Software Requirements Specification (SRS) Template

Project: Perishables Management System (Retail Stores)
Version: 1.0
Authors: Rithvik Matta, Rishi Sheth, Rishil Abhijit, Rohan Jogi
(PES2UG23CS485, PES2UG23CS479, PES2UG23CS482, PES2UG23CS489)
Date: 4-09-2025
Status: Model Answer

Revision history

Version	Date	Author	Change summary	Approval
1.0	18-08-2025	Instructor	SRS with diagrams embedded	

Approvals

Role	Name	Signature / Email	Date
Course Coordinator			

Table of Contents

1. Introduction

1.1 Purpose

This document defines the requirements for a Perishables Management System designed for retail stores. The system helps in tracking, managing, and optimizing perishable goods such as fruits, vegetables, dairy, and other fresh items. It reduces wastage, improves stock management, and provides real-time insights to store managers.

1.2 Scope

The system covers inventory management of perishables, expiry tracking and notifications, automatic discounting for near-expiry products, supplier and purchase management, integration with POS systems, and analytics/reporting on wastage and sales. Non-perishable management and core POS implementation are excluded.

1.3 Audience

Developers, QA Engineers, Retail Store Managers & Staff, System Administrators.

1.4 Definitions

POS – Point of Sale
SKU – Stock Keeping Unit
FIFO – First In, First Out

2. Overall description

2.1 Product perspective

The Perishables Management System is a mobile & web-based application that integrates with retail store POS systems. It provides real-time tracking of perishable items using barcode/QR scans, supplier inputs, and expiry logging.

2.2 Major product functions (detailed)

- Add & update stock with expiry dates
- Generate alerts before expiry
- Track wastage & generate reports
- Suggest reorders based on sales & consumption patterns
- Apply discounts automatically to near-expiry items
- Provide analytics dashboards

2.3 User roles and characteristics (expanded)

Store Manager, Staff, Admin, Supplier (optional).

2.4 Operating environment

Web dashboard, Backend on cloud (Firebase/MySQL), Integration with barcode scanners and POS.

2.5 Constraints

Real-time data sync required, must support multi-store operations, regulatory compliance with food safety & storage logs.

3. External interface requirements

3.1 User interfaces

Web Dashboard for staff and managers, Notifications for expiry alerts.

3.2 Hardware interfaces

Barcode/QR Scanners, POS systems.

3.3 Software interfaces

Database (Firebase/MySQL), APIs for POS & suppliers.

3.4 Communications

Secure HTTPS (TLS 1.2+), push notifications via FCM.

4. System features (detailed)

4.1 Inventory Management

Req ID	Requirement	Type	Priority	Source/Stakeholder	Acceptance criteria / Test case ref	Comments / Dependencies
PMS-F-001	System shall allow adding stock with expiry dates.	Functional	High	Store Staff	TC-Inv-01: Add stock with expiry	Requires POS/Barcode Scanner

Req ID	Requirement (shall...)	Type	Priority	Source/Stakeholder	Acceptance criteria / Test case ref	Comments / Dependencies
					logs successfully.	
PMS-F-002	System shall reduce inventory automatically after sales (POS integration).	Functional	High	POS System	TC-Inv-02: Sale reduces stock count.	POS integration mandatory
PMS-F-003	System shall allow stock adjustments (returns/damages).	Functional	MedHighium	Store Staff	TC-Inv-03: Adjustments reflect in reports.	Depends on staff input

4.2 Expiry Tracking & Alerts

Req ID	Requirement (shall...)	Type	Priority	Source/Stakeholder	Acceptance criteria / Test case ref	Comments / Dependencies
PMS-F-004	System shall send notifications 2 days before expiry.	Functional	High	Store Manager	TC-Alert-01: Notification sent for items expiring in ≤2 days.	Requires notification service
PMS-F-005	System shall list near-expiry items for manager review.	Functional	High	Manager	TC-Alert-02: Expiry list displayed correctly.	-
PMS-F-006	System shall auto-discount near-expiry items.	Functional	Medium	Business Rules	TC-Alert-03: Discounts applied automatically.	Configurable policy

4.3 Reordering & Supplier Management

Req ID	Requirement	Type	Priority	Source/ Stakehol der	Acceptan ce Criteria / Test Case Re	Comments / Dependencies
PMS-F -007	System shall generate reorder suggestions based on sales.	Functional	High	Store Manager	TC-Reord er-01: System generates reorder alert.	Requires sales data
PMS-F -008	System shall allow managers to send purchase requests to suppliers.	Functional	High	Store Manager	TC-Reord er-02: Supplier request generated .	Supplier contact info required
PMS-F -009	System shall store supplier details (contact, items supplied).	Functional	Medium	Admin	TC-Reord er-03: Supplier info retrievabl e.	—

4.4 Reporting & Analytics

Req ID	Requirement	Type	Priority	Source/ Stakehol der	Acceptan ce Criteria / Test Case Ref	Comments / Dependencie s
PMS-F- 010	System shall provide reports on wastage and discarded stock.	Functional	High	Store Manager	TC-Repor t-01: Wastage reports match manual logs.	—
PMS-F- 011	System shall generate monthly sales	Functional	Medium	Manager	TC-Repor t-02: Report	Sales log required

| | vs wastage reports. | | | | accuracy ±2%. | |
| PMS-F-012 | System shall track shelf life averages for each product type. | Functional | Medium | Admin | TC-Report-03: Shelf life analysis correct. | Requires historical data |

4.5 Security & Access Control

Req ID	Requirement	Type	Priority	Source/ Stakeholder	Acceptance Criteria / Test Case Ref	Comments / Dependencies
PMS-F-013	System shall support role-based access (manager, staff, admin).	Functional	High	Security	TC-Sec-01: Roles restrict access properly.	—
PMS-F-014	System shall maintain audit logs of stock updates.	Functional	High	Admin	TC-Sec-02: Logs show user actions.	Logs must be immutable
PMS-F-015	System shall require authentication before usage.	Functional	High	Security	TC-Sec-03: Only valid login grants access.	—

5. Non-functional requirements (detailed)

Req ID	Requirement	Category	Priority	Acceptance criteria / Measurement
PMS-NF-001	Response time ≤ 2s for inventory updates.	Performance	High	Measured under test load: ≤2s

PMS-NF-002	99.9% uptime availability monthly.	Reliability	High	Monthly uptime logs show ≥99.9%
PMS-NF-003	Encrypt all sensitive data (AES-256).	Security	High	Security audit confirms encryption
PMS-NF-004	Scale to handle 10,000+ SKUs.	Scalability	Medium	Load test with 10k SKUs passes
PMS-NF-005	Provide intuitive UI accessible by non-technical staff.	Usability	Medium	User testing feedback ≥85% positive

5.1. Security

5.1.1 Security Objectives

Protect perishable stock data against unauthorized access.

Ensure integrity of expiry logs and prevent manipulation.

5.1.2 Security Requirements

Req ID	Requirement (shall...)	Type	Priority	Acceptance criteria / Test case ref
PMS-SR -001	All network communication shall use TLS 1.2+.	Security	High	TC-Sec-01: Verify HTTPS enforced on all endpoints.
PMS-SR -002	All user accounts shall require password authentication.	Security	High	TC-Sec-02: Login requires valid credentials.
PMS-SR -003	Role-based access control shall be enforced.	Security	High	TC-Sec-03: Users restricted to assigned roles.
PMS-SR -004	Audit logs shall be tamper-proof and stored securely.	Security	High	TC-Sec-04: Logs cannot be altered/deleted without admin rights.

5PMS-SR-001	Database shall be encrypted at rest.	Security	High	TC-Sec-05: Security audit confirms AES-256 encryption at rest.

6. Quality attributes & Acceptance tests
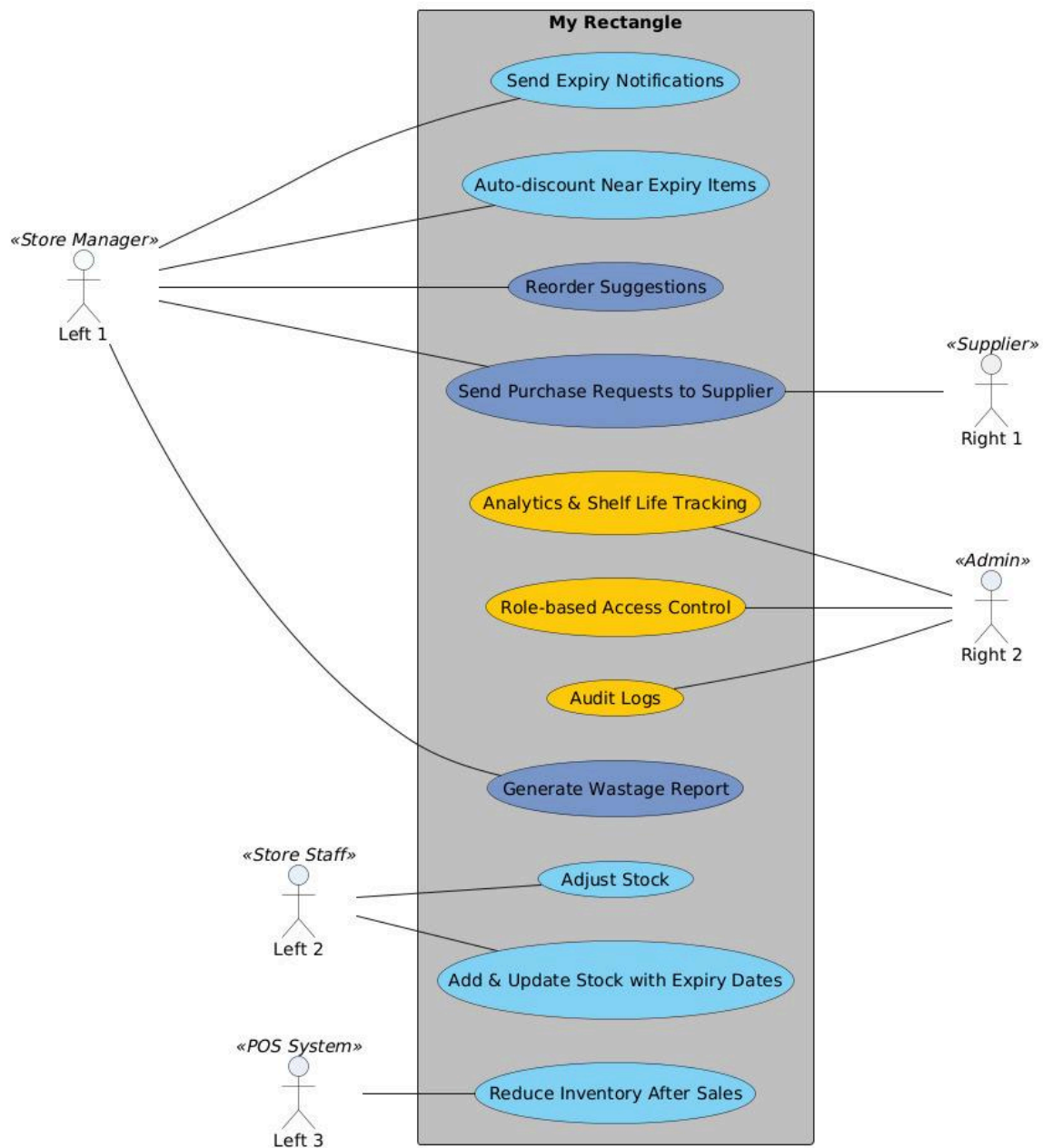
All high-priority requirements must be implemented & tested.
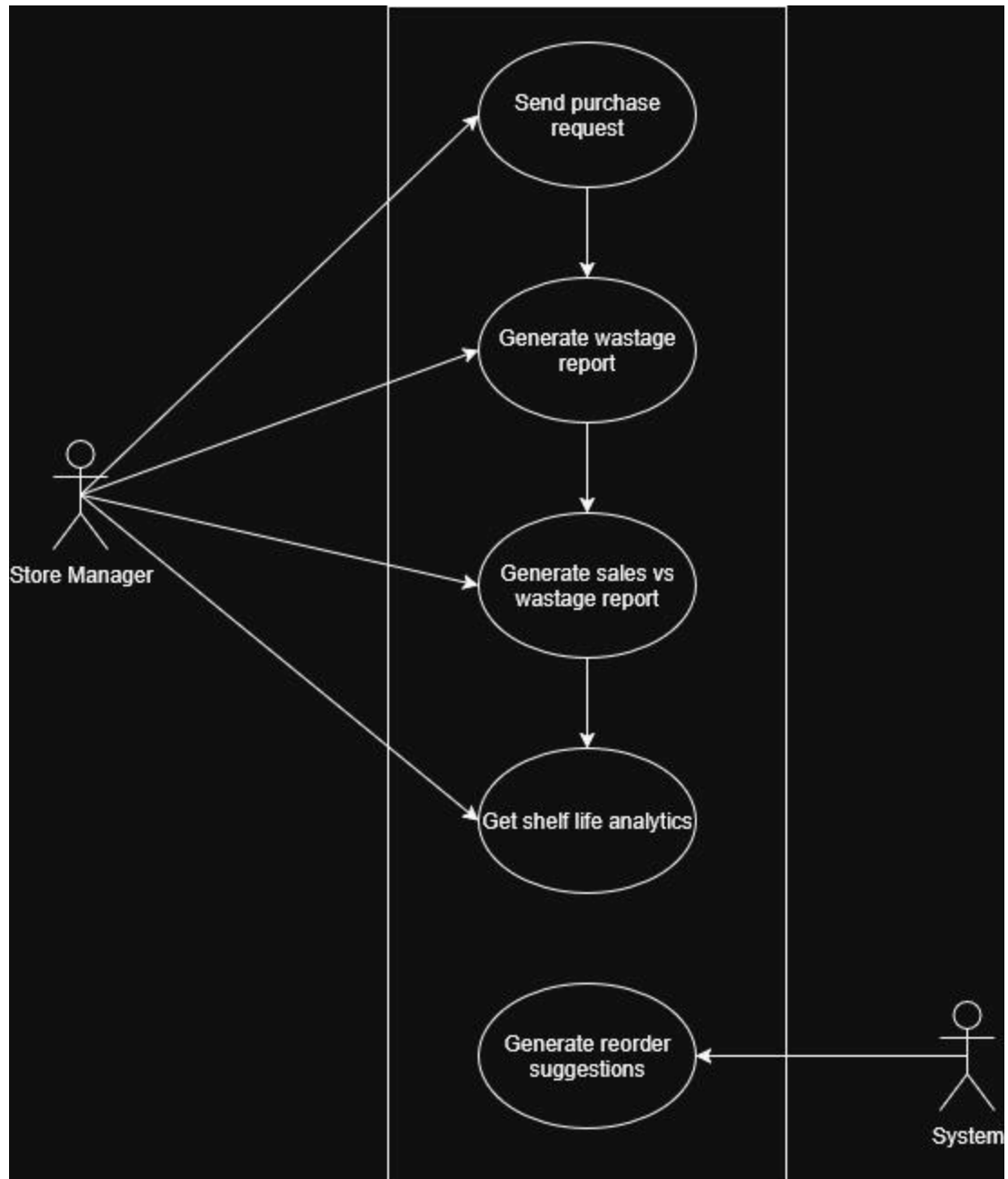Expiry notifications accuracy ≥ 95%.
Wastage reports match manual counts (tolerance ±2%).
System passes security audits for authentication & encryption.

7. System models and diagrams

7.1 UML Use-Case diagram

8. Requirements Traceability Matrix (RTM)

Req ID	Requirement short	Section ref / Design Spec	Module	Test case(s)	Status (N/P/A)

PMS-F-0 01	Add stock with expiry	4.1	Inventory	TC-Inv-0 1	N
PMS-F-0 04	Send expiry alerts	4.2	Alerts	TC-Alert- 01	N
PMS-F-0 10	Wastage report	4.4	Reportin g	TC-Rep- 01	N
PMS-NF -001	Respons e time ≤ 2s	5	Backend	TC-Perf- 01	N
PMS-SR -001	TLS 1.2+ enforced	5.1	Security	TC-Sec- 01	N