SOFTWARE REQUIREMENTS SPECIFICATION

For

Rice Retail Inventory Management and POS System

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1. Introduction

The *Rice Retail Inventory Management and POS System* is designed to help rice sellers efficiently manage their inventory, sales, and customer transactions through a digital platform. It automates tasks such as stock monitoring, product listing, and order processing while ensuring accuracy in weighing and compliance with tax regulations. The system also allows buyers to browse products, place orders, and choose pickup or delivery options. Overall, it improves efficiency, reduces manual errors, and connects rice retailers and customers through a convenient and reliable online marketplace.

1.1 Purpose

The Rice POS System is a web-based platform designed to streamline the buying and selling of rice in local markets. It enables buyers to browse, add to cart, and place orders; sellers to manage store information, list rice products, and fulfill orders; and administrators to monitor all transactions and maintain system integrity.

1.2 Intended Audience

The primary users of the *Rice Retail Inventory Management and POS System* are rice store owners, store staff or cashiers, and regular customers. Store owners and staff use the system to manage inventory, record sales, and process customer transactions efficiently. Meanwhile, customers benefit from a more convenient shopping experience, allowing them to browse rice products, place orders, and receive accurate order updates through the platform.

1.3 Product Scope

The system provides:

- User authentication (login, signup, logout)
- Product catalog with image upload
- Shopping cart and order placement with delivery/pickup options
- Order tracking (pending → completed)
- Seller store management
- Admin oversight (view/delete products, view completed sales)

Boundaries: Does not include payment processing, real-time chat, or multi-currency support.

1.4 Definitions, Acronyms, and Abbreviations

Term	Definition
POS	Point of Sale
SPA	Single Page Application
CRUD	Create, Read, Update, Delete
API	Application Programming Interface
JSON	JavaScript Object Notation
25kg	Standard rice sack size used in pricing

2. Overall Description

2.1 User Characteristics

• Buyers (Customers): Can browse/search rice products, add to cart, choose pickup or delivery, and track orders. Basic computer or mobile device knowledge required.

• Sellers (Store Owners): Can register/login, create store profiles, add/manage products, configure fulfillment options (Pickup Only or Delivery), confirm orders, and update order statuses. Requires moderate knowledge of online selling platforms.

• System Administrator (Optional Role): Manages platform-wide settings, ensures system reliability, and supports both buyers and sellers.

2.2 Constraints

• Must comply with local taxation and digital receipt issuance laws.

• POS should work in both online and offline modes for sellers.

• System must support integration with barcode scanners, weighing scales, and receipt printers (for sellers with physical stores).

• Data precision requirement: weights up to three decimal places.

• Must run on modern web browsers and mobile devices (Android/iOS).

2.3 Assumptions and Dependencies

• Rice is sold in both packaged form (bags of varying sizes) and by weight.

• Barcodes can be pre-printed or generated by the system.

• The system operates in a single base currency.

• Internet connectivity may not always be available; sellers must have offline POS functionality with automatic sync.

• Delivery availability depends on the seller's store settings (Pickup Only or Pickup + Delivery).

• External accounting system integration may be required for advanced reporting.

3. Specific Requirements

User Requirements

Buyers (Customers)

• Create an account and log in securely.

• Browse/search rice products across different sellers.

• Add products to the cart and proceed to checkout.

• Choose order fulfillment option: Pickup or Delivery (if available).

• Make payments through multiple methods (cash on delivery, card, e-wallets).

• Track order status until completion.

Sellers (Store Owners)

• Register/Login as sellers.

• Create a store profile (business name, address, contact info).

• Add/manage rice products (type, grade, packaging, price).

• Choose fulfillment capability: Pickup Only or Pickup + Delivery.

• Receive and confirm orders from buyers.

• Update order status (Pending → Preparing → Ready for Pickup / Out for Delivery → Completed).

• View sales history and track completed transactions.

3.1 Functional Requirements

3.1.1 Authentication & User Management

User Signup: The system shall allow a new user to create an account by providing a unique username, a valid email, and a password. The user must select a role (Buyer or Seller). The system shall validate that the password and confirm password fields match.

User Login: The system shall allow registered users (Buyers, Sellers, Admins) to log in using their username/email and password. The system shall redirect the user to their respective dashboard upon successful authentication.

Password Visibility Toggle: The system shall provide an icon on password fields to allow users to toggle the visibility of the password characters.

User Logout: The system shall allow a logged-in user to log out, which will terminate their session and redirect them to the public landing page.

3.1.2 Buyer Functions

View Products: A buyer shall be able to view a grid of all available rice products from all sellers. Each product card shall display its image, name, price, and the seller's name.

View Product Details: A buyer shall be able to click on a product to view a detailed modal containing more information, including the seller's full store details and product description.

Add to Cart: A buyer shall be able to add products to a shopping cart.

View and Manage Cart: A buyer shall be able to view the contents of their cart, see the total price, and remove items from the cart.

Place Order: A buyer shall be able to check out from their cart by providing a delivery address (City and Purok). Upon checkout, a new order with a 'pending' status shall be created.

View Order History: A buyer shall have a dedicated section on their dashboard to view their pending orders and their order history (completed and cancelled orders). Order & Fulfillment Management

3.1.3 Seller Functions

Manage Store Information: A seller shall be able to add and update their store information, including Store Name, Owner Name, Contact Number, Email, and a short description.

Add New Product: A seller shall be able to add a new rice product to their inventory by providing a name, price (per 25kg and per kilo), description, delivery/pickup option, and an image.

View Own Products: A seller shall be able to see a list of all the products they have added to the system.

View and Process Orders: A seller's dashboard shall display a list of pending orders containing their products. The seller shall be able to mark a pending order as "Done" (completed).

View Completed Orders: A seller shall be able to view a history of their fulfilled/completed orders.

3.1.4 Administrator Functions

View All Stores: An administrator shall be able to view a list of all registered seller stores and their information.

View All Products: An administrator shall be able to view all products listed on the platform from all sellers.

Delete Products: An administrator shall have the ability to remove any product from the system.

View All Completed Orders: An administrator shall be able to view a comprehensive history of all completed orders across the entire system.

3.2 Non-functional Requirements

Performance: Page load time ≤ 2 seconds on 3G

Reliability: System uptime ≥ 99%

Security: Passwords must be hashed using password_hash() in production

Usability: Intuitive UI with modals, responsive on mobile (≥320px)

Scalability: Support up to 100 concurrent users

Maintainability: Code is modular, commented, and follows naming conventions

File Security: Validate image type (JPG/PNG/GIF), size ≤ 5MB

Data Integrity: Use transactions for order placement

3.3 External Interface Requirements

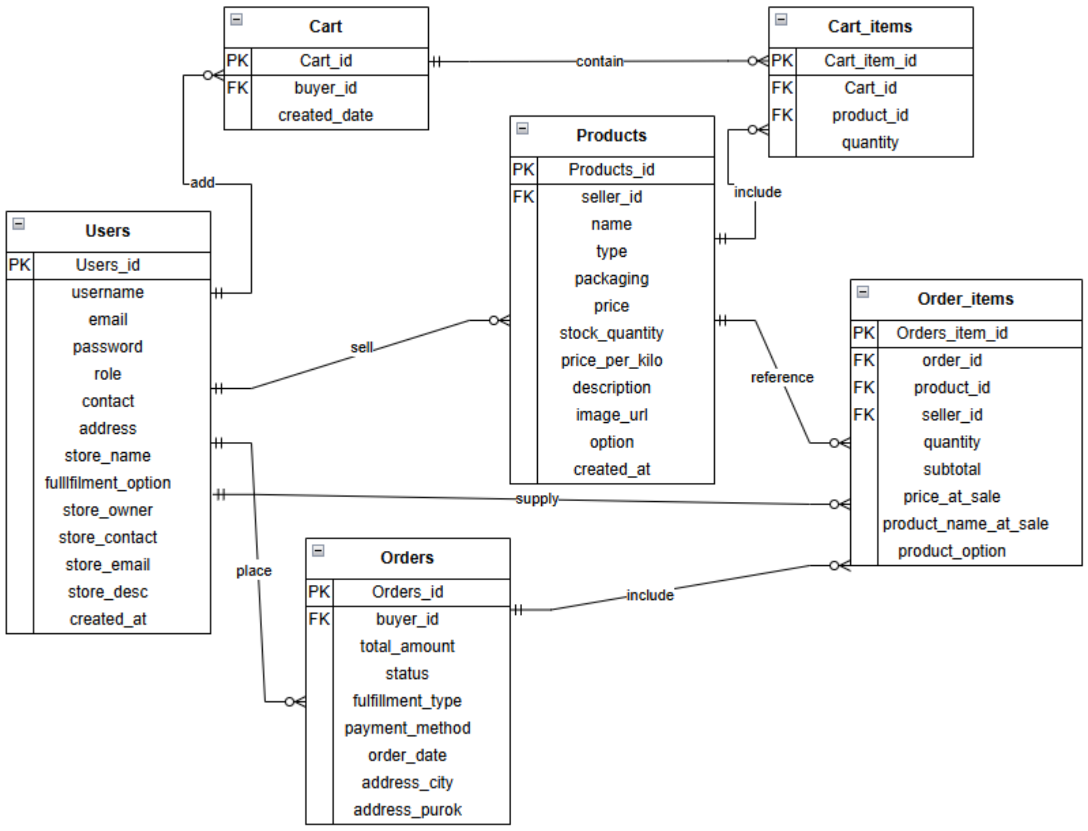
User Interface: The application presents a graphical user interface (GUI) through a web browser. The design is clean, modern, and utilizes a consistent color scheme.

Software Interface: The frontend communicates with the backend via a RESTful API built in PHP. Data is exchanged in JSON format. The backend interfaces with a MySQL database to persist data.

Hardware Interface: The system requires no specialized hardware. It is accessible on any device with a modern web browser and internet connectivity, including desktops, laptops, tablets, and smartphones.

3.4 System Models

3.5 Database Design



3.6 Implementation

Frontend: The client-side is built with standard HTML, CSS, and JavaScript. The code is structured into modular JavaScript files (api.js, auth.js, buyer.js, etc.) to separate concerns and improve maintainability. Asynchronous communication with the backend is handled via the fetch API.

Backend: The server-side API is built with PHP. It follows a modular approach where each endpoint (e.g., login.php, product_add.php) is a separate file responsible for a single action. The backend is stateless and communicates exclusively through JSON.

Database: A MySQL relational database is used for all data persistence. The schema is normalized to ensure data integrity.

Architecture: The system follows a classic Client-Server architecture. The browser (client) makes requests to the PHP backend (server), which then processes the request, interacts with the MySQL database, and returns a JSON response.

Tools: VS Code, phpMyAdmin, Browser DevTools.