# Functional Requirement

1. Functional Requirements  
  
1.1 Customer Registration Function   
 Function ID: FR-01   
 Description: Customers can create a new account by providing personal information. The system validates the email for uniqueness and the password for strength.   
 Input: Customer's personal information including name, email, and password.   
 Output: A successfully registered customer account in the Customer data entity and a confirmation message sent to the customer.  
  
1.2 Customer Login Function   
 Function ID: FR-02   
 Description: Registered customers can log in using their email and password. The system verifies the credentials and logs the login activity.   
 Input: Customer's email and password.   
 Output: A logged-in customer session and a homepage or dashboard displayed to the customer.  
  
1.3 Customer Logout Function   
 Function ID: FR-03   
 Description: Customers can log out of their session. The system invalidates the session and logs the logout activity.   
 Input: Customer's request to log out.   
 Output: A logged-out customer session and the customer redirected to the login or home page.  
  
1.4 Product Browsing Function   
 Function ID: FR-04   
 Description: Customers can browse products by category and view product details.   
 Input: Customer's selected category or request to view product details.   
 Output: A list of products in the selected category or detailed product information displayed to the customer.  
  
1.5 Product Search Function   
 Function ID: FR-05   
 Description: Customers can search for products using keywords or filters.   
 Input: Search term or selected filters (e.g., category, price range).   
 Output: A list of search results including product name, price, and image.  
  
1.6 Shopping Cart Addition Function   
 Function ID: FR-06   
 Description: Customers can add products to their shopping cart. The system verifies inventory availability and updates the cart.   
 Input: Product ID and quantity selected by the customer.   
 Output: Updated shopping cart with the new item and confirmation message.  
  
1.7 Shopping Cart Modification Function   
 Function ID: FR-07   
 Description: Customers can modify the quantity or remove items from their shopping cart. The system recalculates the cart total.   
 Input: Cart item modification request (e.g., quantity change, item removal).   
 Output: Updated shopping cart and confirmation message.  
  
1.8 Shopping Cart Deletion Function   
 Function ID: FR-08   
 Description: Customers can clear all items from their shopping cart.   
 Input: Customer's request to delete the cart.   
 Output: An empty shopping cart and confirmation message.  
  
1.9 Order Placement Function   
 Function ID: FR-09   
 Description: Customers can place an order by confirming the cart and completing the checkout process. The system updates the inventory and sends a confirmation.   
 Input: Shopping cart with valid items and payment method selected by the customer.   
 Output: A new order record and inventory updated with reduced stock levels.  
  
1.10 Order Confirmation Function   
 Function ID: FR-10   
 Description: The system confirms the order and sends a confirmation message to the customer.   
 Input: Order details and customer contact information.   
 Output: Order confirmation status updated and a confirmation message sent to the customer.  
  
1.11 Order History Viewing Function   
 Function ID: FR-11   
 Description: Registered customers can view their previous orders and access order details.   
 Input: Request from the customer to view their order history.   
 Output: A list of past orders with details displayed to the customer.  
  
1.12 Inventory Management Function   
 Function ID: FR-12   
 Description: Administrators can manage product inventory levels, including updates and alerts for restocking.   
 Input: Product inventory update request from the administrator.   
 Output: Updated inventory levels and restocking alerts generated as needed.  
  
1.13 Product Category Creation Function   
 Function ID: FR-13   
 Description: Administrators can create new product categories.   
 Input: Category name, description, and other relevant details provided by the administrator.   
 Output: A new category added to the Product Category data entity.  
  
1.14 Product Category Update Function   
 Function ID: FR-14   
 Description: Administrators can update existing product categories.   
 Input: Category ID and updated details (e.g., name, description).   
 Output: Updated category information in the Product Category data entity.  
  
1.15 Product Category Deletion Function   
 Function ID: FR-15   
 Description: Administrators can delete product categories after reassigning or removing associated products.   
 Input: Category ID and confirmation to delete.   
 Output: Deleted category and updated product records.  
  
1.16 Payment Processing Function   
 Function ID: FR-16   
 Description: Customers can process payments during checkout. The system verifies the payment and updates the order and inventory.   
 Input: Payment method and payment details provided by the customer.   
 Output: Confirmed payment status and updated order and inventory data.  
  
1.17 Payment Information Update Function   
 Function ID: FR-17   
 Description: Customers can update their stored payment information.   
 Input: Updated payment method details provided by the customer.   
 Output: Updated payment information in the Payment data entity.  
  
1.18 Contact Information Management Function   
 Function ID: FR-18   
 Description: Customers can add, modify, or delete their contact information.   
 Input: Updated or new contact details (e.g., address, phone number).   
 Output: Updated contact information in the Contact Information data entity.  
  
1.19 Plugin Installation Function   
 Function ID: FR-19   
 Description: Administrators can install plugins to extend system functionality.   
 Input: Plugin name and installation request from the administrator.   
 Output: Installed and activated plugin, with event logged in the Plugin data entity.  
  
1.20 Plugin Configuration Function   
 Function ID: FR-20   
 Description: Administrators can configure the settings of an installed plugin.   
 Input: Plugin configuration settings provided by the administrator.   
 Output: Updated plugin configuration in the PluginConfiguration data entity.  
  
1.21 Plugin Uninstallation Function   
 Function ID: FR-21   
 Description: Administrators can uninstall plugins after ensuring they are not in use.   
 Input: Plugin ID and uninstall request from the administrator.   
 Output: Removed plugin and associated configurations, with event logged.  
  
1.22 Manage Order Confirmation Function   
 Function ID: FR-22   
 Description: Administrators can modify the confirmation status of an order and send updated notifications to customers.   
 Input: Order confirmation status change request from the administrator.   
 Output: Updated order confirmation status and notification sent to the customer.  
  
1.23 Manage Cart Item Function   
 Function ID: FR-23   
 Description: Customers can modify or remove specific items in their shopping cart. The system updates the cart and inventory.   
 Input: Cart item modification or deletion request from the customer.   
 Output: Updated shopping cart and inventory levels if necessary.  
  
1.24 Manage Plugin Configuration Function   
 Function ID: FR-24   
 Description: Administrators can modify the configuration settings of an installed plugin.   
 Input: Plugin configuration update request from the administrator.   
 Output: Updated plugin configuration in the PluginConfiguration data entity.  
  
1.25 Manage Product Function   
 Function ID: FR-25   
 Description: Administrators can add, modify, or delete products and their associated category and inventory.   
 Input: Product details (e.g., name, price, category, inventory) from the administrator.   
 Output: Updated product records in the Product, Product Category, and Inventory data entities.  
  
1.26 Manage Order Function   
 Function ID: FR-26   
 Description: Administrators can modify or process orders, including updating status and initiating refunds.   
 Input: Order modification or processing request from the administrator.   
 Output: Updated order status and inventory levels if necessary.  
  
1.27 Manage Administrator Function   
 Function ID: FR-27   
 Description: Super Administrators can add, modify, or deactivate other administrators.   
 Input: Administrator details (e.g., username, role, status) from the super administrator.   
 Output: Updated administrator records in the Administrator data entity.  
  
1.28 Manage Payment Function   
 Function ID: FR-28   
 Description: Administrators can review and modify payment records, including initiating refunds.   
 Input: Payment modification or refund request from the administrator.   
 Output: Updated payment status and associated order records.  
  
1.29 Manage Plugin Function   
 Function ID: FR-29   
 Description: Administrators can activate, deactivate, or remove plugins and their configurations.   
 Input: Plugin management request from the administrator.   
 Output: Updated plugin status and configurations in the Plugin and PluginConfiguration data entities.  
  
1.30 Manage Order Confirmation Function   
 Function ID: FR-30   
 Description: Administrators can update the confirmation status of an order and send notifications to the customer.   
 Input: Order confirmation status update request from the administrator.   
 Output: Updated order confirmation status and customer notification if required.