Software Requirements Specification (SRS) Document for Logistics and Procurement Management

1. Introduction

1.1 Purpose

This document outlines the software requirements for the Logistics and Procurement Management Database Management System. The system is designed to enhance the efficiency of supply chain operations by automating processes such as inventory management, procurement, order processing, and supplier management. It aims to provide users with a centralised platform for managing the entire supply chain lifecycle, from procurement to final delivery, while ensuring data accuracy, real-time tracking, and improved decision-making.

1.2 Scope

The DBMS is intended for use by organisations involved in logistics, procurement, and supply chain management. The system will support various functionalities, including inventory management, procurement process automation, supplier relationship management, order processing, and logistics coordination

1.3 Definitions, Acronyms, and Abbreviations

- **DBMS:** Database Management System
- **SCM:** Supply Chain Management
- **ERP:** Enterprise Resource Planning
- **API:** Application Programming Interface
- **UI:** User Interface

1.4 References

- IEEE Standard for Software Requirements Specifications (IEEE Std 830-1998)
- Supply Chain Operations Reference (SCOR) Model
- ISO 28000:2007 – Specification for security management systems for the supply chain

1.5 Overview

This document is structured into sections that describe the functional and non-functional requirements of the system, including system features, external interface requirements, and design constraints.

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2. Overall Description

2.1 Product Perspective

The Logistics and Procurement Management DBMS is a critical component of the organisation's broader ERP system. It integrates with the organisation's central database and other operational systems to facilitate smooth, real-time information exchange and process automation. The system is designed to work in both on-premise and cloud environments, ensuring scalability and flexibility.

2.2 Product Functions

- **Inventory Management:** Real-time tracking and management of inventory levels, reorder points, and stock movements.
- **Procurement Management:** Automating procurement processes, including supplier selection, purchase order creation, and order tracking.
- **Order Processing:** Managing customer orders, including order entry, processing, and fulfilment.
- **Supplier Management:** Managing supplier information, performance metrics, and contract terms.
- **Logistics Coordination:** Planning and tracking shipments, route optimization, and delivery scheduling.
- **Reporting and Analytics:** Generating reports and analysing supply chain performance metrics.

2.3 User Classes and Characteristics

- **Supply Chain Managers:** Oversee the entire supply chain operation and make strategic decisions.
- **Procurement Officers:** Handle supplier relationships, purchase orders, and procurement processes.
- **Warehouse Staff:** Manage inventory, stock movements, and order fulfilment.
- **Logistics Coordinators:** Plan and manage transportation and delivery of goods.

2.4 Operating Environment

- **Software:** Compatible with various ERP systems, database management systems (e.g., MySQL, Oracle), and operating systems (e.g., Windows, Linux).
- **Hardware:** Servers and workstations with sufficient processing power and storage capacity to handle large volumes of data.
- **Network:** Reliable and secure network infrastructure for real-time data transmission and remote access.

2.5 Design and Implementation Constraints

- **Compliance:** The system must comply with industry standards and regulations, such as ISO 28000 and GDPR for data protection.
- **Security:** Data encryption, user authentication, and access control must be implemented to ensure data security.
- **Scalability:** The system must be designed to scale with the organisation's growth and increasing data volumes.

2.6 Assumptions and Dependencies

- A stable network connection is assumed for real-time data transmission.
- Regular system maintenance and software updates will be performed to ensure the system's reliability and security.

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3. External Interface Requirements

3.1 User Interfaces

- **Web-Based Interface:** Accessible through standard web browsers, providing a user-friendly interface for all functionalities.

3.2 Hardware Interfaces

- **Barcode Scanners:** Integrated with the inventory management module for real-time stock updates.
- **RFID Readers:** Used for tracking goods in warehouses and during transportation.
- **Printers:** For printing reports, purchase orders, and shipping labels.

3.3 Software Interfaces

- **API Integration:** The system will integrate with the organisation's API for management and transactions.

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4. System Features

4.1 Inventory Management

4.1.1 Description:

The system will manage and track inventory levels, stock movements, and reorder points in real-time.

4.1.2 Functional Requirements:

- The system shall automatically update inventory levels upon stock movements.
- The system shall generate alerts for low stock levels based on predefined reorder points.
- The system shall provide real-time inventory visibility across multiple locations.

4.2 Order Processing

4.2.1 Description:

Manages customer orders from entry to fulfilment, ensuring accurate and timely processing.

4.2.2 Functional Requirements:

- The system shall validate stock availability before confirming an order.
- The system shall update inventory levels after each order is processed.
- The system shall generate order confirmation and shipment tracking details for customers.

4.3 Supplier Management

4.3.1 Description:

Maintains detailed records of suppliers and their performance metrics.

4.3.2 Functional Requirements:

- The system shall store and manage supplier contact details, contracts, and performance reviews.
- The system shall generate reports on supplier performance based on predefined criteria.

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5. Non-Functional Requirements

5.1 Performance Requirements

- The system shall respond to user input in 3 seconds
- The system shall process transactions within 3 seconds under normal operating conditions.

5.2 Security Requirements

- The system shall use encryption for all sensitive data storage and transmission.
- The system shall implement role-based access control to restrict access to authorised users only.
- The system shall log all user activities for audit purposes.

5.3 Usability Requirements

- The system shall provide an intuitive and easy-to-navigate interface for all users.

5.4 Reliability Requirements

- The system shall have an uptime of 99.9%.

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6. Other Requirements

6.1 Regulatory Requirements

- The system shall comply with local and international supply chain regulations.
- The system shall adhere to data protection regulations, such as GDPR.

6.2 Environmental Requirements

- The system shall be operational in a temperature range of 10°C to 40°C.

Requirements Traceability Matrix (RTM)

Requirement ID	Requirement Description	Design Specification	Implementation Module	Test Case ID
R-001	Real-time inventory tracking	Inventory Management		
R-002	Purchase order creation and management	Procurement Management		
R-003	Order processing with stock validation	Order Processing		
R-004	Supplier performance reporting	Supplier Management		
