# Functional Requirement

# 1. Functional Requirements  
  
## 1.1 Product Creation Function   
\*\*Function ID\*\*: FR-01   
\*\*Description\*\*: Administrators can create new products with details such as name, description, price, and image.   
\*\*Input\*\*: Product details including name, description, price, category, and image.   
\*\*Output\*\*: A new product record stored in the product database with attributes like ProductID, Name, Description, Price, Stock, and StoreID.  
  
## 1.2 Product Management Function   
\*\*Function ID\*\*: FR-02   
\*\*Description\*\*: Administrators can update or delete existing product records in the product database.   
\*\*Input\*\*: ProductID and updated product details (e.g., name, description, price, category, or image).   
\*\*Output\*\*: Updated or deleted product record in the product database and an updated product catalog.  
  
## 1.3 Product Detail Viewing Function   
\*\*Function ID\*\*: FR-03   
\*\*Description\*\*: Customers and administrators can view the details of a specific product.   
\*\*Input\*\*: ProductID or a product listing from the catalog.   
\*\*Output\*\*: Displayed product details including Name, Description, Price, Category, and Image.  
  
## 1.4 Product Deletion Function   
\*\*Function ID\*\*: FR-04   
\*\*Description\*\*: Administrators can delete existing products from the product database.   
\*\*Input\*\*: ProductID and confirmation of deletion.   
\*\*Output\*\*: Deleted product record from the product database and an updated product catalog.  
  
## 1.5 Customer Registration Function   
\*\*Function ID\*\*: FR-05   
\*\*Description\*\*: Administrators can register new customers with details such as name, email, password, address, and contact information.   
\*\*Input\*\*: Customer details including Name, Email, Password, Address, and PhoneNumber.   
\*\*Output\*\*: A new customer record stored in the customer database with attributes like CustomerID, Name, Email, Password, Address, and PhoneNumber.  
  
## 1.6 Customer Profile Viewing Function   
\*\*Function ID\*\*: FR-06   
\*\*Description\*\*: Administrators can view the profile and history of a specific customer.   
\*\*Input\*\*: CustomerID or a customer listing from the customer database.   
\*\*Output\*\*: Displayed customer profile including Name, Email, Address, Order history, and Account status.  
  
## 1.7 Order Management Function   
\*\*Function ID\*\*: FR-07   
\*\*Description\*\*: Administrators can modify or delete existing orders in the order database.   
\*\*Input\*\*: OrderID, updated order details (e.g., status, delivery address, or payment method), and confirmation for deletion.   
\*\*Output\*\*: Updated or deleted order record in the order database and notifications sent to the customer if the order is modified or cancelled.  
  
## 1.8 Payment Processing Function   
\*\*Function ID\*\*: FR-08   
\*\*Description\*\*: Customers can process payments for their orders using selected payment methods.   
\*\*Input\*\*: OrderID, Payment method (e.g., credit card, PayPal), and payment details (e.g., card number, expiration date, or digital wallet login credentials).   
\*\*Output\*\*: A new payment record stored in the payment database with attributes like PaymentID, OrderID, PaymentDate, Amount, Method, and Status. The associated order status is updated to "Paid".  
  
## 1.9 Payment Status Viewing Function   
\*\*Function ID\*\*: FR-09   
\*\*Description\*\*: Customers and administrators can view the status of a specific payment.   
\*\*Input\*\*: PaymentID or an associated OrderID.   
\*\*Output\*\*: Displayed payment status including Status, Amount, PaymentDate, and Method used.  
  
## 1.10 Administrator Access Management Function   
\*\*Function ID\*\*: FR-10   
\*\*Description\*\*: Administrators can manage access rights of other administrator accounts, including adding, editing, or removing administrator privileges.   
\*\*Input\*\*: Administrator details including Name, Email, Password, and Role.   
\*\*Output\*\*: Updated administrator access records in the database and changes reflected in the system’s access control.  
  
## 1.11 OrderItem Management Function   
\*\*Function ID\*\*: FR-11   
\*\*Description\*\*: Administrators can edit or delete individual items within an order (OrderItem).   
\*\*Input\*\*: OrderItemID, OrderID, ProductID, Quantity, and Subtotal.   
\*\*Output\*\*: Updated or deleted OrderItem record in the database and the associated Order updated to reflect the changes.  
  
## 1.12 Customer Account Management Function   
\*\*Function ID\*\*: FR-12   
\*\*Description\*\*: Administrators can edit or deactivate a registered customer’s account.   
\*\*Input\*\*: CustomerID and updated customer details (e.g., address, contact details, or account status).   
\*\*Output\*\*: Updated or deactivated customer record in the customer database and changes reflected in the system (e.g., order tracking or customer support).  
  
## 1.13 Order Status Management Function   
\*\*Function ID\*\*: FR-13   
\*\*Description\*\*: Customers can cancel their own orders if the order is in a cancellable state. Administrators can modify or cancel any order.   
\*\*Input\*\*: OrderID, action (e.g., cancel or modify), and confirmation if required.   
\*\*Output\*\*: Updated Order record in the database with new Status, notifications sent to the customer and administrator if applicable.  
  
## 1.14 Payment Management Function   
\*\*Function ID\*\*: FR-14   
\*\*Description\*\*: Administrators can update or delete existing payment records.   
\*\*Input\*\*: PaymentID, updated payment details (e.g., PaymentDate, Amount, Method, or Status).   
\*\*Output\*\*: Updated or deleted Payment record in the database, and the associated Order updated to reflect the changes. Notifications are sent to the customer and administrator if the payment status is modified.

# External Description

# 2. External Interfaces  
  
This chapter describes the external interfaces that the system interacts with. These interfaces include user interfaces, hardware interfaces, software interfaces, and communication interfaces. The system interacts with external databases to store and retrieve data, and it communicates with users and administrators through various means.  
  
## 2.1 User Interface Output  
  
The user interface is the means through which users interact with the system. It includes screen displays, forms, and other visual elements that allow users to input data and view results.  
  
### 2.1.1 Product Detail View Interface   
\*\*Description\*\*: This interface allows customers and administrators to view the details of a specific product.   
\*\*Interaction Method\*\*: Users select a product from the catalog or input a ProductID to retrieve the product details.   
\*\*Displayed Information\*\*:   
- Name   
- Description   
- Price   
- Category   
- Image   
  
### 2.1.2 Customer Profile View Interface   
\*\*Description\*\*: This interface allows administrators to view the profile and history of a specific customer.   
\*\*Interaction Method\*\*: Users select a customer from the customer database or input a CustomerID to retrieve the profile information.   
\*\*Displayed Information\*\*:   
- Name   
- Email   
- Address   
- Order history   
- Account status   
  
### 2.1.3 Order Management Interface   
\*\*Description\*\*: This interface allows administrators to modify or delete existing orders.   
\*\*Interaction Method\*\*: Users input an OrderID and select an action (modify or delete) along with the necessary details.   
\*\*Displayed Information\*\*:   
- Order status   
- Delivery address   
- Payment method   
- Confirmation prompts for deletion   
  
### 2.1.4 Order Detail View Interface   
\*\*Description\*\*: This interface allows customers to view the status of their orders.   
\*\*Interaction Method\*\*: Users input an OrderID to retrieve the order status and details.   
\*\*Displayed Information\*\*:   
- Status   
- Delivery address   
- Payment method   
- Order items   
  
### 2.1.5 Payment Status View Interface   
\*\*Description\*\*: This interface allows customers and administrators to view the status of a specific payment.   
\*\*Interaction Method\*\*: Users input a PaymentID or an associated OrderID to retrieve the payment status.   
\*\*Displayed Information\*\*:   
- Status   
- Amount   
- PaymentDate   
- Method used   
  
### 2.1.6 Administrator Access Management Interface   
\*\*Description\*\*: This interface allows administrators to manage the access rights of other administrator accounts.   
\*\*Interaction Method\*\*: Users input administrator details including Name, Email, Password, and Role to perform actions like adding, editing, or removing access rights.   
\*\*Displayed Information\*\*:   
- Administrator Name   
- Email   
- Role   
- Confirmation of changes   
  
### 2.1.7 Customer Account Management Interface   
\*\*Description\*\*: This interface allows administrators to edit or deactivate a registered customer’s account.   
\*\*Interaction Method\*\*: Users input a CustomerID and the updated customer details (e.g., address, contact details, or account status).   
\*\*Displayed Information\*\*:   
- Customer Name   
- Email   
- Address   
- Account status   
- Confirmation of changes   
  
### 2.1.8 Product Management Interface   
\*\*Description\*\*: This interface allows administrators to update or delete existing product records.   
\*\*Interaction Method\*\*: Users input a ProductID and the updated product details (e.g., name, description, price, category, or image).   
\*\*Displayed Information\*\*:   
- Product Name   
- Description   
- Price   
- Category   
- Image   
- Confirmation of changes   
  
### 2.1.9 Product Creation Interface   
\*\*Description\*\*: This interface allows administrators to create new products with various details.   
\*\*Interaction Method\*\*: Users input product details including name, description, price, category, and image.   
\*\*Displayed Information\*\*:   
- Product Name   
- Description   
- Price   
- Category   
- Image   
- Confirmation of product creation   
  
### 2.1.10 OrderItem Management Interface   
\*\*Description\*\*: This interface allows administrators to edit or delete individual items within an order.   
\*\*Interaction Method\*\*: Users input an OrderItemID, OrderID, ProductID, Quantity, and Subtotal to perform actions on specific items.   
\*\*Displayed Information\*\*:   
- OrderItem details   
- Updated Order status   
- Confirmation of changes   
  
## 2.2 Hardware Interface Output  
  
The system does not directly interact with hardware devices. Therefore, there are no hardware interfaces to describe in this section.  
  
## 2.3 Software Interface Output  
  
The system interacts with several external software components and databases to manage product and customer data, as well as to process and track orders and payments.  
  
### 2.3.1 Product Database   
\*\*Description\*\*: The product database stores all product-related information such as ProductID, Name, Description, Price, Stock, and StoreID.   
\*\*Interaction Method\*\*: The system creates, updates, deletes, and retrieves product records from the product database using SQL queries or database API calls.   
\*\*Data Stored\*\*:   
- ProductID   
- Name   
- Description   
- Price   
- Stock   
- StoreID   
- Category   
- Image   
  
### 2.3.2 Customer Database   
\*\*Description\*\*: The customer database stores all customer-related information such as CustomerID, Name, Email, Password, Address, and PhoneNumber.   
\*\*Interaction Method\*\*: The system creates, updates, deletes, and retrieves customer records from the customer database using SQL queries or database API calls.   
\*\*Data Stored\*\*:   
- CustomerID   
- Name   
- Email   
- Password   
- Address   
- PhoneNumber   
- Account status   
- Order history   
  
### 2.3.3 Order Database   
\*\*Description\*\*: The order database stores all order-related information such as OrderID, CustomerID, ProductID, Quantity, Status, and other relevant order details.   
\*\*Interaction Method\*\*: The system modifies, deletes, and retrieves order records from the order database using SQL queries or database API calls.   
\*\*Data Stored\*\*:   
- OrderID   
- CustomerID   
- ProductID   
- Quantity   
- Status   
- Delivery address   
- Payment method   
- Order items   
  
### 2.3.4 Payment Database   
\*\*Description\*\*: The payment database stores all payment-related information such as PaymentID, OrderID, PaymentDate, Amount, Method, and Status.   
\*\*Interaction Method\*\*: The system creates, updates, deletes, and retrieves payment records from the payment database using SQL queries or database API calls.   
\*\*Data Stored\*\*:   
- PaymentID   
- OrderID   
- PaymentDate   
- Amount   
- Method   
- Status   
  
### 2.3.5 Administrator Access Control Module   
\*\*Description\*\*: This module is responsible for managing access rights of administrator accounts. It is part of the system software and controls who can perform administrative actions.   
\*\*Interaction Method\*\*: The system updates the access control module with new or modified administrator details.   
\*\*Data Stored\*\*:   
- Administrator Name   
- Email   
- Password   
- Role   
- Access rights   
  
### 2.3.6 OrderItem Database   
\*\*Description\*\*: The OrderItem database stores individual items within an order, including OrderItemID, OrderID, ProductID, Quantity, and Subtotal.   
\*\*Interaction Method\*\*: The system modifies or deletes OrderItem records and updates the associated Order record.   
\*\*Data Stored\*\*:   
- OrderItemID   
- OrderID   
- ProductID   
- Quantity   
- Subtotal   
- Updated Order status   
  
## 2.4 Communication Interface Output  
  
The system communicates with users and administrators through various channels, including notifications and updates.  
  
### 2.4.1 Email Notifications   
\*\*Description\*\*: The system sends email notifications to customers and administrators when there are updates to orders or payments.   
\*\*Interaction Method\*\*: The system generates an email message with the relevant information and sends it via an email server or third-party email service.   
\*\*Content of Notifications\*\*:   
- Order status changes   
- Payment status changes   
- Confirmation of deletions or modifications   
- Changes in access rights   
  
### 2.4.2 Web-Based Communication   
\*\*Description\*\*: The system allows users to access and manage their accounts and orders through a web-based interface.   
\*\*Interaction Method\*\*: Users interact with the system via web browsers, entering data and viewing results in real-time.   
\*\*Supported Actions\*\*:   
- View product details   
- View order status   
- View payment status   
- Modify or cancel orders (if applicable)   
- Manage account details (for administrators)   
  
### 2.4.3 Payment Gateway Integration   
\*\*Description\*\*: The system integrates with a payment gateway to process customer payments.   
\*\*Interaction Method\*\*: The system sends payment details (e.g., card number, expiration date, digital wallet credentials) to the payment gateway and receives confirmation of payment processing.   
\*\*Processed Data\*\*:   
- OrderID   
- Payment method   
- Payment details   
- Payment status   
  
### 2.4.4 Administrator Notifications   
\*\*Description\*\*: The system sends notifications to administrators when there are changes to orders or payments that require their attention.   
\*\*Interaction Method\*\*: Notifications are sent via the system's internal messaging or email system.   
\*\*Content of Notifications\*\*:   
- Order modifications or cancellations   
- Payment status changes   
- Access control updates   
  
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This section has identified all the external interfaces related to the system, ensuring that the functional requirements are properly supported by clear and well-defined interactions with external data sources and users.