# Functional Requirement

# \*\*GAMMA-J Web Store\*\*   
## \*\*Chapter 1: Functional Requirements\*\*  
  
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### \*\*1.1 Create Customer Account Function\*\*   
\*\*Function ID\*\*: FR-01   
\*\*Description\*\*: The system allows the Administrator to create a new Customer account with valid information. The system also sends a confirmation email to the customer.   
\*\*Input\*\*:   
- Name (string)   
- Email (string, unique)   
- Password (string)   
- Address (string)   
- PhoneNumber (string)   
\*\*Output\*\*:   
- New Customer record in the Customer data entity   
- Email Notification to the customer confirming the account creation   
  
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### \*\*1.2 Login as Customer Function\*\*   
\*\*Function ID\*\*: FR-02   
\*\*Description\*\*: The system authenticates a Customer using their email and password. If successful, the system initiates a session and redirects the Customer to the homepage or dashboard.   
\*\*Input\*\*:   
- Email (string)   
- Password (string)   
\*\*Output\*\*:   
- Active LoginSession record   
- Redirect to homepage or dashboard   
- Welcome message displayed   
  
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### \*\*1.3 Logout as Customer Function\*\*   
\*\*Function ID\*\*: FR-03   
\*\*Description\*\*: The system ends the Customer's session and updates their session status to "logged out".   
\*\*Input\*\*:   
- Customer session ID   
\*\*Output\*\*:   
- Updated LoginSession status to "logged out"   
- Redirect to login page or homepage   
- Confirmation message displayed   
  
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### \*\*1.4 View Product Information Function\*\*   
\*\*Function ID\*\*: FR-04   
\*\*Description\*\*: The system retrieves and displays detailed information about a selected Product, including its name, description, price, and inventory status.   
\*\*Input\*\*:   
- Product ID (string) or search query (string)   
- Active Customer session ID   
\*\*Output\*\*:   
- Displayed product details (name, description, price, inventory status)   
- Log entry in the system for analytics   
  
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### \*\*1.5 Search Product Function\*\*   
\*\*Function ID\*\*: FR-05   
\*\*Description\*\*: The system allows the Customer to search for products using a query and displays a list of matching products with key details.   
\*\*Input\*\*:   
- Search query (string)   
- Active Customer session ID   
\*\*Output\*\*:   
- List of matching Product records with name, description, price, and inventory status   
- Log entry for the search activity   
  
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### \*\*1.6 Add Product to Inventory Function\*\*   
\*\*Function ID\*\*: FR-06   
\*\*Description\*\*: The system allows the Administrator to add a new product to the Inventory and updates the Product data entity accordingly.   
\*\*Input\*\*:   
- Product name (string)   
- Price (numeric)   
- Description (string)   
- Quantity (numeric)   
- Category ID (string)   
- Active Administrator session ID   
\*\*Output\*\*:   
- New Product record in the Product data entity   
- Updated Inventory record   
- Confirmation message displayed   
  
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### \*\*1.7 Update Product Details Function\*\*   
\*\*Function ID\*\*: FR-07   
\*\*Description\*\*: The system allows the Administrator to modify product details such as name, price, description, or category and updates both the Product and Inventory data entities.   
\*\*Input\*\*:   
- Product ID (string)   
- Updated product details (name, price, description, category ID, quantity)   
- Active Administrator session ID   
\*\*Output\*\*:   
- Updated Product record in the Product data entity   
- Updated Inventory record if stock changes   
- Confirmation message displayed   
  
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### \*\*1.8 Delete Product Function\*\*   
\*\*Function ID\*\*: FR-08   
\*\*Description\*\*: The system allows the Administrator to delete a Product record and removes the reference in the Inventory.   
\*\*Input\*\*:   
- Product ID (string)   
- Active Administrator session ID   
\*\*Output\*\*:   
- Deleted Product record   
- Updated Inventory record   
- Confirmation message displayed   
  
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### \*\*1.9 Create Order Function\*\*   
\*\*Function ID\*\*: FR-09   
\*\*Description\*\*: The system allows the Customer to create an Order after confirming product selection, quantity, and valid Payment Information.   
\*\*Input\*\*:   
- List of selected Product IDs and quantities   
- Payment Information (card number, expiry date, billing address)   
- Active Customer session ID   
\*\*Output\*\*:   
- New Order record in the Order data entity   
- Updated Inventory stock levels   
- Email Notification to the Customer   
- Confirmation message displayed   
  
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### \*\*1.10 View Order Details Function\*\*   
\*\*Function ID\*\*: FR-10   
\*\*Description\*\*: The system retrieves and displays detailed information about a specific Order, including products, quantities, total price, and status.   
\*\*Input\*\*:   
- Order ID (string)   
- Active Customer or Administrator session ID   
\*\*Output\*\*:   
- Displayed order details (order ID, product list, quantities, total price, status)   
- Log entry for the order view activity   
  
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### \*\*1.11 Update Order Status Function\*\*   
\*\*Function ID\*\*: FR-11   
\*\*Description\*\*: The system allows the Administrator to update the status of an Order (e.g., Shipped, Cancelled, Processing) and adjusts the Inventory accordingly.   
\*\*Input\*\*:   
- Order ID (string)   
- New status (string)   
- Active Administrator session ID   
\*\*Output\*\*:   
- Updated Order record with new status   
- Updated Inventory stock if status change affects availability   
- Email Notification to the Customer   
- Log entry for the status update   
  
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### \*\*1.12 Delete Order Function\*\*   
\*\*Function ID\*\*: FR-12   
\*\*Description\*\*: The system allows the Customer or Administrator to delete an Order and restores the product stock in the Inventory.   
\*\*Input\*\*:   
- Order ID (string)   
- Active Customer or Administrator session ID   
\*\*Output\*\*:   
- Deleted Order record   
- Updated Inventory stock levels   
- Email Notification to the Customer   
- Log entry for the deletion activity   
  
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### \*\*1.13 View Inventory Levels Function\*\*   
\*\*Function ID\*\*: FR-13   
\*\*Description\*\*: The system allows the Administrator to view current stock levels of all or selected products in the Inventory.   
\*\*Input\*\*:   
- Active Administrator session ID   
- Optional filter criteria (category, product name, etc.)   
\*\*Output\*\*:   
- Displayed list of products with current stock levels and status (in stock, low stock, out of stock)   
- Log entry for the inventory view activity   
  
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### \*\*1.14 Manage Inventory Stock Function\*\*   
\*\*Function ID\*\*: FR-14   
\*\*Description\*\*: The system allows the Administrator to update the stock level of a specific product in the Inventory.   
\*\*Input\*\*:   
- Product ID (string)   
- New stock quantity (numeric)   
- Active Administrator session ID   
\*\*Output\*\*:   
- Updated Inventory record   
- Confirmation message displayed   
- Log entry for the stock update activity   
  
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### \*\*1.15 Create Payment Information Function\*\*   
\*\*Function ID\*\*: FR-15   
\*\*Description\*\*: The system allows the Customer or Administrator to create new Payment Information for the user.   
\*\*Input\*\*:   
- Card number (string)   
- Expiry date (string)   
- Billing address (string)   
- Active Customer or Administrator session ID   
\*\*Output\*\*:   
- New Payment Information record   
- Email Notification to the Customer   
- Log entry for the creation activity   
  
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### \*\*1.16 View Payment Information Function\*\*   
\*\*Function ID\*\*: FR-16   
\*\*Description\*\*: The system retrieves and displays stored Payment Information for the Customer or Administrator.   
\*\*Input\*\*:   
- Active Customer or Administrator session ID   
\*\*Output\*\*:   
- Displayed Payment Information (card type, masked card number, expiry date, billing address)   
- Log entry for the view activity   
  
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### \*\*1.17 Update Payment Method Function\*\*   
\*\*Function ID\*\*: FR-17   
\*\*Description\*\*: The system allows the Customer or Administrator to update existing Payment Information with new or modified data.   
\*\*Input\*\*:   
- Payment ID (string)   
- Updated card number (string)   
- Updated expiry date (string)   
- Updated billing address (string)   
- Active Customer or Administrator session ID   
\*\*Output\*\*:   
- Updated Payment Information record   
- Email Notification to the Customer   
- Log entry for the update activity   
  
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### \*\*1.18 Delete Payment Method Function\*\*   
\*\*Function ID\*\*: FR-18   
\*\*Description\*\*: The system allows the Customer or Administrator to delete a Payment Information record from the system.   
\*\*Input\*\*:   
- Payment ID (string)   
- Active Customer or Administrator session ID   
\*\*Output\*\*:   
- Deleted Payment Information record   
- Email Notification to the Customer   
- Log entry for the deletion activity   
  
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### \*\*1.19 Register Administrator Function\*\*   
\*\*Function ID\*\*: FR-19   
\*\*Description\*\*: The system allows the creation of a new Administrator account with valid information and sends a confirmation email.   
\*\*Input\*\*:   
- Name (string)   
- Email (string, unique)   
- Password (string)   
- Active Administrator session ID   
\*\*Output\*\*:   
- New Administrator record in the Administrator data entity   
- Email Notification to the Administrator   
- Log entry for the registration activity   
  
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### \*\*1.20 Login as Administrator Function\*\*   
\*\*Function ID\*\*: FR-20   
\*\*Description\*\*: The system authenticates an Administrator using their email and password and initiates a session.   
\*\*Input\*\*:   
- Email (string)   
- Password (string)   
\*\*Output\*\*:   
- Active LoginSession record   
- Redirect to admin dashboard   
- Welcome message displayed   
  
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### \*\*1.21 Logout as Administrator Function\*\*   
\*\*Function ID\*\*: FR-21   
\*\*Description\*\*: The system ends the Administrator's session and updates the session status to "logged out".   
\*\*Input\*\*:   
- Administrator session ID   
\*\*Output\*\*:   
- Updated LoginSession status to "logged out"   
- Redirect to login page or homepage   
- Confirmation message displayed   
  
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### \*\*1.22 Send Email Notification Function\*\*   
\*\*Function ID\*\*: FR-22   
\*\*Description\*\*: The system sends an email notification to a Customer or Administrator based on predefined triggers such as order confirmation or account creation.   
\*\*Input\*\*:   
- Recipient ID (Customer or Administrator)   
- Message content or template   
- Notification subject (string)   
\*\*Output\*\*:   
- Email Notification record in the Email Notification data entity   
- Email sent to the recipient   
- Log entry for the notification activity   
  
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### \*\*1.23 View Notification Logs Function\*\*   
\*\*Function ID\*\*: FR-23   
\*\*Description\*\*: The system allows the Administrator to view logs of all sent Email Notifications, including delivery status and timestamps.   
\*\*Input\*\*:   
- Active Administrator session ID   
- Optional filter criteria (date, recipient, status)   
\*\*Output\*\*:   
- Displayed list of Email Notification records   
- Log entry for the access activity   
  
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### \*\*1.24 Configure Plugin Settings Function\*\*   
\*\*Function ID\*\*: FR-24   
\*\*Description\*\*: The system allows the Administrator to modify settings of an installed Plugin and applies the changes to the Plugin's functionality.   
\*\*Input\*\*:   
- Plugin ID (string)   
- Updated settings (key-value pairs or configuration parameters)   
- Active Administrator session ID   
\*\*Output\*\*:   
- Updated Plugin configuration   
- Log entry for the configuration activity   
- Plugin reloaded or restarted   
  
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### \*\*1.25 Manage Product Category Function\*\*   
\*\*Function ID\*\*: FR-25   
\*\*Description\*\*: The system allows the Administrator to add, update, or delete a Product Category and updates associated Product records.   
\*\*Input\*\*:   
- Category name (string)   
- Description (string)   
- Action (Add, Update, Delete)   
- Active Administrator session ID   
\*\*Output\*\*:   
- Updated Product Category data entity   
- Updated Product records if category is changed or deleted   
- Log entry for the activity   
- Plugin configuration updated if necessary   
  
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### \*\*1.26 Manage Product Details Function\*\*   
\*\*Function ID\*\*: FR-26   
\*\*Description\*\*: The system allows the Administrator to modify product details such as name, price, description, or category, and updates the associated Product, Inventory, and Plugin data if required.   
\*\*Input\*\*:   
- Product ID (string)   
- Updated product details (name, price, description, category ID, etc.)   
- Active Administrator session ID   
\*\*Output\*\*:   
- Updated Product record in the Product data entity   
- Updated Inventory record if stock or availability is affected   
- Log entry for the activity   
- Plugin configuration updated if necessary