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UNIVERSITI TUNKU ABDUL RAHMAN

**FACULTY OF INFORMATION COMMUNICATION
TECHNOLOGY**

**UCCD3243 SERVER-SIDE WEB APPLICATIONS
DEVELOPMENT**

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Report Assignment

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Marking Scheme

Attribute	Actual Marks	Student 1	Student 2	Student 3
Report Section (Group)	20			
Analysis - Site Hierarchy and Navigation	15			
Analysis – System Flowcharts				
Overview – Database Structure				
Design – Functional Requirements				
Strengths and Limitations	5			
Application Section (Individual)	60			
Application – Functional Requirements	20			
Application – Data and Process Flow	20			
Application – Method Used	20			
Application Section (Group)	20			
Professional Outlook (Front End and Back End)	5			
Application – Integration of Modules	15			
Total	100			

1.0 Site Hierarchy and Navigation

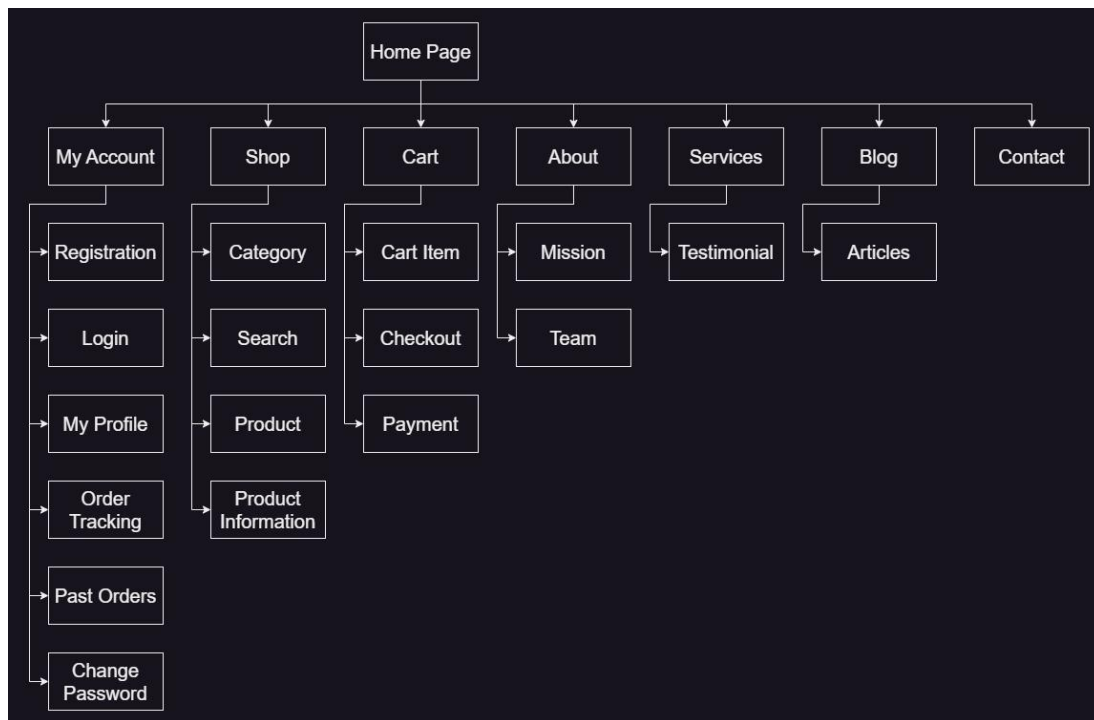


Figure 1.1 User Site Hierarchy Diagram

In figure 1.1, the User Site Hierarchy Diagram has been divided into top-level page, Home Page and sub sections page such as My Account, Shop, Cart, etc. Under the My Account section, users are able to perform Registration and Login when they access our website. Once they have registered or logged in, users will be able to view their profile, track orders, view past orders, and change their account passwords. The second section is the Shop, where users can search or filter products. If they wish to add an item to their cart, they can easily click on the product, and the desired item will be added to the cart accordingly. Lastly, the Cart section allows users to view cart items, modify cart items such as increasing or decreasing quantity, or even delete items added to the cart. Once users have confirmed the items, they can proceed to Checkout. In the Checkout section, users are required to fill in billing details such as names, addresses, etc. Once the billing details are completed, users can continue to the Payment section, where they need to enter their bank account number and upload proof of payment to complete the payment flow.

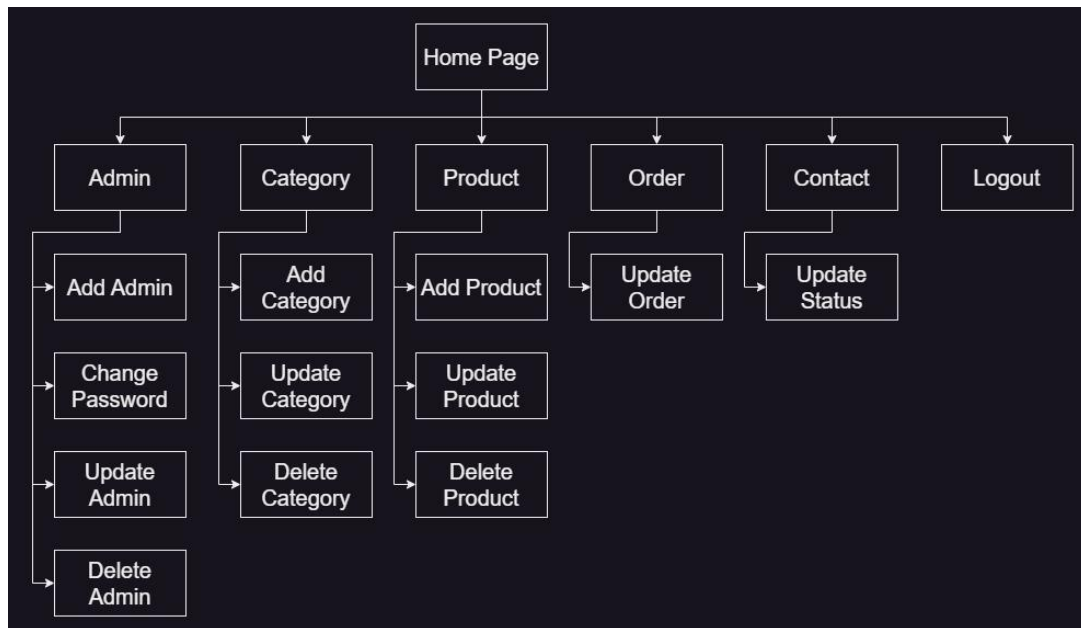


Figure 1.2 Admin Site Hierarchy Diagram

Based on Figure 1.2, the homepage serves as the top-level page, offering access to various sub sections. In the Admin section, administrators can manage accounts by adding new admins, changing passwords, updating admin information, and deleting accounts. Moving to the Category section, administrators handle product categories, with capabilities to add, update, and delete categories. Similarly, the Product section allows administrators to manage products by adding new ones, updating product information, and deleting products from the database. Orders are managed in the Order section, enabling administrators to update order statuses such as Delivered, Pending Delivery, or Cancelled. Inquiries and feedback from users are managed in the Contact section, where administrators can view messages, respond, and update statuses accordingly. Finally, the Logout section offers a simple way for administrators to securely log out of their accounts. Through clear navigation and interactive elements, administrators can efficiently navigate between sections and perform necessary actions within the Admin site.

2.0 System Flowcharts

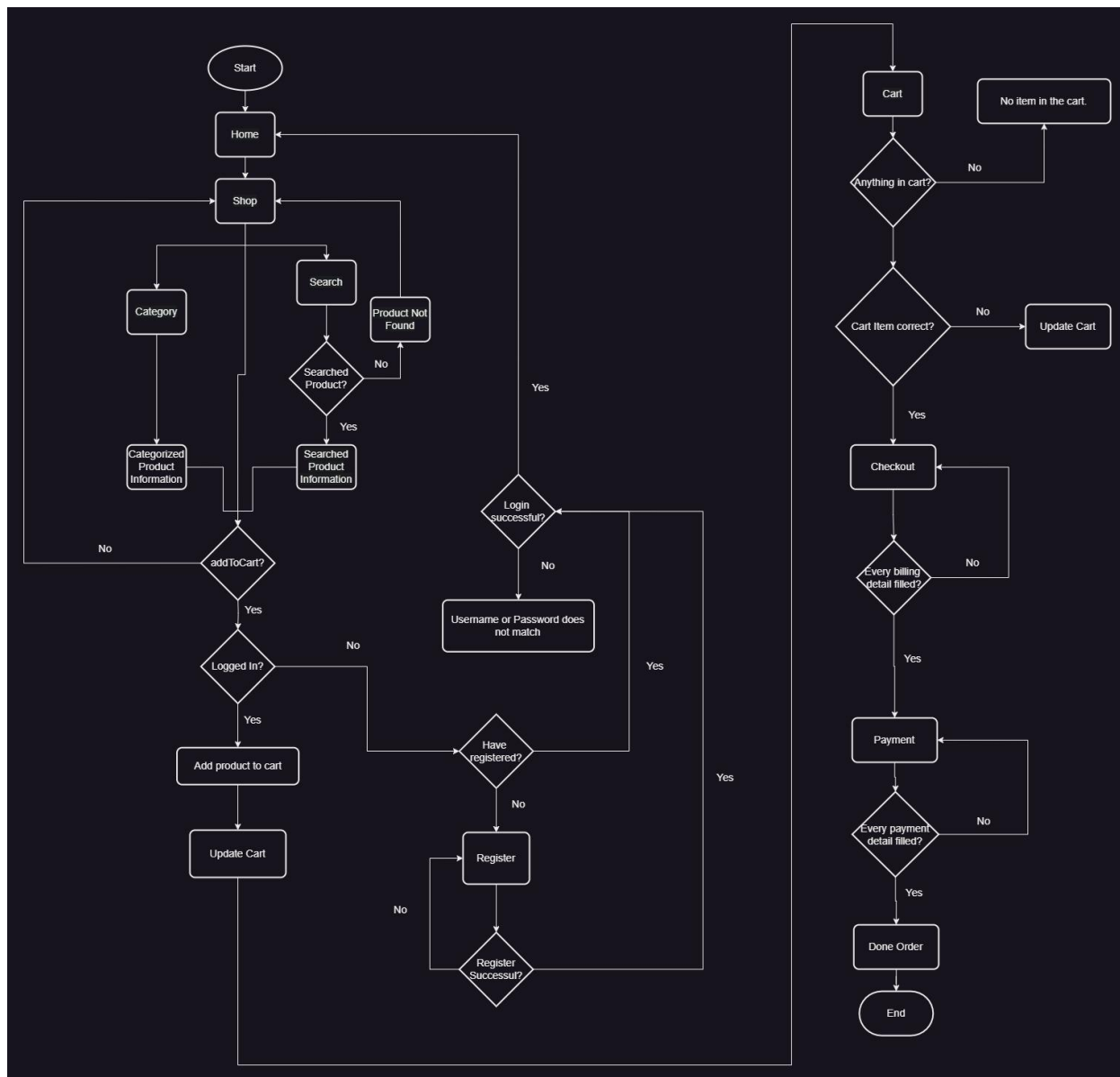


Figure 2.0.1 System Flowcharts

Figure 2.0.1 provides an overview of the main flow of our website, starting from the Shop Page. When a user wishes to add an item to their cart, the website first checks if the user is logged in. If the user is logged in, a message 'Item added to cart successfully' is displayed. Users can then choose to proceed to the cart. In the Cart page, users can view every item added to their cart and make adjustments such as increasing or decreasing the quantity of items or removing them from the cart. Once users have made their selections, they can proceed to checkout by clicking the Checkout button, which redirects them to the Checkout page. Here, users are required to fill in their relevant details such as name, address, and phone number. If any details are missed and users click on the Proceed to Payment button, the website indicates

which fields need to be completed before proceeding. Moving on to the Payment section, users are prompted to transfer payment to our account and provide additional information such as bank name, bank account number, and upload a transaction image for verification. If all required information is provided, the payment is considered complete. If the user is a new user, they will be redirected to the Login page. A registration link is provided under the login form, which redirects users to the registration page to create an account. If the chosen username is already in use, the system alerts the user to choose a different username. Upon successful registration, users are redirected to the Home page.

3.0 Overview of Database Structure

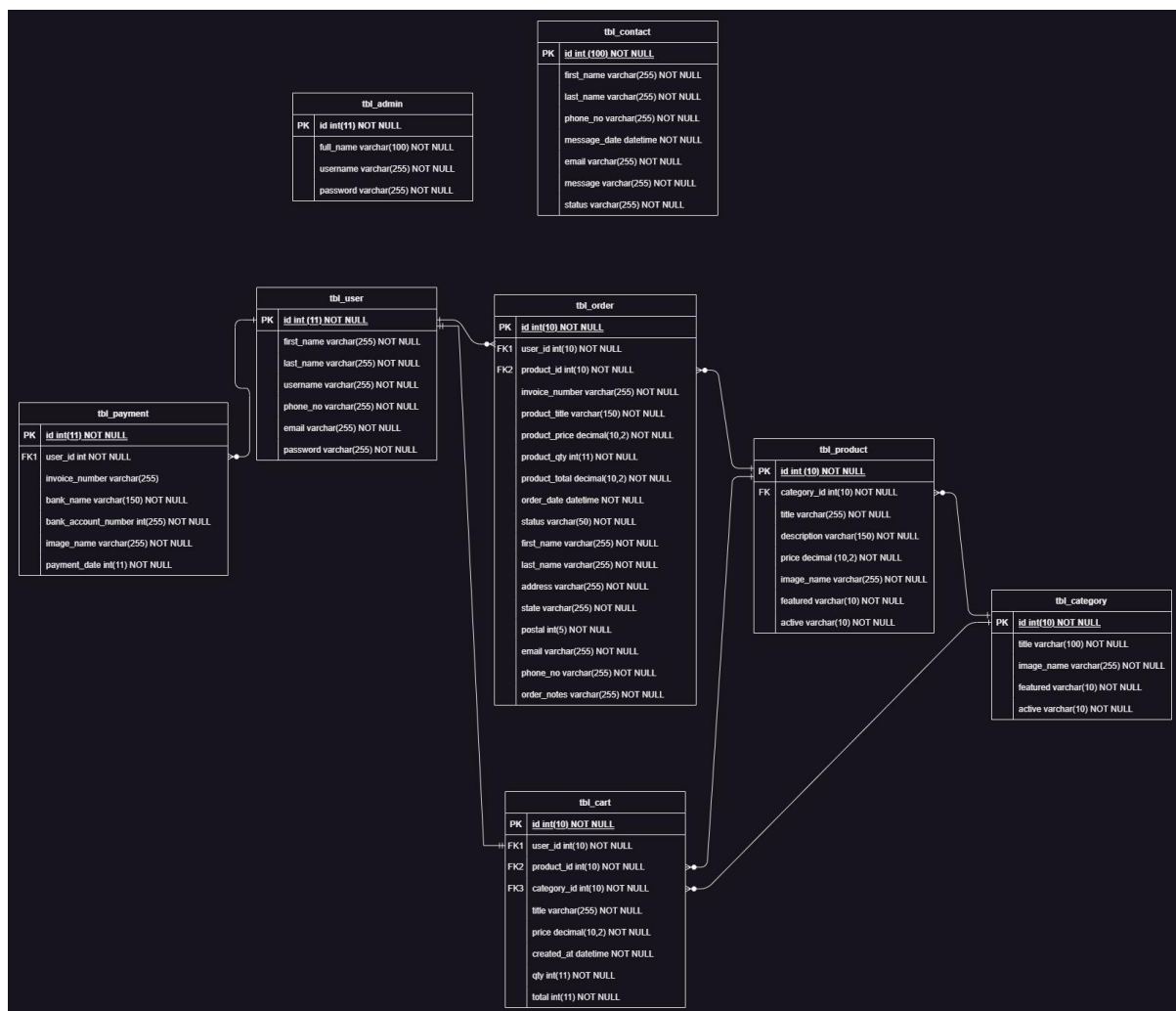


Figure 3.0.1 Overview of Database Structure

Here's a breakdown of the entities and their relationships:

User

- Has many orders (one user can have many orders)
- Has many payment (one user can have many payment)
- Has one cart (one user can have one cart)

Product

- Belongs to one category (one product can belong to only one category)
- Has many orders (one product can be in many orders)
- Has many carts (one product can be in many carts)

Category

- Has many products (one category can have many products)

Order

- Belongs to one user (one order belongs to one user)
- Has one payment (one order can have one payment)
- Has many product (one order can have many products)

Payment

- Belongs to one order (one payment belongs to one order)
- Belongs to one user (one payment is made from one bank)

Cart

- Belongs to one user (one cart belongs to one user)
- Has many products (one cart can have many products)

4.0 Functional Requirements

4.1 Introduction

This report provides a comprehensive overview of the features and functions of the web application, ensuring alignment with the modules implemented. Our primary objective with this web application is to create a system that enables business premises specializing in selling electronic accessories to effectively market their products to customers while efficiently monitoring order information. To inform our development process, our group conducted extensive market research, studying popular e-commerce websites such as Lazada, Shopee, and others. Additionally, we conducted interviews with friends and potential users to gather

insights into the functionalities they expect from an e-commerce platform. Through an analysis of survey results and these research efforts, we have gained valuable insights into the array of functionalities required by users when operating the web platform as merchants. Presented below is an overview of the Features and Functions based on these findings.

4.2 Overview of Features and Functions

Admin Section:

1. Admin Login Functionality: Provide login functionality to allow admins to log in and access their personal information.
2. Add Admin Functionality: Provide functionality on the admin panel to add, update, and delete admin accounts, ensuring continuous administration on the company's website.
3. View Dashboard Functionality: Provide a dashboard on the admin panel to display key information about the online store, including product categories, quantities, orders, and customer feedback.
4. Manage Category Functionality: Provide functionality on the admin panel to add, update, and delete product categories, ensuring proper organization of products.
5. Manage Product Functionality: Provide functionality on the admin panel to add, update, and delete products, allowing admins to adjust product details such as price, name, and availability status.
6. Manage Order Functionality: Provide functionality on processing customers' orders, able to update the status of the orders.
7. Manage Contact Functionality: Display feedback messages or inquiries on Manage Contact page, enabling admins to receive and update the status of the users' messages.

User Section:

1. User Registration and Login Functionality: Allow users to register and log in to their accounts to conveniently store their purchase history.
2. Search Product Functionality: Allow users to search for desired products by entering keywords.
3. Sort Product by category Functionality: Enable users to categorize products based on their preferences.
4. Customer Support Functionality: Allow users to leave messages for the admin when encountering issues or providing feedback.

5. **Add to Cart Functionality:** When users add products, they are added to the shopping cart for review before purchase.
6. **Check Out Functionality:** Users must enter their billing information, such as name, address, state, postal code, email address, and phone number. Additionally, users can provide notes to specify additional requests or preferences, such as adding extra wrapping to the packaging. All information will be used to generate an electronic receipt upon completion.
7. **Payment Functionality:** Users need to input their bank name and account number and upload relevant transaction proofs as evidence to complete the order.
8. **User Profile Management:** Allow users to manage their profiles, including updating personal information, viewing order history, and track their orders.

4.3 Module Alignment

Product Module

- **Category Management Functionality:** Allow administrators to create new product categories, update existing category name, and image, and remove categories as needed. This helped in organizing products and facilitating navigation for users.
- **Product Management Functionality:** Allow administrators to add new products to the system, update existing product information such as name, description, price, and image, and remove products that are no longer available.
- **Product Catalog:**
 - **Display Product Listings:** Provide a user-friendly interface for displaying products to users, including features such as product images, description, and prices.
 - **Product Filtering:** Allow users to filter products based on categories, making it easier for them to find desired products.

Order Module

- **View Orders:** Allow administrators to view a list of all orders placed on by the user, including details such as order id, invoice number, product, quantity, total amount, date or time of order placement, and customer details.

- **Manage Orders:** Provide administrators with the ability to manage orders, including actions such as marking orders as Order Received, Delivered, Pending Delivery, and Cancelled. This may involve updating order status.
- **Order Details:** Allow administrators to view detailed information for each order, including itemized lists of products purchased, quantities, prices, shipping information, and any special instructions provided by the customers.
- **Order History:** Provide users with access to their order history, allowing them to view past orders, and review order details.
- **Order Tracking:** Offer users the ability to track the status of their orders in real-time, providing updates on order processing, shipping, and delivery.
- **Add to Cart Functionality:** Implemented by the order module to allow users to add products to their shopping cart.

Payment Module

- **Check Out Functionality:** Prepares the order for completion by gathering shipping information and reviewing order details.
- **Order Summary:** Provide users with a summary of their order details, including itemized lists of products, quantities, and prices, before they proceed to payment.
- **Payment Functionality:** Handles the actual processing of payments once the user has completed the checkout process.

4.4 Detailed Functional Requirements

Product Module:

1. Category Management Functionality:

Description: The system should allow administrators to manage product categories by creating new categories, updating existing category information (such as name and image), and removing categories when necessary.

Acceptance Criteria:

- Administrators should have access to a "Category Management" interface from the admin dashboard.
- Administrators can add new categories by providing a unique name and optional image.
- Existing categories can be updated by modifying their name and image.

- Administrators can remove categories, ensuring proper organization of products.

Dependencies/Constraints: None

2. Product Management Functionality:

Description: The system should allow administrators to manage products by adding new products, updating existing product information (such as name, description, price, and image), and removing products that are no longer available.

Acceptance Criteria:

- Administrators should have access to a "Product Management" interface from the admin dashboard.
- Administrators can add new products by providing required details like name, description, price, and image.
- Existing products can be updated by modifying their information.
- Administrators can remove products from the system, ensuring accurate product listings.

Dependencies/Constraints: Availability of product categories for selection.

3. Product Catalog:

○ Display Product Listings:

- **Description:** The system should provide a user-friendly interface for displaying products to users, including features such as product images, description, and prices.
- **Acceptance Criteria:**
 - Users should be able to view a catalog of products on the website interface.
 - Product listings should include images, descriptions, and prices for each product.

○ Product Filtering:

- **Description:** The system should allow users to filter products based on categories, making it easier for them to find desired products.
- **Acceptance Criteria:**
 - Users should have options to filter products by selecting specific categories.
 - Filtered results should display only products belonging to the selected categories.

- **Dependencies/Constraints:** Availability of products in the inventory.

Order Module:

1. View Orders Functionality:

Description: The system should allow administrators to view a list of all orders placed by users, along with detailed information about each order.

Acceptance Criteria:

- Administrators should have access to an "Orders" section from the admin dashboard.
- Orders should be listed with details such as order ID, invoice number, products, quantities, total amount, date/time of order placement, and customer details.

Dependencies/Constraints: Availability of order data in the system.

2. Manage Orders Functionality:

Description: The system should provide administrators with the ability to manage orders, including actions such as updating order status.

Acceptance Criteria:

- Administrators should be able to change the status of orders (e.g., Order Received, Delivered, Pending Delivery, Cancelled) from the admin dashboard.

Dependencies/Constraints: None specified.

3. Order Details:

Description: The system should allow administrators to view detailed information for each order, including itemized lists of products purchased, shipping information, and any special instructions provided by customers.

Acceptance Criteria:

- Administrators should be able to access detailed order information from the admin dashboard.
- Order details should include product listings, quantities, prices, shipping information, and customer instructions.

Dependencies/Constraints: Availability of detailed order data.

4. Order History:

Description: The system should provide users with access to their order history, allowing them to view past orders and review order details.

Acceptance Criteria:

- Users should have access to an "Order History" section in their user account.

- Order history should display a list of past orders with relevant details.

Dependencies/Constraints: User authentication and availability of order data.

5. Order Tracking:

Description: The system should offer users the ability to track the status of their orders in real-time, providing updates on order processing, shipping, and delivery.

Acceptance Criteria:

- Users should have access to an "Order Tracking" feature where they can input their order ID or tracking number to view the current status of their order.

Dependencies/Constraints: Availability of order tracking information.

6. Add to Cart Functionality:

Description: Users should be able to add products to their shopping cart for purchase.

Acceptance Criteria:

- Users should see a "+" or an "Add to Cart" button next to each product listing.
- Clicking on the product should add the selected product to the user's shopping cart.

Dependencies/Constraints: Availability of products in the inventory and user authentication.

Payment Module:

1. Check Out Functionality:

Description: The system should prepare the order for completion by gathering shipping information and reviewing order details.

Acceptance Criteria:

- Users should see a "Checkout" button in their shopping cart.
- Clicking on the button should initiate the checkout process, prompting users to enter shipping and payment information.

Dependencies/Constraints: Availability of products in the shopping cart and user authentication.

2. Order Summary:

Description: The system should provide users with a summary of their order details before they proceed to payment.

Acceptance Criteria:

- After initiating the checkout process, users should see an order summary displaying itemized lists of products, quantities, and prices.

Dependencies/Constraints: Availability of order data and user authentication.

3. Payment Functionality:

Description: The system should handle the actual processing of payments once the user has completed the checkout process.

Acceptance Criteria:

- Users should be presented with input such as bank name, bank account number, bank transfer image as payment proof.

Dependencies/Constraints: None specified.

4.5 Use Cases or User Stories:

- **Admin Adds New Product Category:**
 - As an administrator, I want to add a new product category so that I can organize products effectively.
 - Scenario: The administrator accesses the admin dashboard, redirect to the Category page and selects the "Add Category" option, enters a unique name and image for the category, and submits it. Upon successful submission, the new category appears in the list of available categories for products.
- **Admin Adds New Product:**
 - As an admin, I want to add a new product to the inventory so that it becomes available for sale.
 - Scenario: The admin logs into the admin dashboard, redirect to the Product page and selects the "Add Product" feature, enters all necessary product details such as name, description, price, image, category, featured, and active, and submits the product. Upon submission, the product is successfully added to the inventory and becomes available for purchase.
- **User Searches for Products:**
 - As a user, I want to search for products on the website to find items matching my interests.
 - Scenario: The user visits the website and uses the search bar to enter keywords related to the desired product. The system displays relevant search results matching the entered keywords, allowing the user to browse and explore available products.
- **User Filter Products by Category:**

- As a user, I want to filter products by categories on the website to find items matching my interests.
- Scenario: The user visits the website and select the category that related to the desired product. The system displays relevant filtered results matching the category, allowing the user to browse and explore available categorized products.
- **User Contacts Seller:**
 - As a user, I want to contact the seller for inquiries or feedback about a product.
 - Scenario: The user views a product listing and clicks on the "Contact" option. A message interface opens, allowing the user to compose and send a message to the seller. The seller receives the message through the admin dashboard and can respond accordingly.
- **User Adds Product to Cart:**
 - As a user, I want to add products to my shopping cart for later purchase.
 - Scenario: The user browses through product listings and finds an item they want to purchase. They click on the "+" or "Add to Cart" button on the product, and the item is added to their shopping cart. The user can continue shopping or proceed to checkout later.
- **User Completes Checkout Process:**
 - As a user, I want to complete the checkout process to finalize my purchase.
 - Scenario: The user reviews the items in their shopping cart and clicks on the "Checkout" button. They are prompted to enter shipping information, including address and notes. After providing the necessary details, the user proceeds to select a payment option and completes the transaction securely.

4.6 Additional Considerations (Non-Functional Requirement):

- **Performance Requirements:** Ensure that the system maintains acceptable response times, especially during peak usage periods. Implement scalability measures to handle increasing loads.
- **Security Requirements:** Implement data encryption for sensitive information such as user credentials and payment details. Implement user authentication mechanisms to prevent unauthorized access.
- **Compatibility Requirements:** Ensure cross-browser compatibility and optimize the application for various devices to provide a seamless user experience.

- **Localization or Internationalization Requirements:** Consider implementing features to support multiple languages and currencies to cater to a diverse user base.

4.7 Conclusion:

In conclusion, the functional requirements outlined in this document provide a detailed overview of the features and functions of the web application, aligning with the modules implemented. These requirements serve as a guide for the development team to ensure that the system meets the needs of both administrators and users effectively. By adhering to these requirements and considering additional considerations such as performance, security, compatibility, and localization, the web application can deliver a seamless and satisfactory user experience.

5.0 Strengths and Limitations

Strengths:

- **Comprehensive Feature Set:** The ecommerce website boasts a comprehensive set of features catering to both administrators and users. From robust admin functionalities like category and product management to user-friendly features like search, filtering, and checkout, the website covers all essential aspects of an online marketplace.
- **User-Centric Design:** The website prioritizes user experience by offering intuitive navigation, clear product listings, and convenient functionalities such as user registration, order tracking, and contact with sellers. This user-centric design enhances usability and encourages user engagement.
- **Admin Control and Monitoring:** Administrators have extensive control over the website through features like admin login, dashboard view, order management, and contact management. This enables efficient monitoring of orders, communication with users, and overall management of the ecommerce platform.
- **Secure Payment Processing:** The payment module ensures secure transaction processing by gathering necessary billing information and providing a summary of order details before proceeding to payment. Users are required to input payment details securely, enhancing trust and confidence in the platform.
- **Scalability and Performance:** The system considers performance requirements, ensuring acceptable response times even during peak usage periods. Scalability

measures are implemented to handle increasing loads, ensuring that the website can accommodate growing user traffic and product catalog size.

Limitations:

- **Lack of Localization:** The website lacks localization or internationalization features, limiting its appeal to a diverse global audience. Implementing support for multiple languages and currencies could enhance accessibility and expand the user base.
- **Limited Payment Options:** The payment functionality currently only supports bank transfers, which may not be convenient for all users. Integrating additional payment options like credit/debit cards, digital wallets, or alternative payment methods could improve user convenience and satisfaction.
- **Dependency on Admin Intervention:** Some functionalities, such as order management and contact management, heavily rely on admin intervention. Automating certain processes or providing self-service options for users could reduce admin workload and enhance user autonomy.
- **Potential Security Risks:** While the website implements security measures like data encryption and user authentication, there may still be potential security risks associated with online transactions. Regular security audits and updates are essential to mitigate these risks and ensure data protection.
- **Cross-Browser Compatibility:** While compatibility requirements are mentioned, the website's cross-browser compatibility may still pose challenges in providing a consistent user experience across different web browsers and devices. Further testing and optimization may be necessary to address compatibility issues effectively.

Overall, the ecommerce website exhibits several strengths in terms of its comprehensive feature set, user-centric design, admin control, secure payment processing, and scalability. However, addressing limitations such as localization, payment options, admin dependency, security risks, and cross-browser compatibility could further enhance the website's functionality, usability, and overall success in the competitive ecommerce market.