# Functional Requirement

1.1 Customer Registration Function   
Function ID: FR-01   
Description: Customers can register by providing personal information, including name, email, password, and contact details. The system validates the email, checks for duplicates, and sends a confirmation email.   
Input: Customer name, email, password, and contact information   
Output: A new Customer record in the database with hashed password and active status after confirmation   
  
1.2 Customer Login Function   
Function ID: FR-02   
Description: Customers can log in to the system by entering their registered email and password. The system verifies the credentials and generates a session token for authentication.   
Input: Registered email and password   
Output: Valid session token and redirection to the customer dashboard   
  
1.3 Customer Logout Function   
Function ID: FR-03   
Description: Customers can log out of the system by selecting the "Logout" option. The system invalidates the session token and clears session data.   
Input: Valid session token   
Output: Invalidated session token and redirection to the login or home page   
  
1.4 View Product Details Function   
Function ID: FR-04   
Description: Customers can view detailed information for a selected product, including name, description, price, category, and inventory status.   
Input: Product ID or product name   
Output: Display of product details, including name, description, price, category, and current stock level   
  
1.5 Search Products by Category Function   
Function ID: FR-05   
Description: Customers can search and view a list of products within a selected category. The system retrieves active products from the database and displays them with relevant details.   
Input: Category ID or category name   
Output: List of active products in the selected category, including name, description, price, and inventory status   
  
1.6 Add Product to Cart Function   
Function ID: FR-06   
Description: Customers can add a product to their shopping cart after selecting a valid quantity. The system checks inventory availability and updates the cart accordingly.   
Input: Product ID, quantity, and valid session token   
Output: Updated cart with the added product and confirmation message   
  
1.7 Remove Product from Cart Function   
Function ID: FR-07   
Description: Customers can remove a product from their shopping cart. The system verifies the product's presence in the cart, removes it, and updates the inventory if applicable.   
Input: Product ID, valid session token, and confirmation of removal   
Output: Updated cart with the removed product and confirmation message   
  
1.8 View Cart Function   
Function ID: FR-08   
Description: Customers can view the contents of their shopping cart, including product names, prices, quantities, and total cost. The system retrieves cart data and displays it.   
Input: Valid session token   
Output: Display of cart items, total quantity, total price, and inventory status for each item   
  
1.9 Checkout and Place Order Function   
Function ID: FR-09   
Description: Customers can complete the checkout process by entering shipping and billing information and selecting a payment method. The system creates an order, processes the payment, and sends an order confirmation.   
Input: Cart items, shipping address, billing address, and selected payment method   
Output: New Order record, updated Inventory, processed Payment, and confirmation Email   
  
1.10 Receive Order Confirmation Email Function   
Function ID: FR-10   
Description: After a successful checkout, the system sends a confirmation email to the customer's registered email address, including order details and expected delivery.   
Input: Order details and customer email   
Output: Sent confirmation Email with order information   
  
1.11 Update Customer Information Function   
Function ID: FR-11   
Description: Customers can update their personal information, such as name, email, password, or contact details. The system validates the new data and updates the customer record.   
Input: Customer ID, updated personal information (e.g., new email or password), and valid session token   
Output: Updated Customer record in the database and, if applicable, a confirmation Email for email changes   
  
1.12 Delete Customer Account Function   
Function ID: FR-12   
Description: Customers can delete their account after confirming their identity. The system removes or anonymizes the customer's data and sends a confirmation email.   
Input: Customer ID, valid session token, and confirmation of deletion   
Output: Deleted or anonymized Customer record, confirmation Email, and updated Customer database   
  
1.13 Administrator Login Function   
Function ID: FR-13   
Description: Administrators can log in to the system by entering their email and password. The system verifies the credentials and generates a session token for access.   
Input: Administrator email and password   
Output: Valid session token and redirection to the administrative dashboard   
  
1.14 Administrator Logout Function   
Function ID: FR-14   
Description: Administrators can log out of the system by selecting the "Logout" option. The system invalidates the session token and clears session data.   
Input: Valid session token   
Output: Invalidated session token and redirection to the login or home page   
  
1.15 Add New Product Function   
Function ID: FR-15   
Description: Administrators can add new products to the system by entering product details, assigning a category, and setting inventory levels.   
Input: Product name, description, price, category, and initial stock quantity   
Output: New Product record in the database, updated Inventory, and association with the correct Category   
  
1.16 Update Product Details Function   
Function ID: FR-16   
Description: Administrators can modify existing product details, including name, description, price, category, and stock quantity.   
Input: Product ID, updated product information, and valid session token   
Output: Updated Product record, updated Inventory, and, if changed, updated Category association   
  
1.17 Delete Product Function   
Function ID: FR-17   
Description: Administrators can delete a product from the system after confirming its existence and ensuring no active orders reference it.   
Input: Product ID, valid session token, and confirmation of deletion   
Output: Deleted or marked Product record, updated Inventory, and updated Category association   
  
1.18 Manage Inventory Levels Function   
Function ID: FR-18   
Description: Administrators can update the inventory levels for a specific product, ensuring stock availability is maintained.   
Input: Product ID, new stock quantity, and valid session token   
Output: Updated Inventory record and adjusted product availability status   
  
1.19 View Inventory Report Function   
Function ID: FR-19   
Description: Administrators can generate and view an inventory report, which includes product names, stock levels, and category information.   
Input: Valid session token and optional filters (category, product, date range)   
Output: Inventory report with product details, stock levels, and category information   
  
1.20 Create and Update Product Categories Function   
Function ID: FR-20   
Description: Administrators can create new product categories or update existing ones, ensuring products are properly categorized.   
Input: Category name, description, and optional parent category (for hierarchical structure)   
Output: New or updated Category record in the database and association with relevant Products   
  
1.21 Delete Product Category Function   
Function ID: FR-21   
Description: Administrators can delete an existing product category after confirming it is not in use by any active products.   
Input: Category ID, valid session token, and confirmation of deletion   
Output: Deleted or marked Category record and reassigned or uncategorized Products   
  
1.22 View Category List Function   
Function ID: FR-22   
Description: Users (customers or administrators) can view a list of active product categories.   
Input: Valid session token (optional for public access)   
Output: Displayed list of active categories, including names and descriptions   
  
1.23 Process Payment Function   
Function ID: FR-23   
Description: The system processes customer payments during checkout using the selected payment method and updates the order status accordingly.   
Input: Order details, payment method, and transaction request   
Output: Updated Order status as "Paid", recorded Payment details, and updated Inventory   
  
1.24 View Payment History Function   
Function ID: FR-24   
Description: Customers can view their payment history, including transaction dates, amounts, methods, and associated order references.   
Input: Customer ID and valid session token   
Output: Displayed list of Payment records with transaction details and filtering options   
  
1.25 Manage Plugin Installation Function   
Function ID: FR-25   
Description: Administrators can install or uninstall plugins, ensuring compatibility and updating API integrations as needed.   
Input: Plugin name, version, and configuration details   
Output: Updated Plugin status in the database, API integration status, and confirmation message   
  
1.26 Develop New Plugin Function   
Function ID: FR-26   
Description: Administrators can develop new plugins for the system, ensuring they comply with API standards and are registered for use.   
Input: Plugin name, version, code, and documentation   
Output: Registered Plugin in the database, updated API integration, and confirmation message   
  
1.27 Update Plugin Function   
Function ID: FR-27   
Description: Administrators can update existing plugins, including their configuration or version, and reconfigure API connections if necessary.   
Input: Plugin ID, new configuration, or updated version   
Output: Updated Plugin in the database, updated API integration, and confirmation message   
  
1.28 Delete Plugin Function   
Function ID: FR-28   
Description: Administrators can delete a plugin after ensuring it is not being used by any active system functionality.   
Input: Plugin ID, valid session token, and confirmation of deletion   
Output: Deleted Plugin record, updated API connection status, and confirmation message   
  
1.29 View API Documentation Function   
Function ID: FR-29   
Description: Administrators can view the API documentation for registered plugins or system APIs.   
Input: API ID and valid session token   
Output: Displayed PluginDocumentation or API documentation with detailed specifications   
  
1.30 Access System Documentation Function   
Function ID: FR-30   
Description: Administrators can access system documentation, including plugin APIs and user manuals, for reference and support.   
Input: Valid session token   
Output: Displayed documentation files in a structured and searchable format