

MediManage: Streamlining Pharmacy Medicine Supply

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Abstract:

The Pharmacy Management Software is a robust and integrated system that manages medications, products, and automates tasks such as stock control, drug management, and scheduling MR meetings. This software offers pharmacies a comprehensive view of their business performance, including an overview of costs, revenue, and sales. By prioritizing information management, this system allows pharmacies to effectively organize and analyze critical data related to their operations

DOI: [10.24297/j.cims.2023.5.23](https://doi.org/10.24297/j.cims.2023.5.23)

1. Introduction

A Pharmacy Management System is a powerful tool that can enhance accuracy, security, and efficiency in a pharmacy. This system, which operates online, can help pharmacists control costs and ensure safety. The software allows users to input the manufactured and expiry dates of each drug during the inventory and sales process. By generating a report of products that are soon to expire, the system enables pharmacists to stay ahead of expiry dates. Moreover, the system permits manual entry of newly arrived stock and drug shipments out of the pharmacy. A pharmacist could use the system to generate a report every one or two months, detailing the movement of medicines in and out of the pharmacy. The report would include important information such as expiry date, purchase date, remaining drug quantity, and location of medicine in the pharmacy. Presently, the pharmacy relies on a manual system, which requires pharmacists to manually monitor every drug in the store. This approach often leads to errors

due to the pharmacist's workload and time constraints. By adopting a Pharmacy Management System, pharmacies can optimize their operations, minimize errors, and provide better customer service.

2. Literature Review

The Pharmacy Management System has revolutionized the way pharmacies manage their records, eliminating the need for paper and pen, which can be cumbersome for large pharmacies. Instead, the system stores records online, making it easy to keep track of inventories with accuracy and efficiency. The system categorizes drugs in the pharmacy based on their functions and includes information on their expiry dates and available quantities. When the stock runs low, the pharmacist can easily order drugs to replenish it. Traditionally, the ordering of drugs was a manual process that consumed a significant amount of time. The pharmacist needed to check the stock balance and estimate the amount to order based on figures. The Pharmacy Management System solves this problem by automating the ordering process and providing real-time data on stock levels. The system also alerts the pharmacist about drugs that are nearing their expiration dates, preventing these drugs from being sold and ensuring patient safety. With this system, the pharmacy can guarantee that no drugs are used after they have expired, reducing waste and minimizing the risk of harm to patients.

3. Research Methodology

My approach began with a comprehensive analysis of the data model, specifically the Entity-Relationship Diagram (ERD). We recognize the significance of data as the foundation of any system, and by conducting this analysis, we were able to identify our data sources, understand their interrelationships, and gain insights about the pharmaceutical industry that match those of seasoned professionals.

Our design philosophy is rooted in the "Start with Why" principle, which allows us to ascertain the underlying reasons behind user needs. Instead of directly asking users about their requirements, we observe their medication use to develop a system that caters to their specific needs. This user-centric approach is essential in meeting their demands effectively.

An efficient pharmaceutical management system is imperative for the supply and demand chain. The system must incorporate information technology to deliver crucial details about drugs, including usage, side effects, and consequences. User feedback is a crucial element in improving

medicines and hospital pharmacy services. Therefore, we rely on user collaboration to help us design an effective system. With the Covid-19 pandemic, it has become even more critical to implement an appropriate design that is accurate and fast during emergency situations.

Optimal control of pharmaceutical supplies is critical for patient recovery. It requires the application of information technology, computers, and inventory theory. The hospital pharmacy management must strike a balance between supply and demand to serve the interests of both patients and the hospital.

I have conducted extensive research by reading articles and interacting with medical professionals to determine the essential components needed in a pharmaceutical management system, as illustrated in Figure 1. This diagram depicts the activities and processes involved in managing a drugstore, with each process being linked to specific verbs. Additionally, the data flow diagram shows that each process is linked to specific data entities that must be properly implemented to ensure the smooth operation of the system.



Figure 1: Visual Proposed system flow

The first step in developing a pharmaceutical management system is to establish interfaces with other systems to input user data and information. Data integration is essential to the overall management system, and certain data is accessed through the system interface or extracted from various sources. The pharmaceutical management system requires specific data related to four key entities. First, suppliers, also known as custodians or producers of a product, serve as the link between the drug source or manufacturer and the user. Each drug product from the

factory contains information about its function, use, procedure for use, expiration period, ingredients, and potential side effects. Second, customers are entities that refer to buyers of products from shops or stores that have warehouses. Information about each customer or patient, collected either by a doctor or a customer, is entered into the system, including complaints and recommendations for medicines. Third, warehouses are entities referred to as stocks, which serve as storage areas to ensure that market demand is properly fulfilled. Finally, the system must include a mechanism to schedule meetings between medical representatives and doctors to facilitate communication and promote products.

4. Tools & Technologies

- Angular
- VS-Code
- Java
- Spring Tool Suite
- Postman

DEPENDENCIES

- Maven
- Spring Boot
- JPA
- H2 Database
- Lombok

MICROSERVICES



Medicine stock
module

Medicine stock module Provides information on the pharma company medicine stock by the godown area



Medical representative schedule module

Medical representative schedule module Creates a schedule to have meetings with doctors. The list of doctors that this pharma company is targeting can be stored as a pre-defined information in this Microservice.



Pharmacy Medicine Supply module

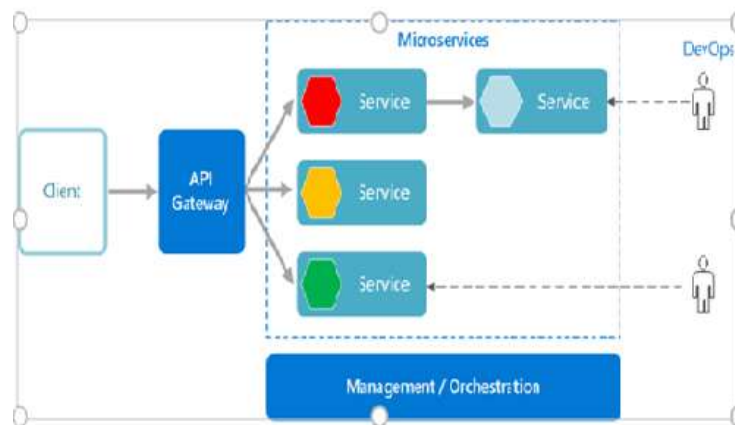
Pharmacy Medicine Supply module Gets the medicine count as demand as input from web portal. Interacts with the Medicine supply microservice to find the final demand of medicine that can be supplied to its pharmacists.



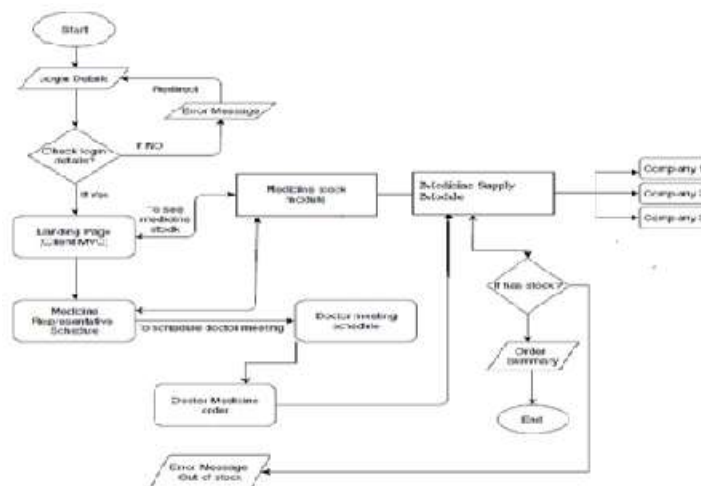
Authorization service This microservice is used with anonymous access to Generate JWT.

Pharmacy Medicine Supply Portal A Web Portal that allows a member to Login and perform operations like login, scheduling meet, medicine demand and supply.

5. System Architecture Diagram



6. Flow Chart Diagram



7. Result



8. Conclusion

The pharmacy management system is a user-friendly and time-efficient tool for managing regular customer records and medicine stock. This system is crucial in improving operational management and streamlining the entire process. By automating the process of collecting and retrieving information, pharmacists can respond to sales requests promptly, resulting in the faster delivery of medicines to customers. The system eliminates the need for traditional bookkeeping and outdated management terms, which can be complicated and time-consuming. Overall, the pharmacy management system simplifies pharmacy operations and enhances their effectiveness.

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