchase transactions. The basic flow involves users proceeding to checkout from their cart, entering shipping and payment details, and confirming the order. An alternative flow may include guest checkout options for users who prefer not to create an account. Special requirements might involve implementing secure payment gateways and fraud detection measures. Pre-conditions include having items added to the cart and being logged into the user's account (if applicable), while post-conditions involve order confirmation and payment processing. Feature may include options for users to track their order status or receive shipping notifications.

3.9. Shipping tracking

Tracking shipping allows users to monitor the delivery status of their orders in real-time. Users access their order history or tracking page, enter the tracking number provided by the seller or shipping carrier, and retrieve the current location and estimated delivery date of their package. Server may include email or SMS notifications with tracking links for convenience. Special requirements might involve integrating with multiple shipping carriers for comprehensive tracking coverage. Before users can track shipping, they have to place an order and received a tracking number, after that, server involve displaying the latest shipping information to the user.

3.10. Order cancellation

Order cancellation allows users to retract their purchase requests before the items are shipped or processed. Users access their order history or pending orders, select the order they wish to cancel, and confirm the cancellation request. Requirements might involve specifying cancellation reasons for analytical purposes. Pre-conditions include having placed an order, while post-conditions involve canceling the order before the order has not dervied to your place yet and initiating a refund if applicable.

3.11. Order returns

Order returns enable users to request refunds or replacements for items that did not meet their expectations or arrived damaged. Users access their order history, select the order containing the item they wish to return, and initiate a return request, specifying the reason for the return. Customers have to receive the item and being within the return window specified by the seller's return policy as well as within the return-order time.

3.12. Order confirmation and reviews

Order confirmation and reviews are essential for building trust and transparency within the ecommerce platform. Upon receiving the order, users may be prompted to confirm that they received the order and may leave reviews or ratings based on their satisfaction with the products and overall shopping experience. If customers haven't given any reviews or rate, website may include reminders to customers to leave reviews after a certain period or incentivizing reviews with loyalty points or discounts. Server might involve moderation of reviews to prevent fraudulent or inappropriate content. Users can edit or delete their reviews, as well as providing incentives for verified purchase reviews, but just one chance of modification.

3.13. Upload listing

Uploading listings empowers sellers to showcase their products on the ecommerce platform, expanding the variety of items available to customers. The basic flow involves sellers accessing their seller dashboard, entering product details such as title, description, price, and images, and submitting the listing for review. An alternative flow may include bulk listing uploads for sellers with large inventories. Special requirements might involve category-specific listing requirements or compliance with platform guidelines for product listings. Pre-conditions include having a seller account registered and logged in, while post-conditions involve the listing being published and available for purchase. Extension points may include options for sellers to schedule listing activations or promote listings through advertising campaigns.

3.14. Edit items

Editing items allows sellers to make updates or modifications to their existing listings to keep them accurate and relevant. Sellers access their seller dashboard, select the listing they wish to edit, and make changes to the product details or images before saving the updates. Pre-conditions include having active listings, while post-conditions involve reflecting the edits made to the listings. Sellers may have options to preview listing changes before publishing or revert to previous versions if needed.

3.15. Items classification

Items classification organizes products into categories or subcategories to facilitate navigation and discovery for users. After uploading listings, sellers assign appropriate categories or tags based on their attributes and characteristics.

3.16. View order from customers

Viewing orders from customers provides sellers with insights into their sales activity and order fulfillment requirements. Sellers access their order management dashboard, where they can view a list of orders placed by customers, along with relevant details such as order ID, items purchased, payment status, and shipping information. There may have filtering options to narrow down orders based on specific criteria, such as order status or date range. Pre-conditions include having seller credentials and permissions to access order data, while post-conditions involve displaying the order information accurately. It may include options for sellers to print packing slips, generate shipping labels, or communicate with customers regarding order updates or inquiries.

3.17. Statistic of items sold (intended)

Analyzing statistics of items sold provides sellers with insights into their product performance, aiding in strategic decision-making. Sellers access analytics or reporting tools on the ecommerce platform to view metrics such as sales volume, revenue, top-selling items, and customer demographics. They can customize dashboards or reports to fit specific business needs or key performance indicators (KPIs). Real-time data updates and integration with external analytics services may be required for more detailed

insights. Sellers need active listings and sales data available to conduct analysis accurately. After analysis, the statistical information is presented to the seller for informed decision-making. Additional features may allow sellers to set performance goals, compare performance over time, or export data for further analysis.

4. Limitations and Proposal Solutions

When developing an ecommerce website like Amazon, various limitations and difficulties can arise at different stages of the process:

4.1. During Requirement Analytics

4.1.1. Gathering User Requirements

In a team of five people, conducting comprehensive requirement analysis can be challenging due to differing opinions, priorities. Furthermore, obtaining a thorough understanding of user needs, preferences, and expectations may be difficult, leading to potential gaps or oversights in the requirements gathering process.

4.1.2. Proposal Solution

To tackle the challenges of comprehensive requirement analysis within a small team of five, fostering open communication and collaboration is key. By defining clear roles, prioritizing stakeholder engagement, and utilizing prototyping techniques, the team can ensure a thorough understanding of user needs and preferences. Adopting agile methodologies and seeking external expertise when necessary further enhances the process, enabling the team to capture and address user requirements effectively.

4.2. During Design Architecture, Database, User Interface, and Component Design

4.2.1. Lack of experience

In the design architecture phase of developing an ecommerce website, limitations may arise due to a lack of experience in designing large-scale systems, potentially resulting in impractical or challenging designs.

4.2.2. Proposal Solution

To address this issue, one proposed solution is to leverage examples and references from prestigious online ecommerce platforms. By studying and analyzing the architecture, database structure, user interface, and components of well-established ecommerce websites with high citation and recognition, the team can gain valuable insights and guidance for their own design process.

Furthermore, referencing comprehensive documents and analyses of big ecommerce websites can provide valuable knowledge and best practices. By examining case studies and research papers that delve into the architecture and design principles of successful ecommerce platforms, the team can gain a deeper understanding of effective design strategies and avoid common pitfalls. This approach allows the team to draw upon existing expertise and proven solutions to inform their design decisions, ultimately leading to a more practical and implementable design for the ecommerce website.

4.3. During Website Implementation

4.3.1. Technology Selection

Selecting the appropriate programming language and framework for development may be challenging, especially considering factors such as team expertise, project requirements, and scalability needs.

4.3.2. Coding Challenges

Implementing complex features and functionalities while maintaining code quality and performance standards may pose difficulties, particularly if team members encounter technical hurdles or lack sufficient expertise.

4.3.3. Team Collaboration

Coordinating coding efforts among team members and resolving conflicts, such as conflicting code changes or divergent coding styles, can be challenging and may impact project timelines and quality.

4.3.4. Conflict with Design

Addressing discrepancies or conflicts between the implemented website and the design specifications may require negotiation and compromise to ensure alignment with user expectations.

4.3.5. Proposal Solutions

- Evaluate programming languages and frameworks based on project requirements, team
 expertise, and community support. Conduct proof of concept exercises to assess
 feasibility and performance. Establish coding standards and guidelines to promote
 consistency and reduce conflicts.
- Implement version control systems and adopt code review practices to detect and resolve
 conflicts early. Encourage communication and collaboration among team members to
 address differences in coding styles or approaches. Utilize branching strategies and
 merge strategies to manage concurrent development efforts effectively.
- Foster close collaboration between design and development teams to ensure alignment from the outset. Conduct regular design reviews and usability testing to identify and address discrepancies or feasibility concerns early in the development process.