

Software Requirements Specification

for

Logistics Management System for Supply Chain

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1. Introduction

1.1 Purpose

This SRS describes the software functional and nonfunctional requirements for release 1.0 of the Logistics Management System. This document is intended to serve as a contractual basis between the software development team and the stakeholders, ensuring that all parties have a consistent understanding of the system's specifications.

1.2 Document Conventions

The project team is expected to fulfill every requirement given in this SRS. Unless otherwise noted, all requirements specified here are high priority and committed for release 1.0.

1.3 Intended Audience and Reading Suggestions

This SRS will be visible to all stakeholders including the project development team, project managers, marketing staff, users, testers, and documentation writers, and the clients.

1.4 Product Scope

The Logistics Management System (LMS) is conceived as a comprehensive solution tailored for modern businesses to effectively manage and oversee their end-to-end logistics operations. The Logistics Management System is responsible for the following tasks:

- *Supplier Registration & Management: Facilitate the enrollment of new suppliers, and oversee details, history, ratings, and performance metrics of each supplier. A platform for communicating and negotiating rates, contracts, and terms with suppliers.*
- *Transportation Management: Facilitating the management and tracking of shipments, route optimization, and carrier selection.*
- *Warehouse management- Monitoring the goods available in the warehouse, which is available for shipment*
- *Inventory Management: Enabling real-time tracking of stock levels, reorder alerts, and demand-based stock replenishment.*
- *Order Fulfillment: Automating the process from order placement to delivery, ensuring quick and accurate deliveries.*
- *Demand Forecasting: Utilizing advanced algorithms and historical data to predict future demand, ensuring businesses are prepared for spikes or decreases in order.*
- *Reverse Logistics: Streamlining the return and exchange process, integrating with warehousing for restocking or disposal.*

1.5 References

The Logistics Management System functionalities will be closely related to the following references:

[Cin7: Inventory Solutions for Product Sellers](#)

[Anvyl: Centralize and Automate Your Supply Chain's First Mile](#)

2. Overall Description

2.1 Product Perspective

The Logistics Management System is a software designed to help companies monitor the logistics of the supply chain, for easy and cost effective manners of supply chain management.

2.2 Product Functions

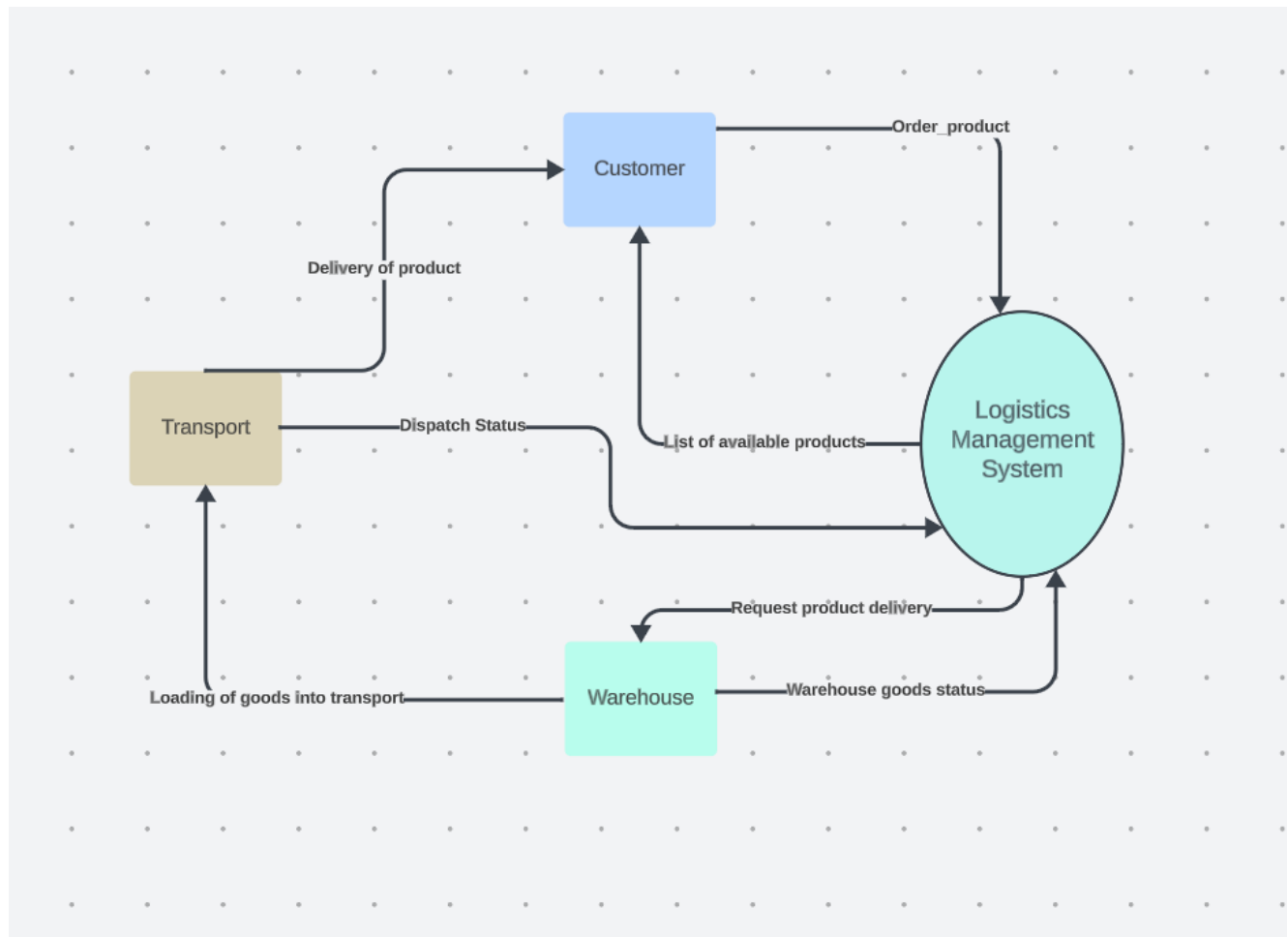
- *There will be 4 main entities in the current system- Supplier, Customer, Warehouse, and transport facility.*
- *Store and compare purchase and transportation costs from different suppliers and provide the admin with the most cost effective option.*
- *The customer can order a product and send a return request at any point of time.*
- *Alarms the admin if stocks in the warehouse are low.*
- *Monitors the cost involved in every step and provides the admin an analysis based on it.*

2.3 User Classes and Characteristics

Customer- The customer is the entity who will be given a list of available goods from the System. The customer can either order products from the products available in stock, and he can also raise return requests.

Warehouse- Storage for available goods. Will let the system know the availability of products, and has access to current orders to be delivered.

Transport- Main dispatch process from the warehouse to the customer's address. Sends the Logistics Management System the status of dispatch, whether the products are on its way, delivered successfully, unsuccessful, or pending.



2.4 Operating Environment

The Logistics Management System will be operable in Chromium based browsers, Microsoft Edge, and Safari.

2.5 Design and Implementation Constraints

CO-1: All HTML code shall conform to the HTML 4.0 standard.

CO-2: Scripts shall be written in python, JavaScript for backend and HTML/CSS/Javascript for frontend.

2.6 User Documentation

UD-1: The system shall provide an online hierarchical and cross-linked help system in HTML that describes and illustrates all system functions.

2.7 Assumptions and Dependencies

DE-1: The operation of the Logistics Management System depends on the availability of goods to accept payment requests for products ordered with the Logistics Management System.

DE-2: The operation of the Logistics Management System depends on changes being made in the Transportation System to update the availability of transport vehicles as Logistics Management System orders are accepted.

3. External Interface Requirements

3.1 User Interfaces

UI-1: The system shall provide a help link from each displayed HTML page to explain how to use that page.

UI-2: Responsive design for mobile and tablet access.

3.2 Hardware Interfaces

No hardware interfaces have been identified.

3.3 Software Interfaces

SI-1: Product ordering interface

SI-1.1: The Web pages are easily navigable between available products and products in cart.

SI-1.2: Once product order has been started from the cart. The Web pages will have a sequential navigation from Product order, payment, and status.

SI-1.3: When a certain product is out of stock, the user will be notified that the product is out of stock and thus will not be able to add the product to cart.

SI-2: Warehouse management interface

SI-2.1: The interface allows warehouse managers to add, delete, update available goods and will be displayed also to the Product ordering interface.

SI-2.2: The interface allows warehouse managers to manage current orders to dispatch them to transport.

SI-3: Dispatch Status interface

SI-3.1: The Dispatch status interface keeps track of the transport vehicles which are on their way to deliver goods to the users.

SI-3.2: Verifies with the users if the product is delivered, and then the Status of the order is updated to success.

3.4 Communications Interfaces

CI-1: The logistics management system will send an email to the customer with the receipt of the order.

CI-2: The logistics management system will send a confirmation mail to the customer at the time of delivery.

4. System Features

4.1 User orders

4.1.1 Description and Priority

A user that adds products to their cart and further goes into the delivery stage

4.1.2 Stimulus/Response Sequences

Stimulus: User requests order a product

Response: System adds the given product into the cart

Stimulus: User confirms cart and proceeds to buy.

Response: System queries user details for payment and delivery instructions.

4.1.3 Functional Requirements

REQ-1: User can add or remove the required products into his cart

REQ-2: User can issue a return required for previously delivered products

4.2 Warehouse management

4.1.1 Description and Priority

The warehouse managers software to monitor goods, track current orders and stock.

4.1.2 Stimulus/Response Sequences

Stimulus: Product request arrives.

Response: System gets the product ready for dispatch, if available

Stimulus: Low stock of goods in the warehouse.

Response: System alerts the warehouse manager by sending him an automated phone call/email.

4.1.3 Functional Requirements

REQ-1: Goods can be added or subtracted in the available goods list.

REQ-2: Warehouse manager gets an alert of goods that are low in stock.

4.2 Delivery status tracker

4.1.1 Description and Priority

The delivery is tracked by the Logistics Management Software, and lets the user and the warehouse managers know the status of the delivery in real time.

4.1.2 Stimulus/Response Sequences

Stimulus: Delivery is ongoing.

Response: System reflects the status of delivery as “delivering”

Stimulus: User receives the product successfully

Response: System reflects the status of delivery as “success”

4.1.3 Functional Requirements

REQ-1: Users and Managers know the status of delivery at any point in time.

REQ-2: User verification is done during the dropping of products

5. Other Nonfunctional Requirements

5.1 Performance Requirements

PE-1: All Web pages generated by the system shall be fully downloadable in no more than 10 seconds.

PE-2: Responses to queries shall take no longer than 7 seconds to load onto the screen after the user submits the query.

PE-3: The system shall display confirmation messages to users within 5 seconds after the user submits information to the system.

5.2 Safety Requirements

No safety requirements can be specified.

5.3 Security Requirements

SE-2: Users shall be required to log in to the Cafeteria Ordering System for all operations except viewing a menu.

SE-6: The system shall permit Patrons to view only their own previously placed orders, not orders placed by other Patrons.

5.4 Software Quality Attributes

Availability-1: The Logistics Management System shall be available to users 90% of the time.

Robustness-1: If the connection between the user and the system is broken prior to an order being either confirmed or canceled, the Logistics Management System shall enable the user to rollback and keep the products in cart.

5.5 Business Rules

No business rules are specified.

6. Other Requirements

Database requirements: MySQL v8.0

Centralized Database: Google Cloud SQL

Appendix A: Glossary

SRS (Software Requirements Specification): A document that outlines the functional and nonfunctional requirements of a software system.

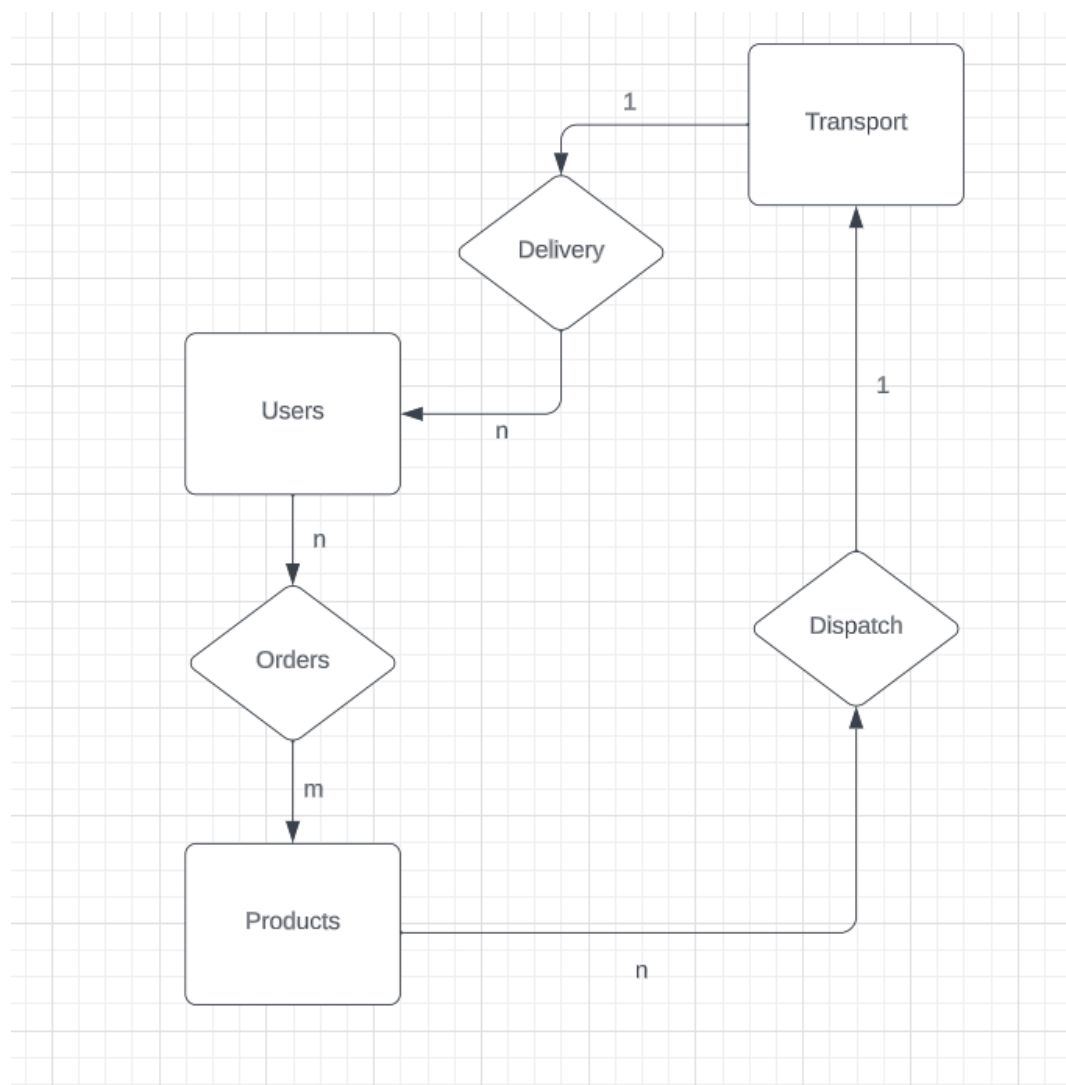
Logistics: The process of planning, implementing, and controlling the efficient flow and storage of goods, services, and information from the point of origin to the point of consumption.

SKU (Stock Keeping Unit): A unique identifier for each distinct product or item in inventory.

Last Mile Delivery: The final step in the delivery process, typically from a distribution center to the end customer.

Appendix B: Analysis Models

E-R diagram of database



Appendix C: To Be Determined List

Transportation Mode Selection: Determine the optimal transportation modes (e.g., truck, rail, air, sea) for different products and routes.

Warehouse Location Strategy: Decide on the locations and capacities of warehouses and distribution centers.

Key Performance Indicators (KPIs): Define the KPIs to measure and evaluate the efficiency and effectiveness of logistics operations.

Risk Management Plan: Develop a risk management strategy for handling disruptions, delays, and unexpected events in the supply chain.