**EGERTON** **UNIVERSITY**

**FACULTY OF SCIENCE**

**DEPARTMENT OF COMPUTER SCIENCE**

**PROJECT PROPOSAL FOR**

**PHARMACY MANAGEMENT AND INVENTORY SYSTEM**

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**ABSTRACT**

Pharmacy Management and Inventory System is a software solution aimed at automating the management of pharmacy operations, focusing on inventory tracking, sales processing, and reporting. This proposal describes the development of an online pharmacy management system to replace manual, time-consuming tasks and improve the efficiency and accuracy of pharmacy operations. The system will provide features for inventory management, sales processing, and reporting to ensure smooth and effective management. This proposal also outlines the anticipated outcomes, challenges, and budget estimates required for the successful implementation of the system. **Keywords**: Pharmacy Management, Inventory System, Sales Processing, Automation

# **CHAPTER ONE**

## **INTRODUCTION**

Pharmacy Management and Inventory System is a user-friendly, efficient, and secure web-based platform designed to automate the core operations of pharmacies, such as inventory management, sales transactions, and report generation. This system aims to reduce human errors, save time, and ensure accurate stock and sales management. By utilizing modern technologies like Spring Boot, Angular, PostgreSQL, and MongoDB, the system will help pharmacies streamline their processes, improve security, and enhance user experience.

## **1.1 OVERVIEW AND LITERATURE REVIEW**

Pharmacies are essential in healthcare delivery, and managing their operations effectively is crucial. Managing inventory manually is time-consuming and prone to errors. Traditional methods often lead to stock shortages, overstocking, or expired product management issues. A web-based pharmacy management system automates tasks like inventory tracking, sales processing, and reporting, reducing errors and ensuring timely access to product data. According to Baran et al. (2021), technology enables organizations to manage tasks more efficiently, and this project leverages that principle to improve pharmacy operations.

## **1.2 PROBLEM STATEMENT**

Pharmacies still rely on manual methods to track inventory, sales, and other essential tasks. These traditional methods are inefficient, error-prone, and time-consuming. Pharmacy staff often struggle with managing large inventories and keeping track of sales data, which can lead to stockouts, inventory mismanagement, and poor customer service. The Pharmacy Management and Inventory System is designed to eliminate these challenges by automating key processes and ensuring accurate, real-time data.

## **1.3 JUSTIFICATION**

Implementing the Pharmacy Management and Inventory System will bring significant benefits to pharmacies, including:

* Automation of inventory management, reducing the time and effort required for stock tracking.
* Improved sales processing, making transactions faster and more accurate.
* Real-time reporting, enabling pharmacy owners to make informed decisions.
* Enhanced security and data management, reducing the risk of fraud and data loss.

## **1.4 PROJECT OBJECTIVES**

The following objectives will be achieved by the end of the project:

* Automation of inventory tracking and sales processes.
* Integration of real-time alerts for low-stock levels.
* Generation of detailed sales and inventory reports.
* Improved security with role-based access control and data encryption.

# **CHAPTER TWO**

## **2.0 PROPOSED SOLUTION**

The Pharmacy Management and Inventory System is a web-based solution designed to reduce the manual processes involved in managing pharmacy operations. It will provide a streamlined, user-friendly interface for managing inventory, processing sales, and generating reports. The system will also support real-time notifications for stock updates and automatic report generation.

## **2.1 METHODOLOGY**

### 2.1.1 METHODS OF COLLECTING INFORMATION

To ensure the system meets user requirements, the following methods will be used to gather information:

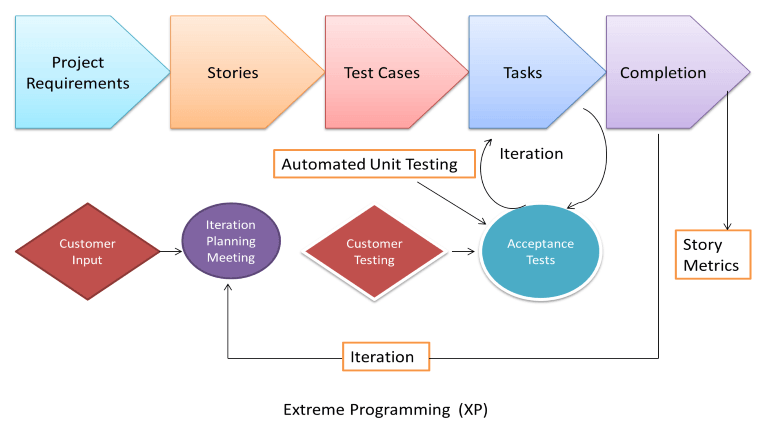
* **Interviews**: Conduct interviews with pharmacy owners and staff to understand their challenges and needs.
* **Observations**: Visit pharmacies to observe current operations and identify areas for improvement.
* **Surveys**: Distribute questionnaires to pharmacy staff and customers to gather feedback.

### **2.1.2 TECHNICAL METHODOLOGY**

The project will follow the Agile software development methodology, allowing for continuous development and testing. The software will be developed in iterations, with each version undergoing testing to ensure functionality and usability.

Phases of the development lifecycle:

* **Planning**: Define project requirements and collect feedback from stakeholders.
* **Design**: Develop system architecture and UI/UX design.
* **Implementation**: Develop the backend and frontend of the system.
* **Testing**: Conduct unit, integration, and user acceptance testing.
* **Deployment**: Roll out the system to production, providing training to users.
* **Maintenance**: Regularly update the system and fix any emerging issues.



The phases of the development life cycle are described below.  
**Planning:**

* Identification of stakeholders
* Collection of functional and non-functional requirements
* Security related information and gathering

**Analysis**:

* Capturing stories in the offices
* Analyzing stories in addition to observational data

**Design:**

* Break down of tasks
* Test scenario preparation

**Execution:**

* Coding
* Execution of Manual test scenarios

**Testing:**

* Functional testing
* Non-functional testing

**Deployment of system:**

* Distribution of the system in the environment
* Occasioned with training

**Maintenance:**

* Release of patches to fix rising issues
* User usage monitoring

**2.2 PROJECT SCOPE**

Generally, the purpose of this project is for creation of a customizable web-based online pharmcy system. The user interface will be designed as part of the project but will contain, as a minimum, the ability to log in and do the following:

* Admin login
* Report generation
* Admin dashboard
* Support Centre
* View all applications
* Customer login
* Make application
* View the application

## **2.3 AVAILABLE RESOURCES**

A resource is an item needed to actualize an idea such as the one currently meant to smoothen the work of admin in managing customers. For this project, resources will be needed in order to help accomplish the goals and objectives of this project. The following resources will be needed for successful accomplishment and deployment of this project.

* Computer/Laptop for coding purposes
* Internet availability in order to be able to achieve mode of communication
* Browsers such as chrome, Mozilla, opera mini in which the system can be tested on for the user interfaces.

### CHAPTER THREE

## **3.0 PRELIMINARY RESULTS**

The development and deployment of this project comes along with various outputs and outcomes that are useful to the potential managers.

* Real-time inventory tracking.
* Accurate sales processing and invoicing.
* User-friendly interface for both customers and admins.
* Automated report generation and notifications.

**CHAPTER FOUR**

## **4.0 CHALLENGES AND OBSTACLES**

1. **Negative perception of the users**

Some users such as admins and customers may have a negative perception of the system. The challenge will be mitigated by first having user awareness of the functionalities that the system will do and convincing the potential users that the management system does not take on the responsibility of anyone but rather simplify the process in which they take to do their work.

1. **Inadequate resources required to be used by the project**

The attainment of the goals of the project expects that the admins have resources such as electricity, computers, internet access and people who are computer literate to be able to use the system. Some customers might not have the computers or even the computer literate people.

Although this challenge might be a bit tricky to manage, some part of it such that of computer literate people will be mitigated by providing training to the users of the system hence making an effective use of it.

1. **Source of capital to fund the project**

Being that I am students, I might experience some difficulties when acquiring the money required catering for the costs during the process of the project.

## **CHAPTER FIVE**

## **5.0 SCHEDULE AND BUDGET**

### 5.1 Project time schedule

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Item | Week 1 | Week 2 | Week 3 | Week 4 | Week 5 | Week 6 | Week 7 | Week 8 | Week 9 | Week 10 | Week 11 | Week 12 |
| Approval of project concept  By project coordinator |  |  |  |  |  |  |  |  |  |  |  |  |
| Submission of proposal |  |  |  |  |  |  |  |  |  |  |  |  |
| Writing of Software Requirements Specification |  |  |  |  |  |  |  |  |  |  |  |  |
| Software Design Document |  |  |  |  |  |  |  |  |  |  |  |  |
| Implementation of System |  |  |  |  |  |  |  |  |  |  |  |  |
| Testing |  |  |  |  |  |  |  |  |  |  |  |  |
| Presentation of user manual |  |  |  |  |  |  |  |  |  |  |  |  |

## **5.2 Budget**

The following is an estimated cost of the proposed project.

|  |  |
| --- | --- |
| Visiting potential clients for data collection | Ksh 5000 – Ksh 7000 |
| Airtime | Ksh 2000 – Ksh 3000 |
| Internet | Ksh 3000 – Ksh 5000 |
| Printing of documents such as SRS, SDD, Proposal, User Manual, and Test Plan | Ksh 200 – Ksh 300 |
| Hosting of the system | Ksh 0 (local server) |

The approximated total cost may hence be in range between Ksh 10200 – Ksh 15300.

# **CHAPTER SIX**

## **6.0 CONCLUSION AND FUTURE WORKS**

The Pharmacy Management and Inventory System will streamline pharmacy operations by automating key processes such as inventory tracking and sales management. The system will offer real-time data, reporting capabilities, and improved security. Future work may include integrating with external suppliers or developing mobile applications to enhance accessibility.

## **References**

Baran, P., Baum, R., Bieńkowski, J., Golec, A., Korzeniewski, J., Kuźmar, S., et al. (2021). Pharmacy Automation and Inventory Management: A Solution for Efficient Pharmacy Operations. Creative Commons Attribution-Non-Commercial 3.0 IGO.