# Functional Requirement

1. Functional Requirements   
  
1.1 Product Creation Function   
 Function ID: FR-01   
 Description: Administrators can create new products by entering details such as name, description, price, category, and stock quantity. The system validates the data and uses the Plugin module to process any additional configurations.   
 Input: Product details including name, description, price, category, stock quantity, and other optional configurations.   
 Output: A new Product entity is created in the database with the provided details.   
  
1.2 Product Update Function   
 Function ID: FR-02   
 Description: Administrators can update existing product details such as name, description, price, category, and stock quantity. The system validates the updated data and uses the Plugin module for additional processing.   
 Input: Updated product details including name, description, price, category, stock quantity, and other optional configurations.   
 Output: The Product entity in the database is updated with the new details.   
  
1.3 Product Deletion Function   
 Function ID: FR-03   
 Description: Administrators can delete a product after confirmation. The system uses the Plugin module to perform pre-deletion checks and removes the Product entity from the database.   
 Input: Product ID and confirmation of deletion.   
 Output: The selected Product entity is removed from the database.   
  
1.4 Product Inventory Management Function   
 Function ID: FR-04   
 Description: Administrators can modify the stock quantity of a product. The system validates the new quantity and uses the Plugin module for inventory-related checks or actions.   
 Input: Product ID and new stock quantity.   
 Output: The Product entity's StockQuantity attribute is updated in the database.   
  
1.5 Product Detail Viewing Function   
 Function ID: FR-05   
 Description: Customers and administrators can view detailed information about a product, such as name, description, price, category, and availability.   
 Input: Product ID or selection from the product catalog.   
 Output: Displayed product details on a dedicated page.   
  
1.6 Customer Registration Function   
 Function ID: FR-06   
 Description: Administrators can register new customers by entering their details such as name, email, password, address, and contact information. The system validates the data and uses the Plugin module for additional checks.   
 Input: Customer details including name, email, password, address, and contact information.   
 Output: A new Customer entity is created in the database and a confirmation email is sent.   
  
1.7 Customer Profile Viewing Function   
 Function ID: FR-07   
 Description: Administrators can view a customer's profile, including name, email, address, and order history.   
 Input: Customer ID or selection from the customer list.   
 Output: Displayed customer profile details.   
  
1.8 Customer Information Update Function   
 Function ID: FR-08   
 Description: Administrators can update a customer's information, such as name, email, address, or contact details. The system validates the updated data and uses the Plugin module for additional checks.   
 Input: Updated customer details including name, email, address, and contact information.   
 Output: The Customer entity is updated in the database.   
  
1.9 Order Placement Function   
 Function ID: FR-09   
 Description: Customers can place an order by confirming their cart selection, shipping and billing information, and payment method. The system creates an Order entity, processes the Payment, and sends an order confirmation Email.   
 Input: Cart items, shipping and billing information, and selected payment method.   
 Output: A new Order entity is created, the Payment is processed, and a confirmation Email is sent.   
  
1.10 Order Cancellation Function   
 Function ID: FR-10   
 Description: Customers or administrators can cancel an order if it has not been shipped. The system updates the Order status, restores inventory levels, and sends a cancellation confirmation Email.   
 Input: Order ID and confirmation of cancellation.   
 Output: The Order status is updated to "Canceled," inventory levels are restored, and a confirmation Email is sent.   
  
1.11 Order Tracking Function   
 Function ID: FR-11   
 Description: Customers and administrators can track the status of an order. The system retrieves the Order entity and may use the Plugin module to verify or fetch the latest status.   
 Input: Order ID or selection from the order list.   
 Output: Displayed order status, shipping information, and estimated delivery time.   
  
1.12 Order History Management Function   
 Function ID: FR-12   
 Description: Administrators and customers can view and manage order history, including order status updates and cancellations.   
 Input: Order ID or selection from the order history list.   
 Output: Updated Order status or cancellation confirmation.   
  
1.13 Order Status Management Function   
 Function ID: FR-13   
 Description: Administrators can update an order’s status (e.g., Processing, Shipped, Delivered). The system validates the status transition and uses the Plugin module for any pre-status change actions.   
 Input: Order ID and new status.   
 Output: The OrderStatus entity is updated in the database, and any related actions (e.g., Email notification) are triggered.   
  
1.14 Payment Processing Function   
 Function ID: FR-14   
 Description: The system processes customer payments by validating the Order, using the Plugin module to execute the payment, and updating the Payment and Order status accordingly.   
 Input: Order ID and selected payment method.   
 Output: A new Payment entity is created and the Order status is updated.   
  
1.15 Payment Verification Function   
 Function ID: FR-15   
 Description: Administrators can verify the status of a payment. The system retrieves the Payment entity and uses the Plugin module to confirm the transaction with the payment gateway.   
 Input: Payment ID or selection from the payment list.   
 Output: The Payment status is updated and the verification result is displayed.   
  
1.16 Payment Refund Function   
 Function ID: FR-16   
 Description: Administrators can process a refund for a completed payment. The system validates the Order status, uses the Plugin module to execute the refund, updates the Payment and Order status, and sends a refund confirmation Email.   
 Input: Payment ID and confirmation of refund.   
 Output: The Payment status is updated to "Refunded," inventory levels are restored, and a confirmation Email is sent.   
  
1.17 Payment Detail Viewing Function   
 Function ID: FR-17   
 Description: Administrators and customers can view detailed information about a payment, including transaction ID, amount, date, and associated order.   
 Input: Payment ID or selection from the payment history list.   
 Output: Displayed payment details.   
  
1.18 Email Notification Function   
 Function ID: FR-18   
 Description: The system sends Email notifications to customers for order confirmation, status updates, and other system events. The system uses the Email module and may involve the Plugin module for post-notification processing.   
 Input: Order ID, Email template, and customer contact information.   
 Output: A confirmation or update Email is sent to the customer and logged in the Email entity.   
  
1.19 Email Template Management Function   
 Function ID: FR-19   
 Description: Administrators can create, update, or delete Email templates for notifications. The system uses the Plugin module for any pre-processing or validation.   
 Input: Email template details including subject, content, and placeholders.   
 Output: The EmailTemplate entity is created, updated, or deleted in the database.   
  
1.20 Email Settings Management Function   
 Function ID: FR-20   
 Description: Administrators can configure and update the system’s Email settings, such as SMTP server, port, sender address, and authentication details.   
 Input: Updated Email settings (e.g., server address, port, sender email).   
 Output: The Email settings are updated in the configuration database.   
  
1.21 Plugin Installation Function   
 Function ID: FR-21   
 Description: Administrators can install new plugins from a repository or uploaded files. The system validates the plugin for compatibility and security before installation.   
 Input: Plugin file or selection from a repository.   
 Output: A new Plugin entity is created in the database and the plugin is activated.   
  
1.22 Plugin Update Function   
 Function ID: FR-22   
 Description: Administrators can update existing plugins with new configurations or versions. The system validates the new plugin version or configuration before applying the update.   
 Input: Plugin ID, new configuration, or uploaded plugin file.   
 Output: The Plugin entity is updated in the database and the plugin is reactivated.   
  
1.23 Plugin Uninstallation Function   
 Function ID: FR-23   
 Description: Administrators can uninstall plugins after confirmation. The system uses the Plugin module to perform pre-uninstallation checks and removes the plugin from the system.   
 Input: Plugin ID and confirmation of uninstallation.   
 Output: The Plugin entity is removed from the database and the plugin is deactivated.   
  
1.24 Plugin Configuration Function   
 Function ID: FR-24   
 Description: Administrators can configure the settings of an installed plugin. The system validates and applies the new configuration to the Plugin entity.   
 Input: Plugin ID and updated configuration parameters.   
 Output: The Plugin entity is updated in the configuration database.   
  
1.25 Plugin Information Viewing Function   
 Function ID: FR-25   
 Description: Administrators can view detailed information about a plugin, including name, version, status, description, and configuration parameters.   
 Input: Plugin ID or selection from the plugin list.   
 Output: Displayed plugin details.   
  
1.26 Product Category Management Function   
 Function ID: FR-26   
 Description: Administrators can create, update, or delete product categories. The system validates the input data and uses the Plugin module for any additional checks.   
 Input: Category details including name, description, and parent category.   
 Output: The ProductCategory entity is created, updated, or deleted in the database.   
  
1.27 Payment Method Management Function   
 Function ID: FR-27   
 Description: Administrators can create, update, or delete payment methods. The system validates the input data and uses the Plugin module for integration checks.   
 Input: Payment method details including name, type, description, and configuration.   
 Output: The PaymentMethod entity is created, updated, or deleted in the database.   
  
1.28 Administrator Login Function   
 Function ID: FR-28   
 Description: Administrators can log into the system using valid credentials. The system validates the credentials and uses the Plugin module for additional security checks.   
 Input: Administrator username and password.   
 Output: Administrator is authenticated and redirected to the dashboard.