# Functional Requirement

1.1 Customer Account Registration   
Function ID: FR-01   
Description: A customer can register for a new account by providing valid personal information, including a valid email address and a strong password. The system will validate the input, send an email confirmation, and activate the account after confirmation.   
Input: Name, email, password, and optional contact details.   
Output: A new customer account in the system, with email confirmed and account active.  
  
1.2 Customer Login   
Function ID: FR-02   
Description: A registered and confirmed customer can log in using their email and password. The system will verify the credentials and establish a session for the customer.   
Input: Customer email and password.   
Output: Active customer session and redirection to the home page or shopping cart.  
  
1.3 Customer Logout   
Function ID: FR-03   
Description: A logged-in customer can end their session by selecting the logout option. The system will terminate the session and redirect the user to the home page or login page.   
Input: Request to logout from the account menu.   
Output: Session termination and redirection to the home page or login page.  
  
1.4 Product Browsing   
Function ID: FR-04   
Description: Customers can view a list of available products, filter or sort by attributes such as category and price, and view product details, including inventory status.   
Input: Product listing page access or search criteria.   
Output: Display of product information, including name, price, description, inventory status, and an updated shopping cart.  
  
1.5 Product Search   
Function ID: FR-05   
Description: Customers can search for products by name, keyword, or apply filters. The system will return a list of matching products and their details.   
Input: Search query or filter criteria.   
Output: List of matching products with details such as name, price, and inventory status.  
  
1.6 Product Addition to Cart   
Function ID: FR-06   
Description: A customer can add a selected product to their shopping cart after verifying its availability. The system will update the cart with the product and quantity.   
Input: Product ID and quantity.   
Output: Updated shopping cart with the added product and total price.  
  
1.7 Cart Viewing   
Function ID: FR-07   
Description: A customer can view the contents of their shopping cart, including product names, quantities, and total cost.   
Input: Request to view cart.   
Output: Cart contents with product details and total price.  
  
1.8 Cart Modification   
Function ID: FR-08   
Description: A customer can modify the quantity of a product in the cart or remove items. The system will update the cart and recalculate the total cost.   
Input: Product ID and new quantity or removal request.   
Output: Updated cart with new quantities or removed items and recalculated total price.  
  
1.9 Cart Deletion   
Function ID: FR-09   
Description: A customer can delete all items in the shopping cart at once. The system will clear the cart and update the cart summary.   
Input: Request to delete all items in the cart.   
Output: Empty shopping cart and updated cart summary.  
  
1.10 Order Checkout   
Function ID: FR-10   
Description: A logged-in customer with a valid cart can proceed to checkout, provide shipping and payment details, and confirm the order. The system will process the payment, update inventory, and generate an order confirmation.   
Input: Cart contents, shipping address, payment method, and customer confirmation.   
Output: Confirmed order, updated inventory, and an order confirmation email sent to the customer.  
  
1.11 Order Confirmation   
Function ID: FR-11   
Description: After successful checkout, the system confirms the order by updating the order status and sending an email confirmation to the customer.   
Input: Confirmed order and payment details.   
Output: Order marked as confirmed in the system and an email confirmation sent to the customer.  
  
1.12 Order History Viewing   
Function ID: FR-12   
Description: A logged-in customer can view their order history, including order numbers, dates, total costs, and status. The system can also re-send order confirmation emails.   
Input: Request to view order history and optional request to re-send email.   
Output: Display of order history and re-sent email confirmation if requested.  
  
1.13 Product Inventory Management   
Function ID: FR-13   
Description: An administrator can add, update, or delete products in the inventory. The system will reflect these changes in the product list and inventory status.   
Input: Product details (name, description, price, category, quantity) and modification action (add, update, delete).   
Output: Updated inventory database and product list with a success message.  
  
1.14 Product Categorization   
Function ID: FR-14   
Description: An administrator can assign a product to a specific category or change its current category. The system will update the category assignment and display the result.   
Input: Product ID and new category ID or name.   
Output: Updated product category in the database and refreshed product list.  
  
1.15 Product Information Update   
Function ID: FR-15   
Description: An administrator can update the details of an existing product, such as its name, price, description, and category. The system will validate and store the updated information.   
Input: Product ID and updated fields (name, price, description, category).   
Output: Updated product information in the database and success message for the administrator.  
  
1.16 Administrator Login   
Function ID: FR-16   
Description: An administrator can log in using their registered email and password. The system will authenticate the credentials and redirect the administrator to the dashboard.   
Input: Administrator email and password.   
Output: Active administrator session and redirection to the dashboard.  
  
1.17 Administrator Logout   
Function ID: FR-17   
Description: A logged-in administrator can end their session by selecting the logout option. The system will terminate the session and redirect the user to the login page or home page.   
Input: Request to logout from the account menu.   
Output: Session termination and redirection to the login page or home page.  
  
1.18 Payment Processing   
Function ID: FR-18   
Description: The system processes a customer's payment during checkout, verifies the transaction, and updates the order and inventory accordingly.   
Input: Payment details (method, card information), order details, and customer session.   
Output: Processed and confirmed payment, updated order status, and updated inventory levels.  
  
1.19 Payment Method Configuration   
Function ID: FR-19   
Description: A customer can add or edit their preferred payment methods. The system will validate and securely store the updated payment information.   
Input: Payment method details (e.g., card number, expiration date, billing address).   
Output: Updated list of payment methods in the customer's account and confirmation message.  
  
1.20 Email Notification Setup   
Function ID: FR-20   
Description: A customer can configure their email notification preferences, such as for order updates, promotions, or inventory alerts. The system will validate the email and send a confirmation.   
Input: Notification preferences and valid email address.   
Output: Updated notification settings and confirmation email sent.  
  
1.21 Email Confirmation Sending   
Function ID: FR-21   
Description: The system sends an email confirmation to a customer for specific actions such as account registration, order placement, or notification setup.   
Input: Customer email address and confirmation action (e.g., registration, checkout).   
Output: Confirmation email with a verification link sent to the customer.  
  
1.22 Manage Product Info   
Function ID: FR-22   
Description: An administrator can modify the information of a product, such as its name, price, description, or category. The system will validate and store the updated information.   
Input: Product ID and updated information fields.   
Output: Updated product information in the database and success message for the administrator.  
  
1.23 Manage Order Info   
Function ID: FR-23   
Description: An administrator can modify the status, shipping address, or payment method of an order. The system will update the order and related records, and notify the customer of the changes.   
Input: Order ID and updated fields (e.g., status, address).   
Output: Updated order, inventory, and payment records; email notification sent to the customer.  
  
1.24 Manage Administrator Info   
Function ID: FR-24   
Description: An administrator can edit their own account information, such as email, password, or profile details. The system will validate and store the updated information.   
Input: Administrator ID and updated account details.   
Output: Updated administrator account in the system and a confirmation message.