**RIMS: RESTAURANT INVENTORY**

**MANAGEMENT SYSTEM**

**A SYSTEM TITLE PROPOSAL**

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# System Description

RIMS is a specialized, cloud-based information system designed to automate and optimize the inventory management processes for small to medium-sized restaurants. Its authorization boundary encompasses the cloud infrastructure, web-based client applications, and the users who interact with it. The system's primary purpose is to replace error-prone, manual inventory tracking methods (like spreadsheets or paper logs) with an intelligent, data-driven platform. It aims to prevent stock-outs and overstocking, reduce food waste, control costs, and provide actionable insights for better purchasing decisions. The software component for this will be a web application accessible via browsers, built with a modern framework for the front-end and a secure cloud-based server and database for the back-end. The system's database will store essential data entities, including Users, Suppliers, Inventory Items (with details like name, category, unit of measure, cost, and shelf life), Purchase Orders, and Stock Levels.

The system accepts inputs such as new inventory deliveries, manual stock level adjustments, and sales data (which can be integrated via a POS system or entered manually to reflect ingredient usage). It can track Stock in Real-Time Deduct used ingredients based on sales. Calculate key metrics by automatically determine reorder points, safety stock levels, and inventory turnover rates. And would generate alerts, flag items that are running low or nearing their expiration date. Analyze trends, where it identifies waste patterns and suggest optimal order quantities.

# System Scope and Limitations

The scope of the Restaurant Inventory Management System (RIMS) is specifically defined to create a focused and manageable cloud-based solution for small to medium-sized restaurants. The system will encompass core inventory control functionalities, including user management with role-based access, a centralized digital inventory catalog for tracking items, costs, and expiry dates, and real-time stock level monitoring with automated low-stock alerts. It will also feature a replenishment management module for generating and tracking purchase orders, a supplier information directory, and a reporting dashboard for analyzing inventory valuation, waste, and usage trends. Importantly, the project's boundaries explicitly exclude the development of a fully integrated Point-of-Sale (POS) system, accounting or payroll modules, customer relationship management tools, and reservation management features. The initial version will also forgo advanced AI-driven predictive ordering, relying instead on foundational, rule-based calculations for reordering to ensure a viable and deployable first release.

The capabilities and performance of RIMS are subject to several inherent limitations. Technologically, the system's functionality is entirely dependent on a stable internet connection, as it is a cloud-based application with no offline mode. The accuracy of its core features, such as waste tracking and stock deduction, is contingent upon the consistent and correct manual entry of sales data by restaurant staff, which introduces a potential point of error. Furthermore, being a web application, it may not match the performance or system-level integration of a native desktop application. It is also specifically designed for the scale of small to medium enterprises and may not be suitable for large restaurant chains without significant architectural changes. External factors beyond the system's control, such as sudden supplier delays, market price fluctuations, or the quality of delivered goods, represent limitations that RIMS can help manage but cannot eliminate.

# Objectives of the Study

The general objective of this study is to design, develop, and evaluate a cloud-based Restaurant Inventory Management System (RIMS) that effectively addresses the inventory challenges of small and medium-sized restaurants.

Specifically, this study aims to:

1. To analyze the inventory management requirements of small and medium-sized restaurants by identifying their common pain points, such as tracking perishable goods, manual stock-taking processes, and difficulties in determining optimal order quantities.
2. To design and develop the RIMS software with core functionalities including:
   * A centralized digital inventory catalog.
   * Real-time stock level monitoring with low-stock alerts.
   * A module for generating and managing purchase orders.
   * A reporting dashboard for tracking waste and inventory costs.
3. To implement a working prototype of the RIMS in a selected small or medium restaurant environment to assess its technical functionality, reliability, and usability in a real-world operational context.
4. To evaluate the system's impact by measuring key performance indicators before and after implementation, specifically focusing on:
   * Reduction in frequency of stock-out incidents.
   * Decrease in inventory waste and spoilage.
   * Improvement in the time efficiency of inventory-related tasks

# Functional requirements

* **Automated Low-Stock Alerting**  
  The system shall continuously monitor the quantity-on-hand for all inventory items. When the stock level of an item falls at or below its pre-defined reorder point, the system shall automatically generate a prominent visual alert on the user's dashboard and send an email notification to designated staff members.
* **Purchase Order Management**  
  The system shall provide a module for authorized users to generate, manage, and track purchase orders. This module shall allow users to add items to a new order from a list of low-stock items, select a supplier from the directory, specify quantities and unit costs, and update the order status (e.g., Draft, Ordered, Received, Cancelled).
* **Inventory Waste and Valuation Reporting**  
  The system shall include a reporting dashboard that allows users to generate, view, and export reports. The system must be capable of generating a report showing the total monetary value of the current inventory and a separate waste report listing all it

# Non-Functional requirements

* **Performance & Availability**  
  The system, being cloud-based, shall maintain an uptime of 99.5% during typical restaurant operating hours (08:00 - 00:00). The system's response time for critical user interactions, such as updating stock levels or loading the main dashboard, shall not exceed 3 seconds under normal load conditions.
* **Usability**  
  The system's user interface shall be designed for intuitive use by individuals with basic computer literacy. A user with no prior exposure to the system shall be able to complete core tasks—such as recording a new inventory delivery and performing a stock adjustment—after a single training session not exceeding 30 minutes.
* **Security & Access Control**  
  The system shall implement a role-based access control (RBAC) model. At a minimum, the system shall distinguish between an 'Administrator' role, which has full system access, and a 'Staff' role, which is limited to updating stock levels and viewing reports. All users must authenticate with a unique username and password to access the system.