# Functional Requirement

# 1. Functional Requirements  
  
## 1.1 Product Creation Function   
\*\*Function ID\*\*: FR-01   
\*\*Description\*\*: The Administrator can create a new Product in the system. The system validates the input data and uses a Plugin for additional configurations or validations.   
\*\*Input\*\*: Product information including name, description, price, category, and status.   
\*\*Output\*\*: A new Product record stored in the database with a generated ProductID.   
  
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## 1.2 Product Update Function   
\*\*Function ID\*\*: FR-02   
\*\*Description\*\*: The Administrator can update an existing Product's details. The system validates the input and uses a Plugin for additional logic.   
\*\*Input\*\*: Updated Product information including name, description, price, category, and status, along with the ProductID.   
\*\*Output\*\*: The updated Product record stored in the database.   
  
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## 1.3 Product Deletion Function   
\*\*Function ID\*\*: FR-03   
\*\*Description\*\*: The Administrator can delete an existing Product. The system checks for dependencies and uses a Plugin for additional validations.   
\*\*Input\*\*: ProductID of the Product to be deleted and a confirmation request.   
\*\*Output\*\*: The Product is removed from the database, and the deletion is recorded.   
  
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## 1.4 Product Viewing Function   
\*\*Function ID\*\*: FR-04   
\*\*Description\*\*: The Administrator or Customer can view the details of a specific Product.   
\*\*Input\*\*: ProductID of the Product to be viewed.   
\*\*Output\*\*: Displayed Product details including name, price, description, and availability.   
  
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## 1.5 Product Inventory Management Function   
\*\*Function ID\*\*: FR-05   
\*\*Description\*\*: The Administrator can adjust the inventory level of a Product. The system validates the new quantity and uses a Plugin to process additional inventory logic.   
\*\*Input\*\*: ProductID and the new inventory quantity.   
\*\*Output\*\*: Updated InventoryRecord stored in the database, and a Notification sent to the Administrator.   
  
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## 1.6 Customer Registration Function   
\*\*Function ID\*\*: FR-06   
\*\*Description\*\*: The Administrator can register a new Customer in the system.   
\*\*Input\*\*: Customer information including name, email, address, and status.   
\*\*Output\*\*: A new Customer record stored in the database with a generated CustomerID.   
  
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## 1.7 Customer Profile Viewing Function   
\*\*Function ID\*\*: FR-07   
\*\*Description\*\*: The Administrator can view the profile of an existing Customer, including order history.   
\*\*Input\*\*: CustomerID of the Customer to be viewed.   
\*\*Output\*\*: Displayed Customer details including name, email, address, and order history.   
  
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## 1.8 Customer Information Update Function   
\*\*Function ID\*\*: FR-08   
\*\*Description\*\*: The Administrator can update an existing Customer's information.   
\*\*Input\*\*: Updated Customer information including name, email, address, and status, along with the CustomerID.   
\*\*Output\*\*: The updated Customer record stored in the database.   
  
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## 1.9 Customer Account Deletion Function   
\*\*Function ID\*\*: FR-09   
\*\*Description\*\*: The Administrator can delete a Customer account. The system checks for active Orders and archives or deletes associated data.   
\*\*Input\*\*: CustomerID of the account to be deleted and a confirmation request.   
\*\*Output\*\*: The Customer account and associated data are removed or archived, and the deletion is recorded in the database.   
  
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## 1.10 Order Placement Function   
\*\*Function ID\*\*: FR-10   
\*\*Description\*\*: The Customer can place an Order by selecting Products and providing payment and shipping information. The system validates the order and uses a Plugin for payment processing.   
\*\*Input\*\*: CustomerID, list of ProductIDs with quantities, shipping information, and payment information.   
\*\*Output\*\*: A new Order record stored in the database with a generated OrderID, and updated InventoryRecords if applicable.   
  
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## 1.11 Order Viewing Function   
\*\*Function ID\*\*: FR-11   
\*\*Description\*\*: The Administrator or Customer can view the details of an existing Order, including associated Products, Payment status, and shipping information.   
\*\*Input\*\*: OrderID of the Order to be viewed.   
\*\*Output\*\*: Displayed Order details including order number, date, customer name, total amount, and status.   
  
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## 1.12 Order Status Update Function   
\*\*Function ID\*\*: FR-12   
\*\*Description\*\*: The Administrator can update the status of an Order. The system uses a Plugin to process status-specific logic and sends Notifications.   
\*\*Input\*\*: OrderID and the new status.   
\*\*Output\*\*: The updated Order status stored in the database and a Notification sent to the Administrator and Customer.   
  
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## 1.13 Order Cancellation Function   
\*\*Function ID\*\*: FR-13   
\*\*Description\*\*: The Administrator or Customer can cancel an Order if it is eligible. The system uses a Plugin to process cancellation logic and adjusts inventory if necessary.   
\*\*Input\*\*: OrderID and a confirmation request.   
\*\*Output\*\*: The Order is marked as cancelled in the database, inventory is updated if applicable, and a Notification is sent to the Administrator and Customer.   
  
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## 1.14 Payment Processing Function   
\*\*Function ID\*\*: FR-14   
\*\*Description\*\*: The system processes payment for an Order using a Plugin. It verifies the payment and updates the Payment and Order status accordingly.   
\*\*Input\*\*: OrderID and payment information (e.g., card details, payment method).   
\*\*Output\*\*: A new Payment record stored in the database and the Order status updated to reflect the completed payment.   
  
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## 1.15 Payment History Viewing Function   
\*\*Function ID\*\*: FR-15   
\*\*Description\*\*: The Administrator or Customer can view their payment history.   
\*\*Input\*\*: User's identity (AdministratorID or CustomerID).   
\*\*Output\*\*: Displayed list of Payment records including amount, date, status, and associated Order.   
  
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## 1.16 Administrator Account Management Function   
\*\*Function ID\*\*: FR-16   
\*\*Description\*\*: The Administrator can manage their own account by updating information such as email, password, and role.   
\*\*Input\*\*: Updated Administrator information including name, email, password, and role, along with the AdminID.   
\*\*Output\*\*: The updated Administrator account stored in the database and a Notification sent to the Administrator.   
  
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## 1.17 Notification Sending Function   
\*\*Function ID\*\*: FR-17   
\*\*Description\*\*: The system sends Notifications to Administrators or Customers based on system events, using a Plugin to determine the delivery channel and format.   
\*\*Input\*\*: Notification message, recipient (AdminID or CustomerID), and event context.   
\*\*Output\*\*: A new Notification record stored in the database and the message sent to the recipient.   
  
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## 1.18 Notification Viewing Function   
\*\*Function ID\*\*: FR-18   
\*\*Description\*\*: The Administrator or Customer can view Notifications associated with their account.   
\*\*Input\*\*: User's identity (AdminID or CustomerID).   
\*\*Output\*\*: Displayed list of Notifications including message, timestamp, and related entity (e.g., Product, Order).   
  
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## 1.19 Plugin Management Function   
\*\*Function ID\*\*: FR-19   
\*\*Description\*\*: The Administrator can activate, deactivate, or configure a Plugin.   
\*\*Input\*\*: PluginID and requested action (activate, deactivate, configure), along with new configuration values if applicable.   
\*\*Output\*\*: Updated Plugin status or configuration stored in the database and a Notification sent to the Administrator.   
  
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## 1.20 Plugin Installation Function   
\*\*Function ID\*\*: FR-20   
\*\*Description\*\*: The Administrator can install a new Plugin into the system. The system checks for compatibility and logs the installation.   
\*\*Input\*\*: Plugin file or identifier.   
\*\*Output\*\*: A new Plugin record stored in the database with a generated PluginID and a Notification sent to the Administrator.   
  
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## 1.21 Plugin Uninstallation Function   
\*\*Function ID\*\*: FR-21   
\*\*Description\*\*: The Administrator can uninstall an existing Plugin. The system checks for dependencies and removes the Plugin configuration.   
\*\*Input\*\*: PluginID and a confirmation request.   
\*\*Output\*\*: The Plugin is removed from the system and its configuration deleted from the database, with a Notification sent to the Administrator.   
  
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## 1.22 Plugin Configuration Function   
\*\*Function ID\*\*: FR-22   
\*\*Description\*\*: The Administrator can configure the settings of an installed Plugin.   
\*\*Input\*\*: PluginID and new configuration values (e.g., API keys, behavior parameters).   
\*\*Output\*\*: Updated PluginSetting records stored in the database and a Notification sent to the Administrator.   
  
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## 1.23 OrderItem Management Function   
\*\*Function ID\*\*: FR-23   
\*\*Description\*\*: The Administrator can modify an OrderItem (e.g., change quantity or remove the item) within an Order. The system validates the input and recalculates the Order total if necessary.   
\*\*Input\*\*: OrderID, OrderItemID, and updated quantity or removal request.   
\*\*Output\*\*: Updated OrderItem record stored in the database, Order total recalculated if necessary, and a Notification sent to the Administrator and Customer.   
  
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## 1.24 InventoryRecord Management Function   
\*\*Function ID\*\*: FR-24   
\*\*Description\*\*: The Administrator can modify the inventory record of a Product. The system validates the input and uses a Plugin for additional logic (e.g., audit trails, alerts).   
\*\*Input\*\*: InventoryID, updated quantity, and additional notes (e.g., reason for change).   
\*\*Output\*\*: Updated InventoryRecord stored in the database and a Notification sent to the Administrator.