

Software Requirements Specification (SRS) Document

for

SupraMart - Digital Supermarket Management System

Version: 1.0

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1. Introduction

1.1 Purpose

The purpose of this document is to outline the software requirements for SupraMart, a Digital Supermarket Management System designed to efficiently manage supermarket operations. This system aims to streamline sales processing, inventory management, user role administration and reporting functionalities. SupraMart will support multiple stakeholders, including Admins, Cashiers, Inventory Managers and Auditors, by providing role-specific interfaces and tools that automate routine tasks and enhance operational accuracy.

1.2 Scope

SupraMart is a Digital Supermarket Management System designed for desktop usage in medium to large retail outlets. The system supports barcode-based item scanning, real-time billing, inventory monitoring, user role management and audit reporting. Core functionalities include cart operations, stock alerts, role-based access control, and the ability to export reports. Additionally, the system provides database backup and restore features to ensure data security and continuity.

1.3 Intended Audience

- System Developers
- Quality Assurance Engineers
- Project Managers
- End Users (Admin, Cashier, Inventory Manager, Auditor)

1.4 Definitions and Acronyms

- **DSMS:** Digital Supermarket Management System
- **POS:** Point of Sale
- **CRUD:** Create, Read, Update, Delete
- **GUI:** Graphical User Interface

2. Overall Description

2.1 Product Perspective

This system aims to replace traditional paper-based workflows and disjointed software tools with a centralized desktop application. It will be developed using Java (Swing/JavaFX) and connected to a MySQL database. The application will follow a layered architecture and feature modular, role-specific interfaces to ensure scalability, maintainability, and ease of use.

2.2 Product Functions

- Billing System for Cashiers
- Inventory Management for Managers
- User and Role Management for Admins
- Reporting for Auditors and Admins
- Backup & Restore features for Admins
- Multi-user login with role-specific dashboards

2.3 User Classes and Characteristics

- **Admin:** Manages users, roles, backup/restore
- **Cashier:** Performs billing, applies discounts, handles returns, processing payments, scanning barcodes
- **Inventory Manager:** Manages products, stock levels, expiries
- **Auditor:** Views and exports sales/inventory reports

2.4 Operating Environment

- Java SE 8+
- MySQL 8+
- OS: Windows
- IDE: NetBeans

2.5 Design and Implementation Constraints

- Desktop-based application
- Relational database (MySQL)
- No internet dependency (offline support)

2.6 User Documentation

- User Manual
- Installation Guide

2.7 Assumptions and Dependencies

- Users are trained in basic computer operations
- Barcode scanners and printers are available at POS
- Database connection is stable

3. Functional Requirements

3.1 Login Module

- FR1: System shall allow login for Admin, Cashier, Auditor, and Inventory Manager

- FR2: Login must be secured and password-protected

3.2 Dashboard

- FR3: Role-based dashboard should load upon successful login

3.3 Billing (Cashier)

- FR4: Scan product using barcode scanner to fetch product details
- FR5: Add, remove, or edit items in the cart
- FR6: Apply discounts either manually or using a code
- FR7: Select and process payment via cash or card
- FR8: Print receipt after successful transaction
- FR9: Handle product returns and exchanges with reason logging

3.4 Inventory Management

- FR10: Add new products with barcode, name, price, quantity, and expiry date
- FR11: Edit or delete product details
- FR12: Track and highlight low stock items
- FR13: Set and monitor reorder levels per product
- FR14: Alert and manage expired or soon-to-expire products

3.5 User Management (Admin)

- FR15: Create, edit, and delete user accounts
- FR16: Assign specific roles (Admin, Cashier, Auditor, Inventory Manager) and permissions

3.6 Backup & Restore (Admin)

- FR17: Manually trigger database backups or schedule automatic backups
- FR18: Restore system database from a selected backup file

3.7 Reporting (Auditor, Admin)

- FR19: Generate sales reports with filters (daily, weekly, monthly)
- FR20: Generate inventory reports showing stock levels and product details
- FR21: Export all reports to PDF and Excel formats
- FR22: View and compare multi-branch performance (if multi-branch module is implemented)

3.8 Customer Management

- FR23: Register customers to a loyalty or membership system
- FR24: Search, view, and manage registered customer profiles

4. Non-Functional Requirements

4.1 Performance

- NFR1: System must respond to user actions within 2 seconds
- NFR2: Must support at least 10 concurrent users and 100+ product scans without delay

4.2 Usability

- NFR3: The interface should be clean and intuitive, with tooltips and labels
- NFR4: Input fields should be validated with clear error messages

4.3 Reliability

- NFR5: Daily automatic backups should be maintained to avoid data loss
- NFR6: System should handle recovery gracefully during failure scenarios

4.4 Security

- NFR7: All passwords must be stored using encryption
- NFR8: Role-based access control should restrict module visibility and functions

4.5 Maintainability

- NFR9: System should be designed in a modular fashion to allow easy updates or feature additions

5. External Interface Requirements

5.1 Hardware Interfaces

- Barcode Scanner
- Receipt Printer

5.2 Software Interfaces

- Java Runtime Environment
- MySQL Connector (JDBC)

5.3 Communications Interfaces

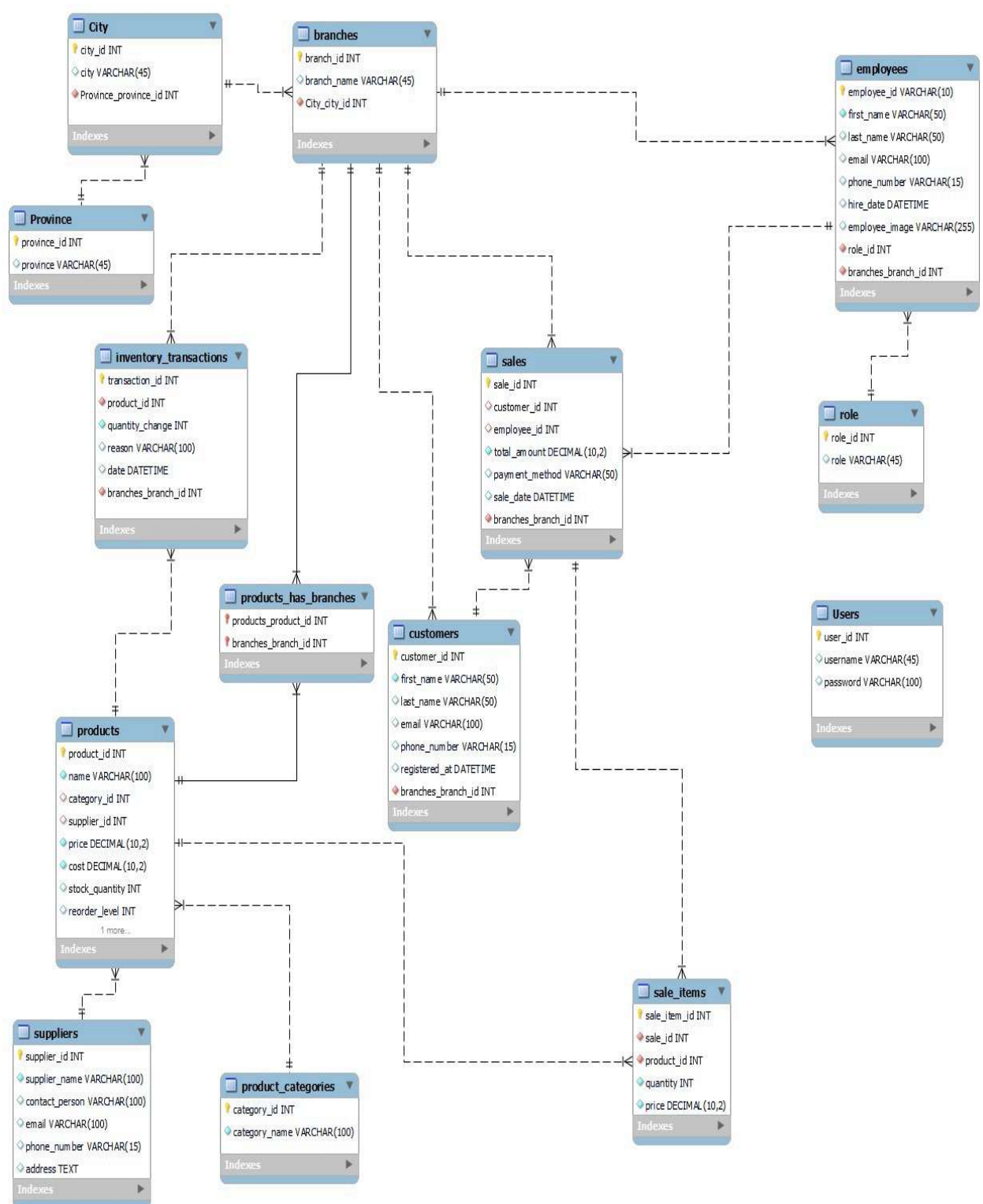
- Optional: Local area network for multi-PC setup

6. Other Requirements

- The system should support the integration of future modules such as supplier management, multi-branch synchronization, and potential e-commerce expansion.
- It should be designed with scalability in mind to accommodate additional features like customer loyalty programs, promotional campaign handling and real-time analytics.

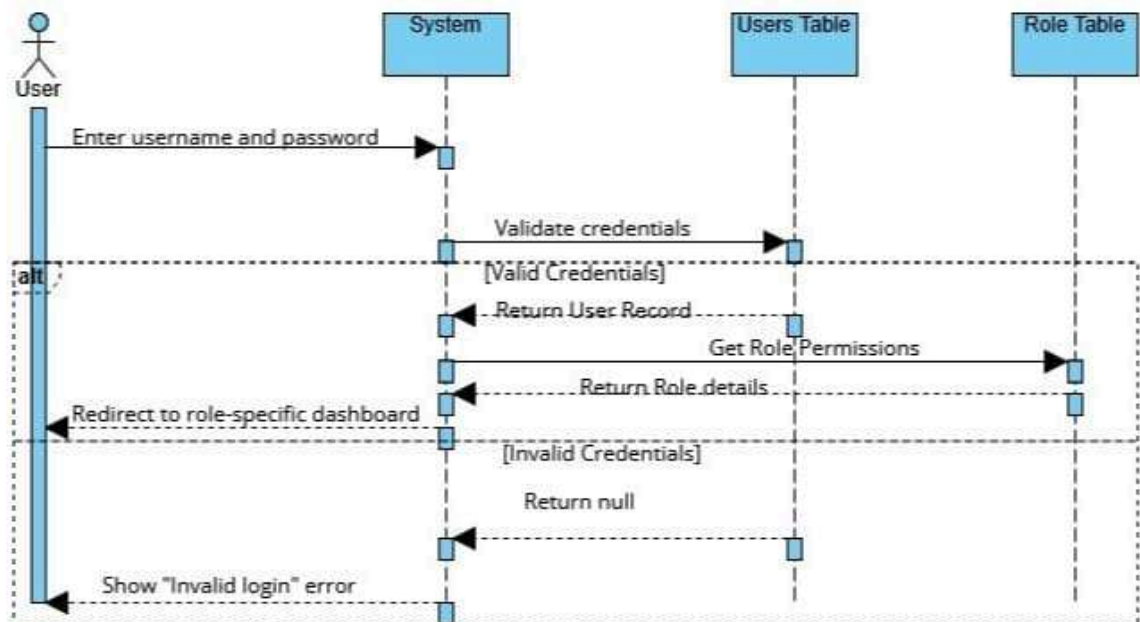
7. Appendix

- ER Diagram

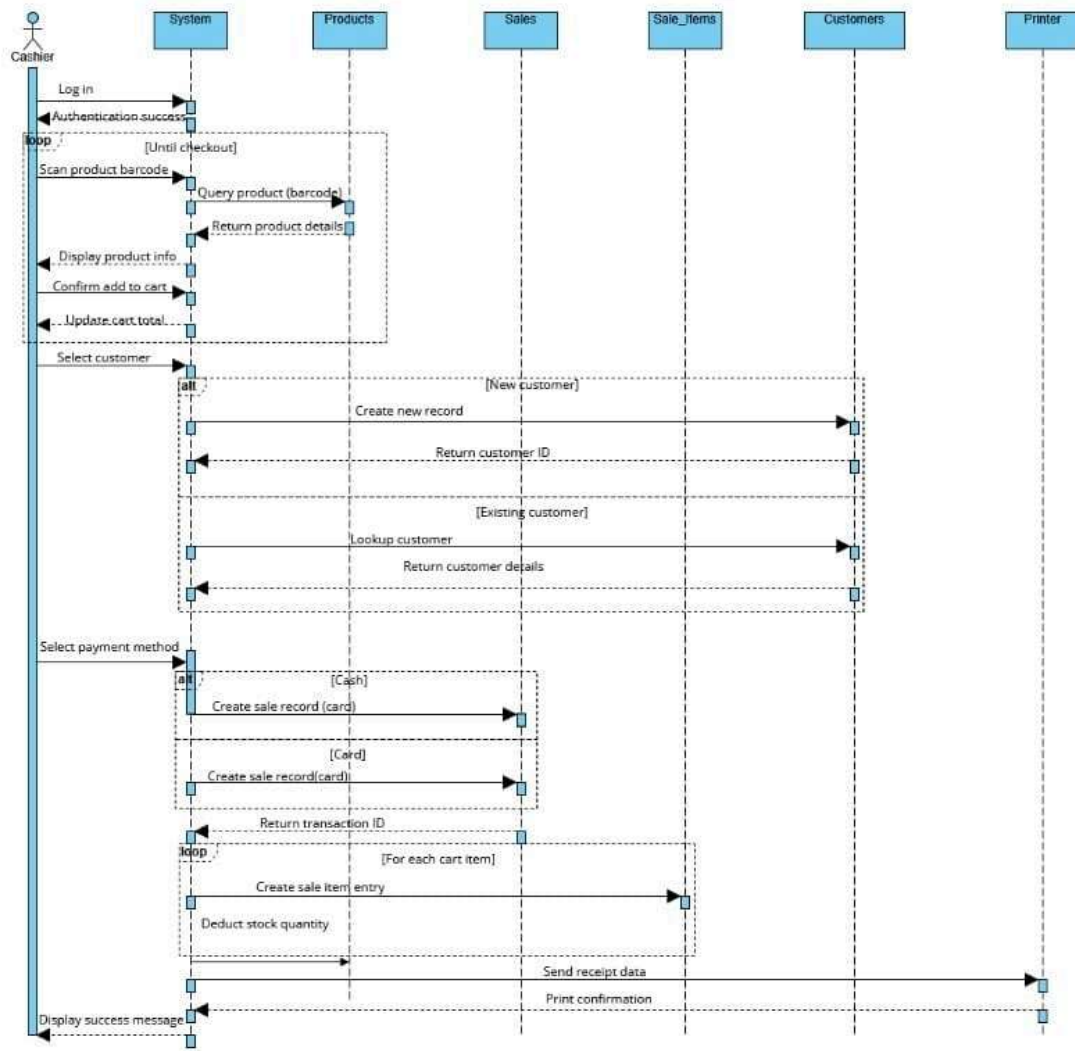


- Sequence Diagrams

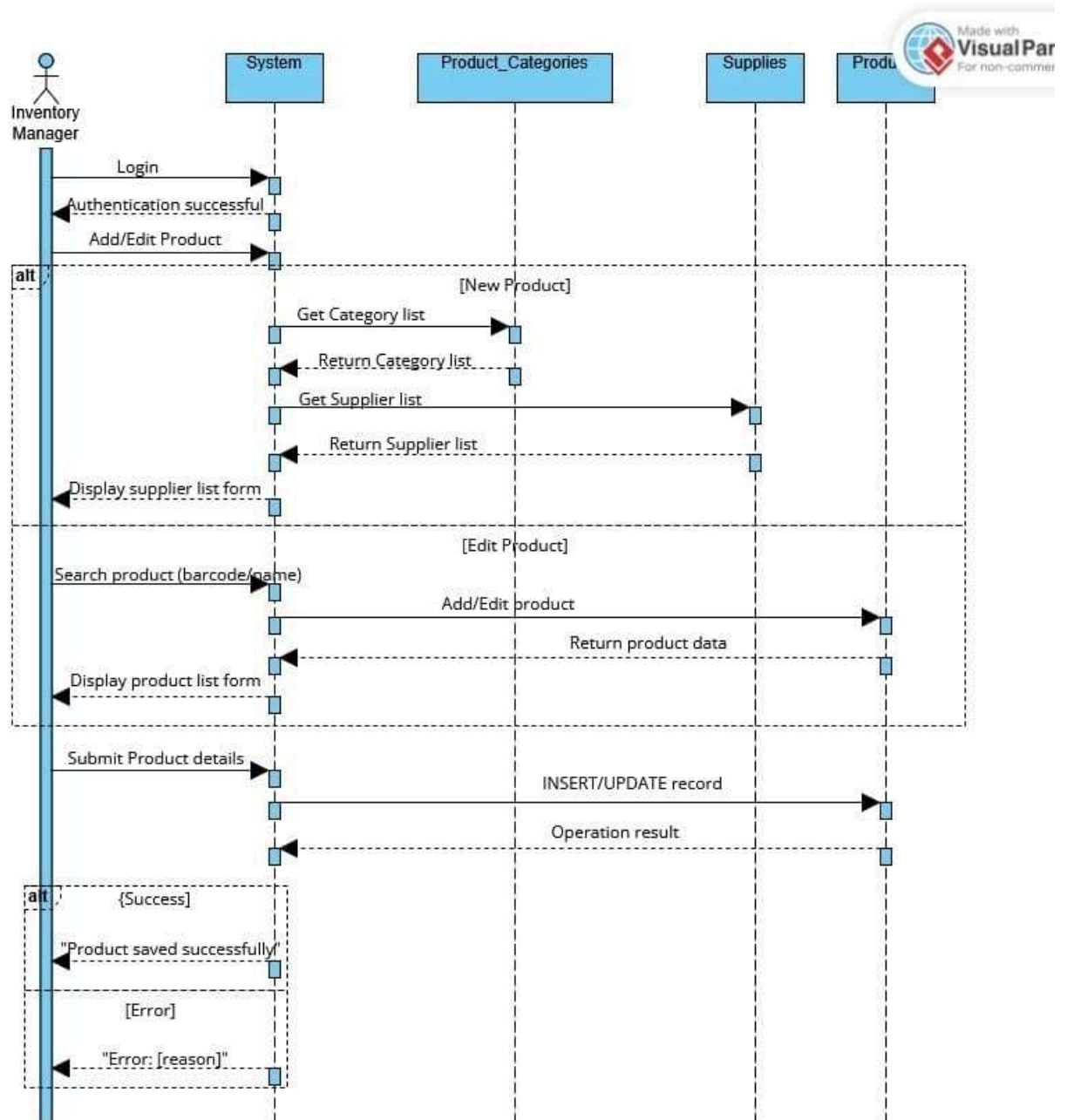
Login and Role Authentication



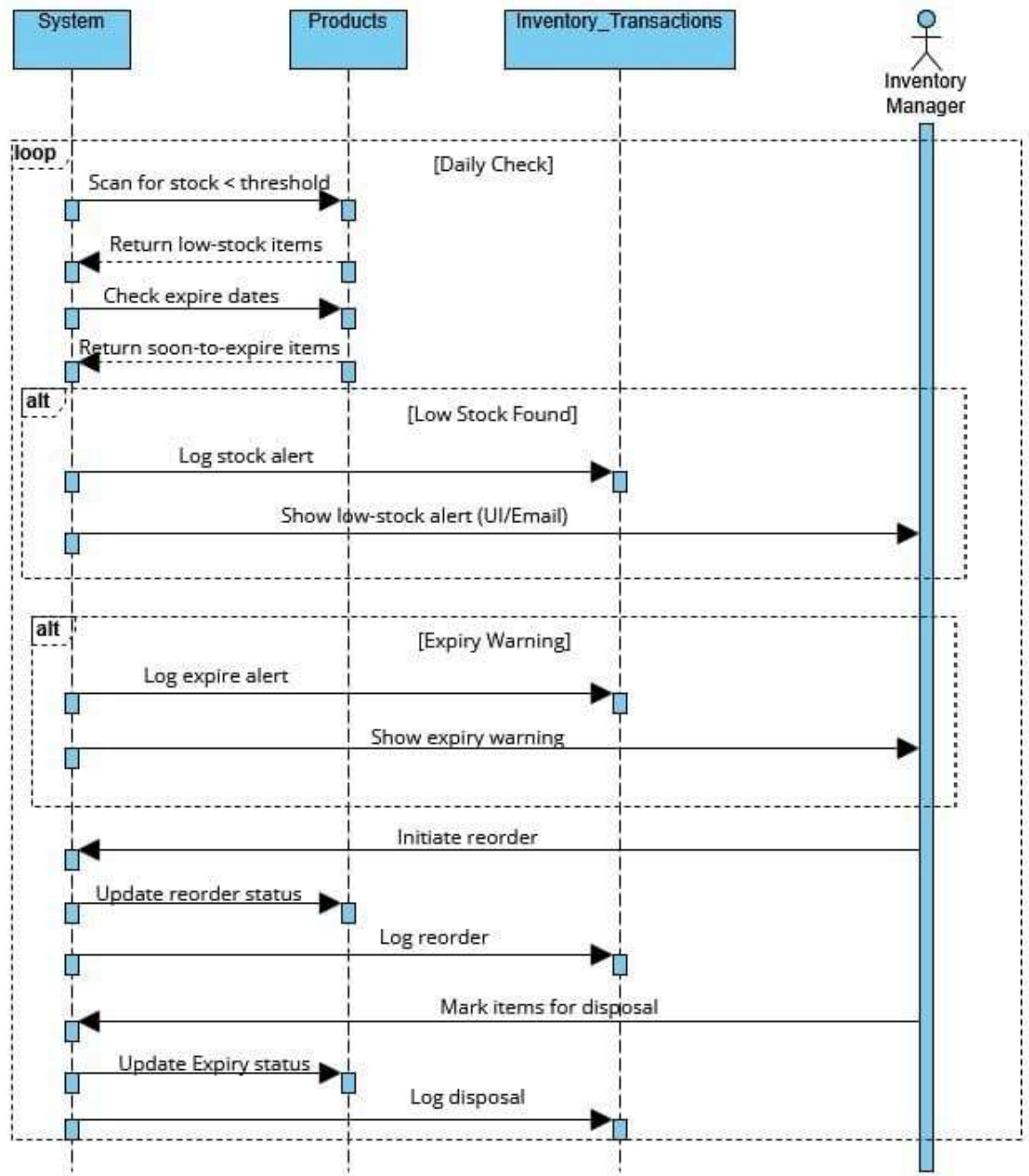
Billing & Checkout Process



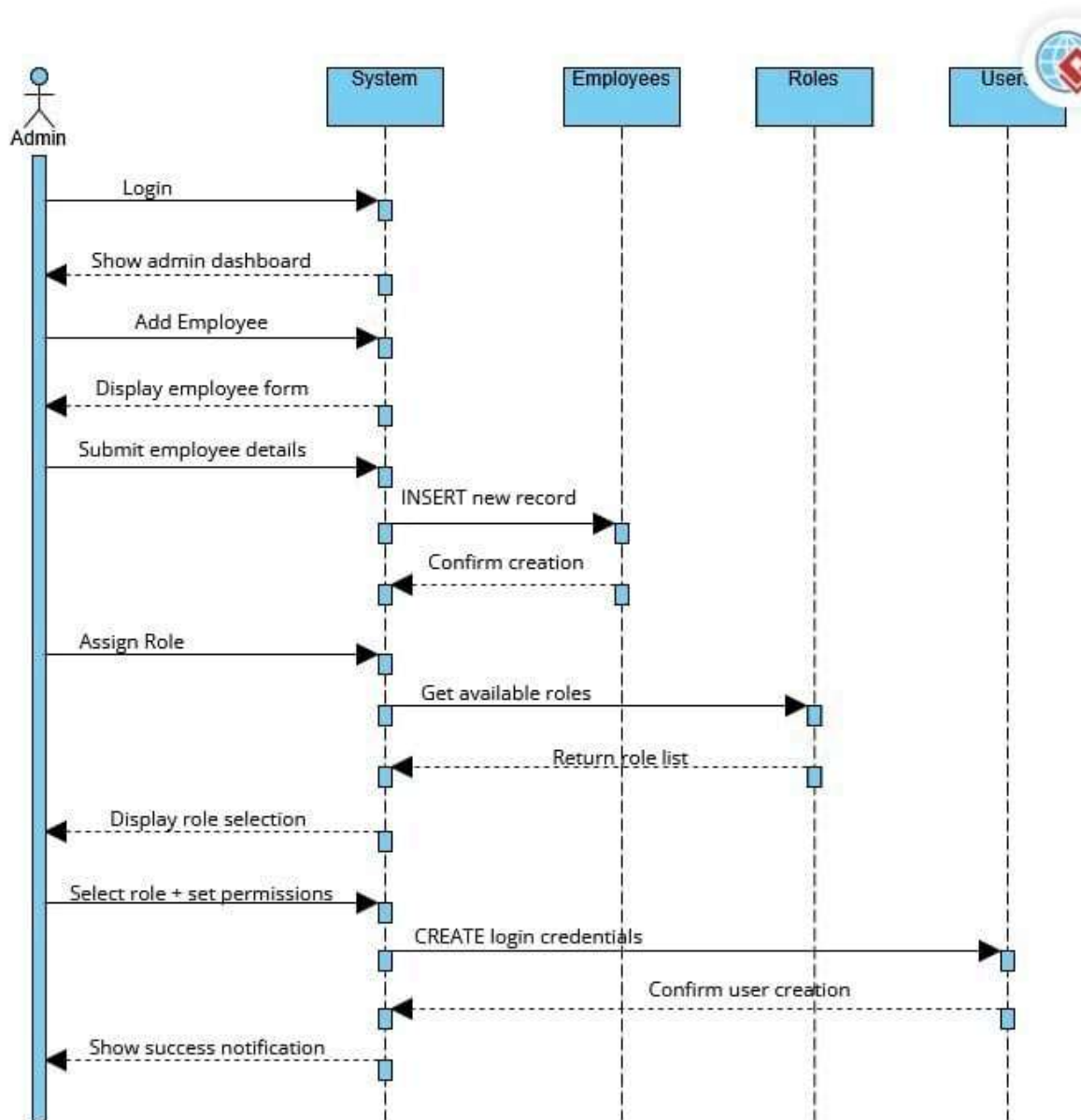
Inventory Management



Stock Reorder / Expiry Management



User and Role Management



Generate Reports

