Functional Requirements

Types of Users Across The Platform

- **Customer:** The primary user role, representing individuals who purchase products on the platform.

- **Merchant:** Businesses that sell and manage (creating , adding , deleting) their products through the platform.

- **Super Admin:** The highest level of administrative authority, with full control over the platform and its settings, it will be responsible for managing the overall platform, including user accounts, products, and orders.

Users Roles and Permissions

- **Admin:**
  - Create, edit, and delete , toggle roles for users accounts (Merchant and customer).
  - Manage all products, categories, and brands.
  - Create, edit, and delete products.
  - Approval of the requests created by Merchant to add new products
  - Manage system settings and configurations.
  - Process payments and refunds.
  - Monitor platform performance and analytics.
  - Handle customer support inquiries.
  - Access and modify system code.
  - Oversee platform security and compliance.
- **Merchant:**
  - Add, edit, and delete only their own products\

- Set product prices, quantities, and availability.

- View sales analytics and performance metrics.

- Communicate with customers by reviews

- Access merchant-specific settings and tools.

- Cannot manage user accounts or system settings.

- **Customer:**

- Create and manage an account

- Browse and search for products.

- Add products to their cart.

- Remove or clear items from their cart.

- Add , remove Products to his Wishlist

- Checkout and place orders.

- View order history and tracking.

- Write reviews for products.

Authentication and Authorization

- **User Registration:**

- Allow users to create accounts with unique email addresses and passwords.

- Implement strong password requirements to enhance security.

- Provide options for social login (e.g., Google, Facebook) for convenience.

- **Login Process:**

- Verify user credentials upon login to ensure authorized access.

- Implement robust password hashing and salting to protect against unauthorized access.

- Consider using multi-factor authentication (MFA) for enhanced security, requiring additional verification factors (e.g., SMS codes, security tokens).

- Profile Management:
    - Permit users to update their profile information, change passwords, and manage preferences.

- **Password Recovery:**
    - Provide a password recovery or reset mechanism to allow users to regain access to their accounts in case of forgotten passwords.
    - Implement security measures to prevent unauthorized password resets.

- **Role-Based Access Control (RBAC):**
    - Assign different roles to users based on their privileges (e.g., customer, merchant, admin).
    - Define permissions for each role to control access to different features and resources.
    - Ensure that users can only access features and data that they are authorized to see.

- **Token-Based Authentication:**
    - Issue unique tokens to authenticated users to identify them in subsequent requests.
    - Use secure token generation and storage mechanisms to prevent unauthorized access.
    - Set expiration times for tokens to mitigate security risks..

- **Data Encryption:**
    - Encrypt sensitive data (e.g., credit card information, personal data) at rest and in transit to protect against unauthorized access.
    - Use strong encryption algorithms and protocols.

- **Input Validation:**
    - Validate user input to prevent malicious attacks like SQL injection and cross-site scripting (XSS).
    - Sanitize user input before processing it.

Product Management

- **Admin:**

- Add, edit, and delete products over the platform

- Create, edit, and delete categories and brands.

- Manage product attributes (e.g., size, color, material).

- Set product prices, quantities, and availability.

- Upload product images.

- Track product stock levels in real-time to ensure accurate availability information.

- **Merchant:**

  - Add, edit, and delete products for their specific brand.

  - Assign products to appropriate categories.

  - Manage product attributes, prices, quantities, and availability.

  - Create product bundles, offering discounts or incentives for purchasing multiple products together.

  - Upload product images.

  - Adjust stock levels manually (e.g., for returns, damaged goods).

- **Customer:**

  - Browse and search for products.

  - View product details, including images, descriptions, and prices.

  - Filter products by category, brand, price, and other attributes.

  - Navigate across recommended and featured products

Product Search and Filtering

- **Keyword Search:**

  - Implement a robust search function that allows customers to find products by keyword, description, or brand.

  - Consider using natural language processing for improved search results.

- **Filtering Options:**

  - Provide filters for various product attributes (e.g., price, category, brand, color, size).

- Allow customers to refine their search based on their preferences.
- **AI-Powered Image Search:**
  - Users can upload an image to find similar products within our database, with the system returning the top 10 matches

Shopping Cart

- **Product Addition:**
  - Allow customers to add products to their shopping cart with ease.
  - The Platform will provide a clear indication of added products, such as a confirmation message or updated cart total.
- **Product Removal:**
  - Enable customers to remove products from their shopping cart if they change their minds.
  - The Platform will provide a clear confirmation message upon removal.
- **Quantity Adjustment:**
  - Allow customers to adjust the quantity of products in their shopping cart.
  - Ensure that the cart total is updated accordingly.
- **Cart Persistence:**
  - Maintain the shopping cart across sessions, even if the customer closes their browser or logs out.
  - The Platform will use session cookies to save cart data, even if they log out or close their browser.
- **Cart Summary:**
  - Display a clear summary of the shopping cart, including product names, quantities, prices, and total cost.
  - Provide options to view more details about individual products.
- **Wishlist Functionality:**
  - Allow customers to save products to a Wishlist for later purchase.

- Provide a seamless transition from Wishlist to cart.

Checkout and Payment

- **Shipping Information:**
  - Collect customer's shipping information, including address, phone number, and preferred delivery method.
  - Validate shipping address and provide real-time shipping estimates.

- **Payment Options:**
  - Offer a variety of payment methods, including credit cards, debit cards, digital wallets (e.g., PayPal, Apple Pay), and cash on delivery.

- **Order Confirmation:**
  - Display an order confirmation page that summarizes the order details, including products, quantities, shipping information, and payment method.
  - Provide an option for customers to print or save the order confirmation.

- **Order Tracking:**
  - Provide a link to track the order status on the order confirmation page or in the customer account.

- **Secure Payment Integration:**
  - Integrate with secure payment gateways to process transactions securely.
  - Ensure that all sensitive data is encrypted and transmitted securely.

- **Error - Success Handling:**
  - Provide clear error messages if there are issues with payment or shipping information.
  - Provide a success message or page after payment completion.

Reviews and Ratings

- **Customer Reviews:**
  - Allow customers to submit reviews for products they have purchased.

- Require customers to log in or create an account to submit reviews.

- Provide a rating system (e.g., stars) for customers to rate products.

- Allow merchants to publicly reply to customer reviews, fostering engagement and building trust.

- **Review Moderation:**

  - Implement a review moderation process to prevent spam, inappropriate content, or fake reviews.

  - Review and approve or reject reviews before they are published.

  - Product pages should display average ratings and customer reviews.

- **Product Pages:**

  - Display average product ratings and the number of reviews on product pages.

  - Show individual reviews with timestamps and customer names (if allowed).

Other Features

- **Profile Information:**

  - Allow customers to view and edit their personal information, including name, email address, phone number, and shipping address.

  - Provide a secure password change option.

- **Customer Wishlist:**

  - Enable customers to add products to their Wishlist .

  - Allow customers to remove products from their Wishlist or move them to their shopping cart.

- Customer Support

  - Provide multiple channels for customers to contact support (email, phone, live chat).

  - Offer a comprehensive FAQ section to address common customer inquiries.