# Functional Requirement

#### 1.1 Customer Registration   
- \*\*Function ID\*\*: FR-01   
- \*\*Description\*\*: Enables unregistered customers to create accounts by submitting required personal information. Validates inputs, checks email uniqueness, and stores profiles.   
- \*\*Input\*\*: Customer details (name, email, password, address).   
- \*\*Output\*\*: New customer profile stored in Customer data entity; confirmation message/email.   
  
#### 1.2 User Registration   
- \*\*Function ID\*\*: FR-02   
- \*\*Description\*\*: Allows unregistered users to create accounts. Validates inputs, checks email uniqueness, and stores user profiles.   
- \*\*Input\*\*: User details (name, email, password, contact information).   
- \*\*Output\*\*: New user profile stored in User data entity; confirmation message/email.   
  
#### 1.3 View Customer Information   
- \*\*Function ID\*\*: FR-03   
- \*\*Description\*\*: Permits administrators to retrieve and display customer profiles, including personal details and order history.   
- \*\*Input\*\*: Customer ID or selection from list.   
- \*\*Output\*\*: Customer details (name, email, address, order history); audit log entry.   
  
#### 1.4 Update Customer Information   
- \*\*Function ID\*\*: FR-04   
- \*\*Description\*\*: Enables customers or administrators to modify existing customer profiles (e.g., address, phone). Validates updates before saving.   
- \*\*Input\*\*: Modified customer fields (address, phone, email).   
- \*\*Output\*\*: Updated customer profile in Customer data entity; confirmation message; audit log entry.   
  
#### 1.5 Deactivate Customer Account   
- \*\*Function ID\*\*: FR-05   
- \*\*Description\*\*: Allows administrators to mark customer accounts as inactive. Verifies account status before deactivation.   
- \*\*Input\*\*: Customer ID selection.   
- \*\*Output\*\*: "Inactive" status in Customer data entity; confirmation message; audit log entry.   
  
#### 1.6 User Login   
- \*\*Function ID\*\*: FR-06   
- \*\*Description\*\*: Authenticates users/administrators via credentials. Creates sessions upon successful validation.   
- \*\*Input\*\*: Credentials (email, password).   
- \*\*Output\*\*: Active session; authentication status update in User Authentication data entity; audit log entry.   
  
#### 1.7 User Logout   
- \*\*Function ID\*\*: FR-07   
- \*\*Description\*\*: Terminates active user/administrator sessions and clears session data.   
- \*\*Input\*\*: "Logout" command.   
- \*\*Output\*\*: Session termination; "logged out" status in User Authentication data entity; audit log entry.   
  
#### 1.8 Add Product   
- \*\*Function ID\*\*: FR-08   
- \*\*Description\*\*: Allows administrators to add new products to inventory. Validates inputs (e.g., price format).   
- \*\*Input\*\*: Product details (name, description, price, quantity, category).   
- \*\*Output\*\*: New product stored in Product data entity; confirmation message; audit log entry.   
  
#### 1.9 View Product Details   
- \*\*Function ID\*\*: FR-09   
- \*\*Description\*\*: Displays product attributes (e.g., name, price, availability) to customers or administrators.   
- \*\*Input\*\*: Product selection or search query.   
- \*\*Output\*\*: Product details; audit log entry.   
  
#### 1.10 Update Product Information   
- \*\*Function ID\*\*: FR-10   
- \*\*Description\*\*: Enables administrators to modify product details (e.g., price, description). Validates inputs before saving.   
- \*\*Input\*\*: Modified product fields (price, description, quantity).   
- \*\*Output\*\*: Updated product in Product data entity; confirmation message; audit log entry.   
  
#### 1.11 Remove Product   
- \*\*Function ID\*\*: FR-11   
- \*\*Description\*\*: Allows administrators to delete products from inventory. Removes product from all shopping carts.   
- \*\*Input\*\*: Product ID selection.   
- \*\*Output\*\*: Product removed from Product data entity and Shopping Cart data entities; confirmation message; audit log entry.   
  
#### 1.12 Add Product to Shopping Cart   
- \*\*Function ID\*\*: FR-12   
- \*\*Description\*\*: Enables customers to add in-stock products to their cart. Updates quantities if product exists.   
- \*\*Input\*\*: Product selection.   
- \*\*Output\*\*: Product added/updated in Shopping Cart data entity; confirmation message; audit log entry.   
  
#### 1.13 View Shopping Cart   
- \*\*Function ID\*\*: FR-13   
- \*\*Description\*\*: Displays cart contents (items, quantities, total price) to authenticated customers.   
- \*\*Input\*\*: Access request to cart section.   
- \*\*Output\*\*: Cart items and total price; audit log entry.   
  
#### 1.14 Modify Shopping Cart   
- \*\*Function ID\*\*: FR-14   
- \*\*Description\*\*: Allows customers to adjust cart contents (e.g., update quantities, remove items). Recalculates totals.   
- \*\*Input\*\*: Modification action (e.g., "remove item," "update quantity").   
- \*\*Output\*\*: Updated Shopping Cart data entity; recalculated total price; confirmation message; audit log entry.   
  
#### 1.15 Checkout and Process Order   
- \*\*Function ID\*\*: FR-15   
- \*\*Description\*\*: Processes cart checkout: verifies item availability, collects shipping/payment details, processes payment, creates order, and clears cart.   
- \*\*Input\*\*: Shipping address, payment method, cart contents.   
- \*\*Output\*\*: New order in Order data entity; payment record in Payment Information data entity; cleared cart; confirmation message/email; audit log entry.   
  
#### 1.16 View Order History   
- \*\*Function ID\*\*: FR-16   
- \*\*Description\*\*: Displays transaction history (e.g., order IDs, dates, amounts) to customers or administrators. Supports filtering/sorting.   
- \*\*Input\*\*: Access request to transaction history.   
- \*\*Output\*\*: List of orders with details (date, status, amount); audit log entry.   
  
#### 1.17 View Order Details   
- \*\*Function ID\*\*: FR-17   
- \*\*Description\*\*: Shows specific order information (items, payment status, shipping address) upon selection.   
- \*\*Input\*\*: Order ID or selection.   
- \*\*Output\*\*: Order details; audit log entry.   
  
#### 1.18 Update Order Status   
- \*\*Function ID\*\*: FR-18   
- \*\*Description\*\*: Allows administrators to change order statuses (e.g., "Shipped," "Cancelled"). Notifies customers if applicable.   
- \*\*Input\*\*: New status selection.   
- \*\*Output\*\*: Updated status in Order data entity; customer notification; confirmation message; audit log entry.   
  
#### 1.19 Cancel Order   
- \*\*Function ID\*\*: FR-19   
- \*\*Description\*\*: Permits customers/administrators to cancel eligible orders (e.g., "Pending" status). Restocks inventory.   
- \*\*Input\*\*: Cancellation confirmation.   
- \*\*Output\*\*: "Cancelled" status in Order data entity; inventory restocked in Product data entity; customer notification; audit log entry.   
  
#### 1.20 View Payment Information   
- \*\*Function ID\*\*: FR-20   
- \*\*Description\*\*: Displays payment details (e.g., method, masked card numbers) to customers or administrators.   
- \*\*Input\*\*: Access request to payment section.   
- \*\*Output\*\*: Payment details; audit log entry.   
  
#### 1.21 Add Plugin   
- \*\*Function ID\*\*: FR-21   
- \*\*Description\*\*: Enables administrators to install new plugins by providing configuration details.   
- \*\*Input\*\*: Plugin details (name, description, version, configuration).   
- \*\*Output\*\*: New plugin stored in Plugin data entity; confirmation message; audit log entry.   
  
#### 1.22 Update Plugin   
- \*\*Function ID\*\*: FR-22   
- \*\*Description\*\*: Allows administrators to modify plugin configurations or metadata.   
- \*\*Input\*\*: Updated plugin fields (e.g., configuration settings).   
- \*\*Output\*\*: Updated plugin in Plugin data entity; confirmation message; audit log entry.   
  
#### 1.23 Remove Plugin   
- \*\*Function ID\*\*: FR-23   
- \*\*Description\*\*: Permits administrators to uninstall plugins.   
- \*\*Input\*\*: Plugin selection.   
- \*\*Output\*\*: Plugin removed from Plugin data entity; confirmation message; audit log entry.   
  
#### 1.24 Create Administrator Account   
- \*\*Function ID\*\*: FR-24   
- \*\*Description\*\*: Allows authenticated administrators to create new admin accounts with assigned roles.   
- \*\*Input\*\*: Administrator details (name, email, password, role).   
- \*\*Output\*\*: New administrator account in User Authentication data entity; confirmation message; audit log entry.   
  
#### 1.25 Update Administrator Account   
- \*\*Function ID\*\*: FR-25   
- \*\*Description\*\*: Enables administrators to modify existing admin accounts (e.g., roles, passwords).   
- \*\*Input\*\*: Updated administrator fields (role, password).   
- \*\*Output\*\*: Updated administrator account in User Authentication data entity; confirmation message; audit log entry.   
  
#### 1.26 Delete Administrator Account   
- \*\*Function ID\*\*: FR-26   
- \*\*Description\*\*: Permits administrators to remove admin accounts.   
- \*\*Input\*\*: Administrator ID selection.   
- \*\*Output\*\*: Administrator account removed from User Authentication data entity; confirmation message; audit log entry.   
  
#### 1.27 Add Authentication Method   
- \*\*Function ID\*\*: FR-27   
- \*\*Description\*\*: Allows administrators to configure new authentication mechanisms (e.g., OAuth).   
- \*\*Input\*\*: Authentication details (type, parameters).   
- \*\*Output\*\*: New authentication method in User Authentication data entity; confirmation message; audit log entry.   
  
#### 1.28 Update Authentication Method   
- \*\*Function ID\*\*: FR-28   
- \*\*Description\*\*: Enables administrators to modify existing authentication configurations.   
- \*\*Input\*\*: Updated authentication fields (parameters).   
- \*\*Output\*\*: Updated authentication method in User Authentication data entity; confirmation message; audit log entry.   
  
#### 1.29 Remove Authentication Method   
- \*\*Function ID\*\*: FR-29   
- \*\*Description\*\*: Permits administrators to delete authentication methods.   
- \*\*Input\*\*: Authentication method selection.   
- \*\*Output\*\*: Authentication method removed from User Authentication data entity; confirmation message; audit log entry.