Practical-1

Aim: Project Definition and objective of the specified module and Perform Requirement Engineering Process.

Project Definition

Project Title: Retail Store Management System

Objective:

To develop a web-based retail store management system that automates store operations, including inventory management, sales transactions, customer relationship management, and order return management. The system will provide a user-friendly interface for store managers, employees and customers.

Specific Objectives

1. **Admin (Product Management):**
    - Insert, update and delete product details such as:
        - Product name, SKU (Stock Keeping Unit), category, price, and quantity.
        - Supplier information (name, contact details).
        - Reorder level (for low-stock alerts).
    - Manage employee accounts and permissions.
    - Configure system settings, including tax rates, discounts and low-stock thresholds.
2. **Inventory Management:**
    - Add, edit and delete product details.
    - Track stock levels and update quantities in real time.
    - Search for products by name, category or SKU.
    - Generate alerts for low stock levels and expiry of products.

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- **Generate Low-Stock Reports:**
  - Automatically generate a list of low-stock items for reordering
  - Include item details like SKU, name, current stock, and reorder level.

3. **Sales Management:**
   - Process sales transactions, including adding products to the cart, generating bills and accepting payments.
   - Maintain a record of daily sales and transaction history.
   - Track discounts, taxes and payment methods.
4. **Customer Management:**
   - Add, edit and delete customer details.
   - Track purchase history and preferences.
   - Implement loyalty programs to reward frequent customers.
5. **Order Return Management:**
   - **For Customers:**
     - Allow customers to initiate product returns through an online portal.
     - View return status updates.
   - **For Store Owners (Admin):**
     - Process and approve return requests.
     - Update inventory levels for returned products.
     - Generate reports to track return trends and reasons.
6. **Reports and Analytics:**
   - Generate real-time sales and inventory reports.
   - Analyze sales trends, profit/loss, and return patterns.
   - Generate downloadable low-stock reports for reordering.
7. **User Interface:**
   - Provide role-based dashboards:
     - **Admin Portal** for store owners and managers to manage the system.
     - **Employee Dashboard** for inventory and sales handling.
     - **Customer Portal** for purchase and return requests.
   - Implement secure login, password protection and role-based access control.

Requirement Engineering Process

1. **Requirement Gathering**

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- **Interviews:**
  - Ask store owners about the need for an **Admin Portal** mange products, employees and system settings.
  - Example: "How often do you update product details like prices or quantities?"
- **Questionnaires:**
  - Collect input form store managers about required admin functionalities (e.g., low-stock thresholds, adding new suppliers).
- **Observation:**
  - Observe manual methods for product insertion, updates, and data maintenance.

2. **Requirement Analysis**
   - **Functional Requirements:**
     - **Admin Portal:**
       - Add new product details (name, SKU, price, category, quantity and supplier details).
       - Edit or delete product information.
       - Manage reorder levels for low-stock alerts.
       - Add employee accounts with role-based access (Admin, Manager, Employee).
       - Configure system settings (tax, discounts rules, etc.).
   - **Non-Functional Requirements:**
     - **Performance:** Quick product insertion and update operations (<3 seconds).
     - **Usability:** Intuitive Admin Portal design for non-technical users.
     - **Security:** Admin access protected with secure login and role-based restrictions.
   - **User Interface Requirements:**
     - **Admin Portal:**
       - Forms to add/edit product details.
       - Dashboard to view product inventory summaries and low-stock alerts.
       - User management section to assign roles.
3. **Requirement Specification**

   Create and updated **Software Requirements Specification (SRS)** document, including:
   - **Introduction:** Purpose and scope of the Retail Store Management System.
   - **Overall Description:** Key modules, including the **Admin Portal** for product and employee management.

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- **Specific Requirements:**
  - Product insertion, updates, and deletions.
  - Role-based permissions (Admin, Employee, Customer).
  - Low-stock threshold configuration.
- **External Interface Requirements:** Integration with barcode scanners and supplier databases.

4. **Requirement Validation**
   - **Stakeholder Reviews:** Validate the Admin Portal features with store owners.
   - **Prototyping:**
     - Create a mockup of the Admin Portal showcasing product insertion and inventory management screens.
   - **Testing Scenarios:**
     - Test product addition, edits and deletions.
     - Verify low-stock alerts and stock-level updates.
5. **Requirement Management**
   - Track any changes to admin functionalities and product management workflows.
   - Use tools like **JIRA** or **Git** to manage changes.

Outcome:

The **Retail Store Management** System will include a comprehensive **Admin Portal** that enables store owners to:

1. Manage product data efficiently (insert, update and delete).
2. Configure low-stock thresholds and receive timely notifications.
3. Manage employee roles and permissions.

This addition ensures better control over inventory, streamlined operations and improved productivity.

By performing all the above steps, the **Retail Store Management System** will automate key store operations, optimize inventory management and improve customer service, resulting in greater efficiency and profitability for retail businesses.

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