# Functional Requirement

1. Functional Requirements   
1.1 User Registration Function   
Function ID: FR-01   
Description: The system allows a new user to register an account by providing personal information such as name, email, and password. The system validates the input and sends a confirmation email to the user.   
Input: Name, Email, Password, Preferred Category (optional)   
Output: A new UserAccount entity with a unique AccountID, and a new Customer entity with a unique CustomerID. A confirmation email is sent to the customer’s email address.   
  
1.2 User Login Function   
Function ID: FR-02   
Description: The system allows a registered user to log in by providing a valid email and password. The system authenticates the user and initiates a session.   
Input: Email, Password   
Output: Active session for the user, and a logged login event in the system log.   
  
1.3 User Logout Function   
Function ID: FR-03   
Description: The system allows a logged-in user to terminate their session by clicking the "Logout" button.   
Input: User session information   
Output: Termination of the session, redirection to the login or home page, and a logged logout event in the system log.   
  
1.4 Customer Account Creation Function   
Function ID: FR-04   
Description: The system allows a customer to create their account by entering personal information and agreeing to the terms and conditions.   
Input: Name, Email, Password, Terms and Conditions acceptance   
Output: A new Customer entity with a unique CustomerID and a new UserAccount entity linked to the customer. A confirmation email is sent to the customer’s email address.   
  
1.5 Customer Information Update Function   
Function ID: FR-05   
Description: The system allows a logged-in customer to update their personal and contact information in their account settings.   
Input: Updated Name, Address, Phone, Email (if changed), and valid session   
Output: Updated Customer entity in the database and a confirmation message to the customer. A logged update event is recorded in the system log.   
  
1.6 View Purchase History Function   
Function ID: FR-06   
Description: The system allows a logged-in customer or administrator to view the customer’s purchase history, including order details.   
Input: CustomerID and valid session   
Output: A list of PurchaseHistory entities for the customer, including HistoryID, ProductID, PurchaseDate, Quantity, TotalCost. A logged view event is recorded in the system log.   
  
1.7 Manage Purchase History Function   
Function ID: FR-07   
Description: The system allows an administrator to view, edit, or delete a customer’s purchase history.   
Input: CustomerID, selected PurchaseHistory record, and valid administrator session   
Output: Updated or deleted PurchaseHistory records in the database and a confirmation message to the administrator. A logged management event is recorded in the system log.   
  
1.8 Add Product to Cart Function   
Function ID: FR-08   
Description: The system allows a logged-in customer to add a product to their shopping cart, including the product quantity.   
Input: ProductID, Quantity, CustomerID, and valid session   
Output: Updated ShoppingCart entity with the added Product and updated TotalAmount. A logged add event is recorded in the system log.   
  
1.9 Modify Cart Contents Function   
Function ID: FR-09   
Description: The system allows a logged-in customer to modify the quantity of a product or remove it from their shopping cart.   
Input: CartID, ProductID, Quantity (new), and valid session   
Output: Updated ShoppingCart entity in the database and a confirmation message to the customer. A logged modification event is recorded in the system log.   
  
1.10 View Cart Summary Function   
Function ID: FR-10   
Description: The system allows a logged-in customer to view the summary of their shopping cart, including item details, quantities, prices, and total cost.   
Input: CustomerID and valid session   
Output: A list of products in the ShoppingCart, including product names, quantities, prices, and total cost. Estimated shipping cost and final total amount are displayed. A logged view event is recorded in the system log.   
  
1.11 Checkout Order Function   
Function ID: FR-11   
Description: The system allows a logged-in customer to complete the checkout process by entering shipping information and payment details. The system creates an Order, processes the PaymentInformation, and updates the Inventory.   
Input: ShoppingCartID, ShippingAddress, PaymentInformation (CardNumber, ExpiryDate, CVV, Amount), and valid session   
Output: A new Order entity, updated PaymentInformation, updated Inventory, and a confirmation message to the customer. A logged checkout event is recorded in the system log.   
  
1.12 Confirm Order Function   
Function ID: FR-12   
Description: The system confirms the order after the checkout process is completed, updating the order status and inventory, and generating an OrderConfirmationEmail.   
Input: OrderID, ShoppingCartID, Inventory records, and valid session   
Output: Updated Order status to "confirmed," updated Inventory, and a new OrderConfirmationEmail sent to the customer. A logged confirmation event is recorded in the system log.   
  
1.13 Send Order Confirmation Email Function   
Function ID: FR-13   
Description: The system sends an email confirmation to the customer after the order has been successfully created and payment processed.   
Input: OrderID, Customer Email, Order details (items, total amount, estimated delivery date), and valid email server connection   
Output: A new OrderConfirmationEmail entity, including EmailID, OrderID, SentDate, and Content. A logged email sending event is recorded in the system log.   
  
1.14 Product Inventory Management Function   
Function ID: FR-14   
Description: The system allows an administrator to manage inventory, including updating product stock quantities and other related details.   
Input: ProductID, New Inventory Quantity, and valid administrator session   
Output: Updated Inventory entity, including InventoryID, ProductID, Quantity, Location, and LastUpdated. A logged inventory management event is recorded in the system log.   
  
1.15 Add Product Function   
Function ID: FR-15   
Description: The system allows an administrator to add a new product, including product name, description, price, category, and initial inventory quantity.   
Input: Product name, description, price, category ID, initial inventory quantity, and valid administrator session   
Output: A new Product entity, updated Inventory, and a logged product addition event in the system log.   
  
1.16 Update Product Details Function   
Function ID: FR-16   
Description: The system allows an administrator to update a product’s details, including name, description, price, category, and inventory quantity.   
Input: ProductID, Updated name, description, price, category ID, and inventory quantity, and valid administrator session   
Output: Updated Product and Inventory entities in the database. A logged product update event is recorded in the system log.   
  
1.17 Delete Product Function   
Function ID: FR-17   
Description: The system allows an administrator to delete a product from the database.   
Input: ProductID and valid administrator session   
Output: Deleted Product and updated Inventory records. A logged product deletion event is recorded in the system log.   
  
1.18 View Product Category Function   
Function ID: FR-18   
Description: The system allows a customer or administrator to view products within a selected category.   
Input: CategoryID and valid session   
Output: A list of Product entities associated with the selected Category. A logged category view event is recorded in the system log.   
  
1.19 Manage Product Category Function   
Function ID: FR-19   
Description: The system allows an administrator to add, update, or delete product categories.   
Input: Category name, description, and valid administrator session   
Output: Updated Category entity in the database. A logged category management event is recorded in the system log.   
  
1.20 Install Plugin Function   
Function ID: FR-20   
Description: The system allows an administrator to install a new plugin, including validating compatibility and updating the plugin status.   
Input: Plugin file or Plugin details (Name, Version, Description, APIEndpoint), and valid administrator session   
Output: A new Plugin entity with a unique PluginID and updated status to "installed." A logged plugin installation event is recorded in the system log.   
  
1.21 Configure Plugin Function   
Function ID: FR-21   
Description: The system allows an administrator to configure the settings of an installed plugin.   
Input: PluginID, Configuration key-value pairs, and valid administrator session   
Output: A new or updated PluginConfiguration entity in the database. A logged plugin configuration event is recorded in the system log.