Business Logic Document: Inventory Management System

PROJECT PURPOSE AND GOALS

The Inventory Management System is developed to efficiently manage the stock, sales, and reporting of electronic products in a retail environment. The system aims to:

- Maintain accurate and up-to-date stock levels.

- Simplify product and sales tracking.

- Support role-based access and control.

- Enable administrators to manage users, inventory, and sales with clear visibility into operations.

- Provide intuitive navigation and analytics through a user-friendly dashboard.

USER ROLES AND ACCESS

1. Admin

- Full access to all modules and actions.

- Can manage users, assign roles, and configure inventory settings.

- Authorized to create, edit, delete:

  - Products

  - Categories

  - Brands

  - Users

- Can view sales reports, monitor low stock levels, and access dashboard analytics.

2. Moderator

- Can manage products, categories, brands, and view reports.

- Cannot access user management.

3. Sales Staff

- Can create sales and view product details.

- Cannot modify product information, inventory settings, or access user management.

PAGE AND MODULE FUNCTIONS

Dashboard

- Displays key analytics:

  - Total Products

  - Low Stock Alerts

  - Total Sales

  - Monthly Purchase & Sales Chart (ApexCharts)

  - Recently Added Products

- Quick links to commonly used features.

Product Management

- Admins/Moderators can:

  - Add, update, delete products.

  - Assign products to categories and brands.

- Product details include:

  - SKU, Name, Description

  - Price, Discount Price

  - Stock Quantity

  - Optional Image

  - Active/Inactive status

- Product listing supports pagination, sorting, and filtering.

- Recently added products are displayed in the dashboard.

Category and Brand Management

- Admins/Moderators can create, update, delete categories and brands.

- Categories classify products by type.

- Brands identify the product manufacturer.

- Each product is linked to one category and one brand.

Sales Module

- Sales Staff can:

  - Create new sales by selecting products and quantities.

  - View past sales details.

- System behavior:

  - Automatically decreases stock quantity for each sold product.

  - Prevents sales if requested quantity exceeds available stock.

  - Tracks each sale with:

    - Date and time

    - Product list

    - Quantities

    - Total price and discount

    - Payment method

    - Sale reference code

User Management (Admin Only)

- Admins can view all registered users, edit user info, and assign roles.

- Users can upload profile and cover images.

- Roles are assigned via Identity.

- A default role is assigned if none is provided.

Inventory Tracking

- Stock tracked for each product:

  - Increases on creation/restock

  - Decreases on sale

- Uses CreatedDate, UpdatedDate, IsDeleted, and IsActive flags.

- Out-of-stock products are marked and displayed accordingly.

- Dashboard displays low-stock alerts.

SYSTEM BEHAVIOR

- Products require category and brand assignment on creation.

- Image uploads are optional.

- Sales reduce stock and validate availability.

- Logical deletion via IsDeleted field.

- Audit trail with CreatedDate and UpdatedDate.

ADDITIONAL NOTES

- ApexCharts used for dashboard visualization.

- Sidebar dynamically highlights active controller/action.

- Interface includes Bootstrap, Font Awesome, and DataTables.

- All forms have server-side and optional client-side validation.