GROUP 3 Lab Sec: 003 CRN: 44213

**Project Proposal: Medicinal Drug Supply Chain Management for Complex Systems**

**Problem Addressed**

The pharmaceutical industry faces the challenge of efficient supply chain management. Existing systems often lack integration, leading to inefficiencies in inventory control, order processing, and customer service. Our project aims to address these issues by developing a comprehensive Medicinal Drug Supplier Database that streamlines the supply chain, ensures accurate inventory management, and enhances customer satisfaction. Our system is supposed to analyse various parts of the problem including tacking the issue of multiple suppliers and multiple customers. The system manages the inventory importing drugs from different supplier companies and different types of medicines. It also manages various customers including smaller suppliers/distributors, hospitals, pharmacies and direct orders from customers. It manages different warehouses and services like inventory and shipping.

**Goals and Motivations**

- Efficient Supply Chain: Develop a robust database system that optimizes the supply chain processes, reducing delays and improving delivery times; Making sure right order reaches the right place at the right time

- Accurate Inventory Management: Implement tracking and monitoring of drug stock, ensuring adequate inventory levels and minimizing losses due to expired drugs. It also makes it easier for the user to keep track of their supply in and out and never be short on any stock.

- Enhanced Customer Satisfaction: Improve customer experience by enabling quick and accurate order processing, transparent shipment tracking, and timely delivery.

**Related Work**

After conducting a brief survey of the systems that already exist like the PioneerRX and NRx [1], we have found that most of these systems lack the robustness and comprehensiveness that we propose. Inventory management solutions do exist however most of them are not tailor-made to medicinal drug suppliers. The existing platforms also have issues such as a lack of flexibility with different types of pharmacies and customers and issues with user-friendliness. Through our project, we will create a customized platform to meet the specific needs of medicinal drug suppliers.

**Methodology and Plan**

- Database Design: Begin with an analysis of project requirements enabling us to design an efficient and normalized relational database schema, including suppliers, drugs, orders, customers, payments, shipments, categories and warehouses. Moreover, making valid and null states of the Relational Schema to understand business restrictions and more integrity validations. Also designing an Entity Relationship Diagram to understand the relationships between the tables.

- Database Development: Utilize SQL to implement the database system. Employ agile methodologies for rapid iterations to make sure we are on track with the due dates of the project.

- UI Design and Connection: Integration of an Interactive UI design using a prospect programming language which will either employ MERN stack (ReactJS and NodeJS) or HTML, CSS, JS and PHP.

- Testing and Quality Assurance: Testing will be conducted to ensure the system’s functionality and performance. User acceptance testing will be integral to refining the system based on the customer requirements and restriction laid out in the designing phase.

In conclusion, our project aims to revolutionize medicinal drug supply chain management for large suppliers by providing an integrated, efficient, and user-friendly database system. By addressing existing gaps in current solutions, we anticipate significantly improving operational efficiency, and customer satisfaction.

CITATION

[1] Best Pharmacy Management Systems - G2, https://www.g2.com/categories/pharmacy-management-systems (accessed Oct. 16, 2023).