Mini Project 2 report on

"Pharmacy Assistant"

A mini project dissertation submitted in partial fulfilment of the requirement for the award of degree

MASTER OF COMPUTER APPLICATIONS

by

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Under the Guidance of

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MARCH - 2025

BMS INSTITUTE OF TECHNOLOGY & MANAGEMENT

(An Autonomous Institution, Affiliated to VTU, Belagavi)

Bengaluru

MARCH - 2025

Department of MCA
(Accredited by NBA, New Delhi)

CERTIFICATE

This is to certify that the dissertation titled **Pharmacy Assistant** submitted in partial fulfilment of the requirements for the degree **"Master of Computer Applications"** by Visvesvaraya Technological University is based on an original study and is record of bonafide work carried out by Yashwanth Kumar S bearing university registration number **1BY23MC108** during the period **December 2024 to March 2025** under our supervision and guidance and that no part of the report has been submitted for the award of any other Degree/ Diploma/ Fellowship or similar title or prizes. The project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the Master of Computer Applications Degree.

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DECLARATION

I **Yashwanth Kumar S**, student of MCA, BMS Institute of Technology & Management, bearing USN **1BY23MC108** hereby declare that Mini project (22MCA307) titled **"Pharmacy Assistant"** has been carried out by me under the guide Prof. Spurthy S N and submitted in the partial fulfilment of the requirements for the award of Degree of Master of Computer Applications by the Visvesvaraya Technological University during the academic year 2024-25. This report has not been submitted to any other Organization/University for any award of degree or certificate.

ACKNOWLEDGEMENT

I would like to utilize this opportunity to express gratitude to each person who made it possible for me to complete my project successfully. Thus, I would like to remark few people, whom I want to thank and express sincere gratitude.

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Yashwanth Kumar S

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VISION

To emerge as a leading department in computer applications, producing skilled professionals equipped to deliver sustainable solutions.

MISSION

Facilitate effective learning environment through quality education, industry interaction with orientation towards research, critical thinking and entrepreneurial skills.

Programme Educational Objectives (PEOs)

PEO 1: Develop innovative IT applications to meet industrial and societal needs.

PEO 2: Adapt themselves to evolving domain requirements.

PEO 3: Exhibit leadership skills and progress in their chosen career path.

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Programme Outcomes (POs)

PO1: Apply knowledge of mathematics, programming logic and coding fundamentals for solution architecture and problem solving.

PO2: Identify, review, formulate and analyse problems for primarily focusing on customer requirements using critical thinking frameworks.

PO3: Design, develop and investigate problems with an innovative approach for solutions incorporating ESG/SDG goals.

PO4: Select, adapt and apply modern computational tools such as development of algorithms with an understanding of the limitations including human biases.

PO5: Function and communicate effectively as an individual or a team leader in diverse and multidisciplinary groups using methodologies such as agile.

PO6: Use the principles of project management such as scheduling, work breakdown structure and be conversant with the principles of Finance for profitable project management.

PO7: Commit to professional ethics in managing software projects with financial aspects. Learn to use new technologies for cyber security and insulate customers from malware.

PO8: Change management skills and the ability to learn, keep up with contemporary technologies and ways of working.

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Course Outcomes (COs)

CO 1: Analyse the given requirements.

CO 2: Design a suitable system model.

CO 3: Develop the solution using appropriate tools.

CO 4: Prepare effective documentation.

CO 5: Involve in team work.

ABSTRACT

Pharmacia is a full-featured pharmacy Assistant system that automates and simplifies the essential tasks of a pharmacy. With regard to inventory tracking, supplier management, and sales transactions, the system attempts to alleviate the inefficiencies and difficulties that come with manual pharmacy management. Pharmacia improves a pharmacy's record-keeping process' accuracy, efficiency, and security while guaranteeing that all transactions and inventories are properly maintained.The system's primary functions include controlling medicine supply levels, keeping an eye on supplier transactions, supervising personnel data, and keeping track of consumer purchases. Pharmacists may also easily find medications using the system, keep an eye on expiration dates, and control stock levels to avoid shortages or overstocking. It also keeps track of all sales and purchases, offers thorough reporting to help with decision-making, and uses role-based access to secure data.

Keywords:

Inventory Control System for Pharmacies

Tracking of Medicine Stock Control

Purchasing Administration Sales Monitoring

Management of Employees and Customers

Web-based Program

PHP MySQL HTML5 CSS3 JavaScript Data Security Role-based Monitoring of expiration dates, transaction management, purchase records, and access control

Reports Generated Automatically

TABLE OF CONTENTS

LIST OF FIGURES

SLNO	PARTICULARS	PAGE NO

LIST OF TABLES

SLNO	PARTICULARS	PAGE NO

1.   INTRODUCTION

The project entitled Pharmacy Assistant is developed for established medical store in the city. To manage all operations of the medical store this project is being developed. It will have the entire basic module to manage the medical operations. Ideally, the pharmacy Assistant system assists with each of these practices. The pharmacy system should collect data at intake and continue to store and organize information as the pharmacist learns more about the patient's medications, their history, goals, and other factors that may affect their health. The technology within the pharmacy information system should allow the pharmacists to assess the collected information from customers and use effectively. The admin plays a major role in adding pharmacists, manager and cashier. The manager can view the list of pharmacists, users and mangers. The manager can also view prescriptions added by any pharmacist and also add medicine. The pharmacist can add new prescription or delete prescription. The cashier can only process the payment in which payment mode that the customer needs. Without these adequate operations people may get wrong sometimes which leads to other problem for both. This pharmacy management system is technology adequate, equitable, affordable, efficient and easily adaptable designed to fully utilize technology for maximum benefits.

1.1 Project description

The Pharmacia Pharmacy Assistant System is a computer-based software solution designed to help pharmacies manage their day-to-day operations efficiently and accurately. The system is aimed at improving efficiency, accuracy and security, and assists pharmacists in maintaining and managing the records for a pharmaceutical store. The system includes features such as inventory management, transaction management, customer and employee record-keeping, and automated alerts and reports.

The previous manual methods require the pharmacists to manually monitor all the records lists and transactions and to verify the presence of each drug in the pharmacy. This system aims to prevent waste of time and resources, allow easy access to medicines, as well as ensure more security and reliability for the data compared to the manual systems. The system assists the pharmacy in handling the daily requirements in a smoother, better, and effective manner.

The system is developed for use by either the Admin or Pharmacists. The Admin has the capabilities to access and update the list of available medicines/drugs, modify drug suppliers' data, access and update any details of new purchases of stock for the company, access and update all employees' details, access and update all customers' details, keep track of all sale transactions, and generate and view reports based on the data. The Pharmacists have limited capabilities, such as viewing the inventory of medicines, their price, quantity, and other details, viewing minimal details regarding existing customers, adding a new customer to their database, and making a new sale and registering the sale details onto the database.

Overall, the Pharmacia Pharmacy Assistant System aims to provide a reliable, efficient, and user-friendly solution for managing pharmacies, enabling pharmacists to focus on providing quality patient care.

1.2 Technologies used

Front-end technologies:

HTML5: For organizing web page content and guaranteeing a responsive and semantic design.

CSS3: For creating an aesthetically pleasing and responsive design for the user interface, including layout, color schemes, and fonts.

JavaScript: For improving user experience, providing dynamic content updates, form validation, and adding interactivity to web applications.

Back-end technologies: PHP is a server-side programming language that manages the system's essential operations. PHP communicates with the database, handles requests for data (such as inventory, suppliers, and sales transactions), and processes data input from the front end.

Database Management: MySQL is a relational database management system that stores all of the pharmacy's records, including information about suppliers, sales data, employee information, and the inventory of medications.

1.3 Project Objective

The primary goal of the Pharmacy Assistant (Pharmacia) project is to automate and optimize a pharmacy's core processes, resulting in increased productivity, security, and accuracy when handling pharmaceutical-related tasks. Among the specific goals are:

Effective Inventory Management: To keep an eye on the amount of medications in stock, track expiration dates, prevent shortages or overstocking, and provide real-time inventory status updates.

Automated Purchase and Sales Tracking: To guarantee smooth tracking of supplier orders and customer transactions by keeping precise records of all purchases, refunds, and sales transactions.

Management of Suppliers and Workers: To keep track of and manage information about suppliers and workers, such as contact data, order histories for suppliers, and work schedules, roles, and payroll for workers.

Customer management involves maintaining records of client data and their purchase histories, include information about prescription drugs and recurring orders, to improve customer support.

Reduce Human Errors: To cut down on mistakes that frequently happen when keeping records by hand, such lost paperwork, inaccurate inventory counts, or forgotten supplier or customer information.

To improve decision-making, pharmacy management can benefit from the generation of data and analytics on sales, inventory levels, purchases, and personnel performance.

2. LITERATURE SURVEY

Pharmacy Assistant are computerized systems that automate various tasks involved in running a pharmacy, such as managing inventory, processing prescriptions, and billing customers. The following is a literature survey on PMS.

"Design and Implementation of Pharmacy Assistant Based on Android" by Li C, Li Y, Li X, et al. (2018). This paper presents a manages the pharmaceutical activities based on the Android operating system that can be used on mobile devices. The system includes features such as inventory management, prescription processing, and customer management.

"Pharmacy Assistant for the University of San Carlos South Campus" by N.

Sambalod and M. Uy (2019). This paper presents a designed for the University of San Carlos South Campus. The system includes features such as inventory management, prescription processing, and sales tracking.

"A Systematic Review of Pharmacy Information Systems in Hospitals" by Al-Omaria H, AlKhawaldea S, and Al-Wabel N (2019). This paper presents a systematic review of PMS in hospital settings. The review found that PMS can improve medication safety, reduce medication errors, and increase efficiency in the pharmacy department.

"Pharmacy Assistant for Effective Drug Administration in Developing Countries" by O. O. Adegboye and S. A. Oluwadare (2019). This paper presents a PMS designed to improve drug administration in developing countries. The system includes features such as inventory management, prescription processing, and drug utilization review.

"A Comparative Study of Pharmacy Assistant in Hospitals" by K. R. Kalyani, K. B. Chetana, and N. N. Suresh Babu (2020). This paper presents a comparative study of PMS used in hospitals. The study found that PMS can improve efficiency, reduce medication errors, and improve patient safety.

Overall, the literature suggests that can improve efficiency, reduce medication errors, and improve patient safety in pharmacy settings. Additionally, the use of mobile-based PMS can increase accessibility and flexibility. However, the effectiveness of PMS may depend on factors such as the specific features and design of the system, as well as the context in which it is used.

Pharmacy Assistant is a critical component of the healthcare industry that ensures the effective and efficient delivery of pharmaceutical services to patients. The literature survey of pharmacy Assistant reveals that it is an important area of research due to the constantly changing regulatory, economic, and technological environments. The following are some key findings from recent literature on pharmacy Assistant

Role of pharmacists: Pharmacists play a crucial role in the management of pharmacies by providing drug therapy management, medication counseling, and patient education. The literature emphasizes the importance of pharmacists in improving patient outcomes and reducing healthcare costs through their clinical expertise.

Automation and technology: Advances in automation and technology have transformed the way pharmacies manage their operations. Studies indicate that automated dispensing systems, electronic health records, and barcoding systems can improve medication safety, reduce medication errors, and increase efficiency.

Regulatory compliance: Compliance with state and federal regulations is a critical component of pharmacy management. Recent literature highlights the importance of pharmacy managers staying up-to-date on regulatory changes and ensuring their pharmacy meets all necessary requirements.

Inventory management: Proper inventory management is essential for pharmacies to ensure adequate drug supplies, minimize waste, and optimize revenue. The literature suggests that effective inventory management strategies, such as demand forecasting and just-in-time inventory systems, can help pharmacies reduce costs and increase profitability.

Customer satisfaction: Customer satisfaction is a key indicator of pharmacy success. Studies show that providing exceptional customer service, offering personalized medication counseling, and maintaining a clean and organized pharmacy can improve customer satisfaction and loyalty.

Staff management: Effective staff management is critical for maintaining a productive and efficient pharmacy. Literature suggests that effective staffing strategies, such as utilizing data analytics and performance metrics, can help pharmacy managers identify areas for im Overall, the literature survey highlights the importance of pharmacy management in ensuring the safe, effective, and efficient delivery of pharmaceutical services. The successful management of pharmacies requires a multifaceted approach that addresses regulatory compliance, technology integration, inventory management, staff management, and customer satisfaction.provement and optimize their workforce.

2.1 Problem Defnition:

Historically, pharmacies have managed their operations through manual systems that are prone to delays, errors, and inefficiencies. Several difficulties arise when stock, transactions, supplier data, personnel records, and customer data are handled manually

Ineffective Stock Arrangement:
Pharmacies must keep a precise inventory count, keep an eye on stock levels, and keep note of expiration dates.
Manual tracking can result in financial loss and possible health hazards for clients by overstocking, understocking, or selling outdated goods.
erroneous transaction records
Manually recording sales and purchases raises the possibility of data entry mistakes, which could result in false financial records.
Transaction processing delays can cause operations to sluggishness and inefficiency in the provision of services.

Challenges in Managing Suppliers and Employees:
Handling supplier information and orders by hand raises the possibility of communication errors, which might cause stock replenishment delays.
Without an automated system, keeping track of personnel records—including shifts, performance reviews, and payroll—can become laborious.
lengthy Information Recovery:
It can take a while to manually search for specific medications or customer information, especially during an emergency.
Inability to meet urgent medical requirements or customer discontent may result from delays in locating pertinent information.

Absence of Data Integrity and Security:
Paper-based systems put sensitive data's integrity and confidentiality at risk of theft, damage, or illegal access.
Maintaining dependable and secure data storage is essential for both business continuity and regulatory compliance.
Synopsis of the Issue: Pharmacies that handle stock, transactions, and other tasks manually

2.3 Existing and Proposed System:

A lot of traditional pharmacies handle their day-to-day operations manually with spreadsheets, paper records, or simple software. The manual system has various drawbacks and difficulties.
The current system's drawbacks are its inefficiency and time consumption.

Transaction processing and inventory updates are delayed when pharmacists manually maintain customer data, track purchases, record sales, and check stock levels.
Particularly in emergency cases, searching for medications or client records becomes a laborious and time-consuming operation.

Human Error Prone:
In manual record-keeping, data entry errors frequently result in inaccurate stock levels, sales records, and customer or supplier information.
Medicine expiration dates could be overlooked, which raises the possibility of selling damaged goods.

Absence of Real-Time Data:
Making educated selections is challenging when using manual systems since they don't offer real-time updates on stock, transactions, or financial information.
Inadequate updating of stock levels could lead to overstocking or a shortage of necessary medications.

Having Trouble Keeping Track of Reorders and Expirations:

It takes work to keep track of expiration dates and arrange timely reorders, which raises the possibility of selling out-of-date medications or running out on essential prescriptions.

Absence of Data Integrity and Security:
Essential company data may be lost as a result of theft, loss, or damage (such as fire, water, or improper handling) to paper records or simple spreadsheets.
Sensitive client or financial information can be readily compromised by unauthorized access to or manipulation of records.

2.4 System Study:

2.4.1 Feasibility

A thorough examination of the current procedures (the current system) and the intended results for the new system (the proposed system) are part of the system study. It looks at the functional features, system architecture, requirements, and advantages the new system will have for the pharmacy's operations. The goal of this study is to comprehend the workflow of the pharmacy, pinpoint the problems with the current system, and specify the features that the suggested system will include.

Current System Analysis: Manually operated pharmacies encounter several difficulties in their daily operations.

Pharmacists manually adjust stock levels, which causes errors and inefficiencies in stock control. This is known as stock management. Without automated systems, keeping track of medication expiration dates and placing new supply orders can be challenging. Transaction processing: Since sales and purchases are entered by hand, there is a chance for errors, omissions, and delays. Manually processing consumer transactions raises the risk of human error.

Purchase and Supplier Management: Since supplier data is frequently kept in physical files, it might be challenging to effectively track previous orders or evaluate supplier performance. Employee and Customer Records: It is challenging to monitor employee performance when payroll, shift scheduling, and attendance are handled manually. Because customer records are frequently lacking, the pharmacy's capacity to offer individualized services or insights into purchasing Patterns

Security and Data Integrity: Sensitive consumer and business information is not secure or secret when stored on paper records since they are easily stolen, lost, or damaged.

Making Decisions: Pharmacists find it challenging to evaluate company performance and make data-driven decisions, including demand forecasting or inventory optimization, when using manual systems because they lack analytical tools.

2.4.2 Technical Feasibility:

Technical viability evaluates whether the Pharmacia Pharmacy Management System can be successfully developed and implemented given the availability of the necessary technologies, instruments, and resources. In order to make sure the system can be built and maintained effectively, it focuses on assessing the hardware, software, system architecture, and integration capabilities.

User interface development, or frontend:

Web Technologies: To provide an intuitive, user-friendly interface for pharmacists, staff members, and customers, the system can make use of contemporary web frameworks like React.js, Angular, or Vue.js.
Mobile Technologies: Cross-platform mobile apps that can be accessed from smartphones or tablets can be made using React Native or Flutter.
Desktop Technologies: Electron.js can be used to create desktop applications with offline accessibility.

Server-side development, or backend:

Backend Frameworks: To manage all business logic and guarantee excellent speed in transaction processing and data handling, sturdy frameworks like Node.js, Django (Python), or Laravel (PHP) can be employed.
Database management: The data of the system, such as stock levels, transactions, customer information, and personnel data, will be stored and managed in relational databases like MySQL or PostgreSQL. Non-SQL databases, like MangoDB.

Hosting and Cloud Computing:
Pharmacies with numerous branches can benefit from continuous availability and remote access to the system by hosting it on scalable cloud services:

Cloud platforms: The system can be hosted on flexible, scalable cloud infrastructure from platforms like Microsoft Azure, Google Cloud Platform, and AWS (Amazon Web Services). To guarantee optimum performance, these platforms also provide automatic scaling based on traffic.

Backup and Disaster Recovery: Cloud-based solutions offer automated options for both backup and recovery, preventing pharmacy data loss from system malfunctions. By doing this, business continuity and adherence to data preservation guidelines are guaranteed.
On-premise Solutions: Although cloud solutions often offer better scalability and less maintenance, on-premise servers and databases can be set up with a comparable architecture if the pharmacy wants an in-house system.

2.4.3 Operational Feasibility:

Because the Pharmacy Assistant fits in with how pharmacies and medical stores operate on a daily basis, it is operationally practicable. Staff members with different levels of technical experience can easily adopt it thanks to its user-friendly interface, which reduces the need for intensive training. The system improves overall efficiency by streamlining procedures like inventory control, sales monitoring, and customer record maintenance. Minimal disturbance during adoption is ensured by integration with current pharmacy workflows. Updates and assistance can be given on a regular basis to handle any potential operational problems. All things considered, the system's features make pharmacy operations much more efficient while also guaranteeing that pharmacy staff can simply handle it.

2.4.4 Economic Feasibility:

The proposed Pharmacia Pharmacy Assistant economic viability is evaluated to see if it is affordable and offers a profitable return on investment (ROI). This assessment centers on comprehending the expenses associated with creating, executing, and sustaining the system and contrasting them with the advantages the system offers the pharmacy in terms of productivity, cost savings, and revenue expansion.

2.5 System Requirement:

System Specification:

The system specifications provide a detailed breakdown of the hardware, software, and network resources required to implement and run the Pharmacia Pharmacy   Assistant. These specifications ensure that the system operates efficiently and meets the performance, security, and scalability needs of a modern pharma

The system requirements for the Pharmacy Assistant are:

2.5.1 Hardware Requirements

Processor: Intel Core i3 or higher

RAM: 4 GB or higher

Hard Disk Space: 500 GB or higher

Internet Connection: Required for downloading and installing software

2.5.2 Software Requirements

Operating System: Windows 7 or higher

Web Server: Apache 2.4 or higher

Database Management System: MySQL 5.6 or higher

Programming Language: PHP 7.2 or higher

Web Browser: Google Chrome, Mozilla Firefox, or Internet Explorer 11 or higher.

Development Tools

PHP v7.3 or higher

MySQL v8.0 or higher

HTML5, CSS3, and JavaScript for front-end development

3.SOFTWARE REQUIREMENTS SPECIFICATION

3.1 Functional Requirement:

Functional requirements define the specific functionalities and features that the Pharmacia system must provide to effectively manage a pharmacy's day-to-day operations. These requirements are categorized based on various modules that handle inventory, sales, customers, suppliers, employees, reporting, and other critical pharmacy functions.

Inventory Control
All medications should have thorough records kept by the system, which should include:
Name of medicine; batch number; expiration date
Producer
Quantity of stock
When stock is bought or sold, the inventory is automatically updated.
Show the amount of each medication that is currently stocked.
The ability to classify medications according to their type (prescription and over-the-counter, for example).

Reordering Stock
When the quantity of a medication exceeds a predetermined threshold, an automatic alert for low stock levels is generated.
the capacity to create purchase orders for vendors in order to refill inventory.
View pending purchase orders and reorder history.

Expirydate Reordering

Alerts related to approaching expiration dates for medications are tracked by expiry date.
pharmaceutical expiration date filtering and viewing capabilities to enable prompt medication removal from stock.
Make reports on medications that have expired or are about to expire.

Management of Customer Profiles
Make and keep up client profiles with their address, phone number, and name.
Purchase histories and prescription data
Bonus points for loyalty, if any

Management of Supplier Profiles
Ensure that every provider has a thorough profile with their name, address, and contact information.
categories of supplies (e.g., medicines, equipment)
Terms of payment and delivery schedules
Look up suppliers by category or name.

Employee Profile Management Maintain employee records, including: Name, role (e.g., pharmacist, cashier), and contact information Work shifts and assigned responsibilities Performance metrics, if applicable

Sales Reports Generate daily, weekly, and monthly sales reports showing total sales, taxes collected, and discounts applied. Filter reports by medicine category, customer type, or payment method. View reports for individual employees or the entire pharmacy. Inventory Reports Generate reports on current stock levels, including low-stock alerts and soon-to-expire medicines. View purchase history and stock usage trends over time. Filter inventory reports by medicine category, supplier, or batch number.

Custom Reports Allow custom report generation by selecting specific data fields and criteria (e.g., top-selling medicines, frequent customers). Export reports to PDF, Excel, or CSV for further analysis.

3.2 Non Functional requirement:

Performance: The system should support at least 100 simultaneous users without performance degradation.

 Scalability: Pharmacia should be able to handle increasing data volumes, including stock records, suppliers, customers, and sales transactions, without affecting response time.

Security: Sensitive data such as customer information, employee details, and inventory data must be encrypted and only accessible by authorized users.

 Data Integrity: All data entered in the system should be accurate, consistent, and reliable, ensuring no data is lost or duplicated. Availability: The system should be available 99.9% of the time, ensuring minimal downtime for pharmacy operations.

Backup and Recovery: Automatic daily backups should be in place, with the ability to restore data within 30 minutes in case of system failure.

 Usability: The interface should be intuitive, user-friendly.

Response Time: The system should provide search results for medicine availability in less than 3 seconds.

 Maintainability: The system should be easy to update or modify, allowing for smooth integration of new features or fixes.

 Portability: The system should be deployable across various operating systems (Windows, Linux) without requiring significant changes.

4.SYSTEM DESIGN

4.1 System Architecture

The Design of the Pharmacy Management System involves several steps, including:

Setting up the development environment: The system is built using PHP, HTML, CSS, and JavaScript. Therefore, the development environment must be set up using a server-side scripting language like XAMPP, which includes Apache, MySQL, and PHP.

Designing the database: The system's database is designed using MySQL, which provides the necessary tables and fields to store the pharmacy's data.

Creating the user interface: The user interface of the system is designed using HTML, CSS, and JavaScript. The user interface provides an easy-to-use platform for the user to interact with the system.

Writing the code: The system's functionality is implemented using PHP code, which handles the user input, database transactions, and system responses.

Testing the system: The system must be tested to ensure that it works correctly and efficiently. Testing includes unit testing, integration testing, and system testing.

Deploying the system: Once the system has been tested and debugged, it is ready to be deployed to the production environment.

The Design of the Pharmacy Assistant involves several challenges, including:

Data security: The system must be designed to ensure that the pharmacy's data is secure and not accessible to unauthorized personnel.

Usability: The system must be easy to use, even for users who are not familiar with the technology.

Performance: The system must be fast and responsive, even when handling large amounts of data.

Maintenance: The system must be designed to be easy to maintain, with the ability to update and modify the code and database as necessary. Database Architecture

MEDS: Contains details regarding the list of all medicines, mainly their type, the quantity currently present in the store and their price.

SUPPLIERS: Contains details regarding any of the drug suppliers who supply stock to the pharmacy.

PURCHASE: Contains details regarding any stock purchased by the company. Purchasing a stock consists of placing an order for multiple medicines and multiple suppliers via a single purchase on an online platform on a date as specified by purchase date (based on date of delivery). It also contains the manufacturing and expiry dates for the purchased items.

EMPLOYEES: Contains details regarding all employees, including Admin, Managers and Pharmacists.

CUSTOMERS: Contains details of all customers for ease during sales transactions. SALES: Contains details regarding all sales made by the pharmacy. It keeps track of the sale invoice number, the customer ID of the customer, the employee ID of the employee who conducted the sales, the total amount of sale and the sale date alind time.

SALES_ITEMS: Contains details regarding the particular medicines sold during each sale. It keeps track of the sale invoice number, the medicine ID, the quantity of that medicine purchased and total cost for that particular sale.

ADMIN: Contains the employee ID, the username and password for the Admin. Only a single record exists. Admin capabilities can be implemented only by this login.

EMP_LOGIN: Contains the employee ID, the employee username and password for all the pharmacists and managers, apart from Admin. Pharmacist capabilities can be implemented by using any of the login details in the table.

Overall, the implementation of the Pharmacy Management System requires careful planning and attention to detail to ensure that the system is efficient, secure, and easy to use.
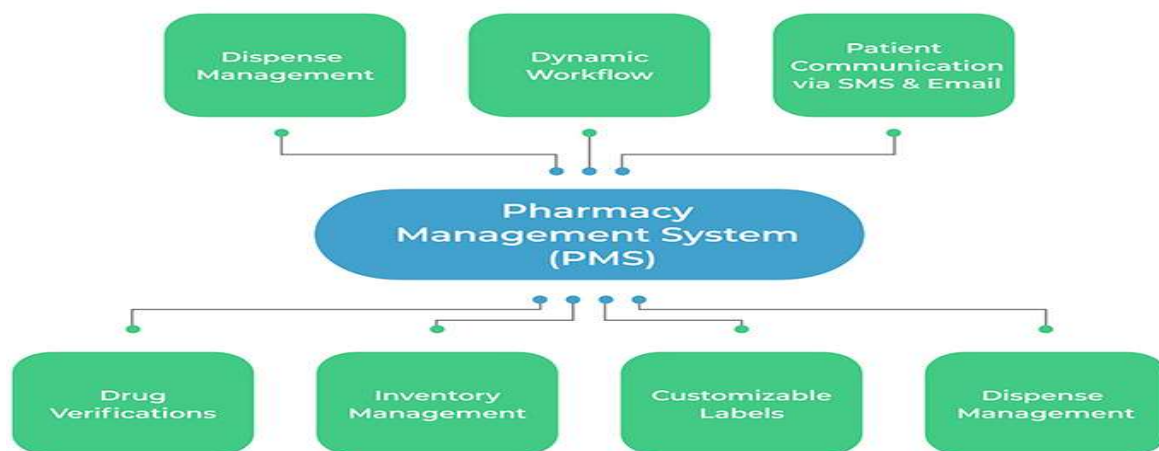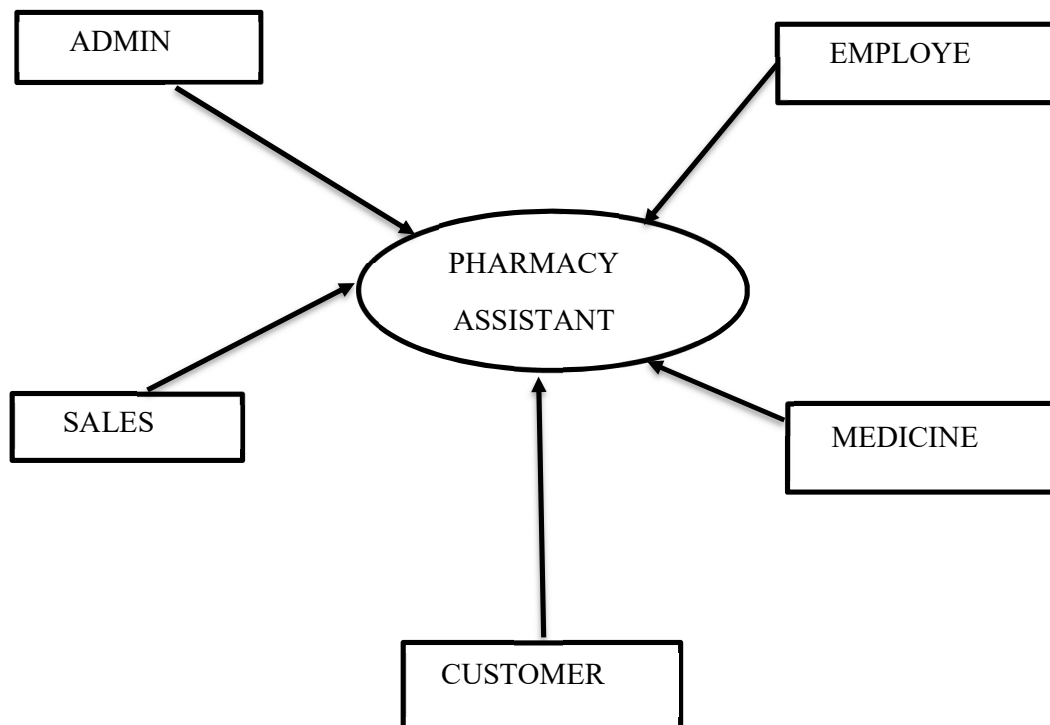

Fig. 4.1 System Architecture

4.2 Context Diagram

Fig. Context Diagram 4.2

Context Diagram for Pharmacy Assistant

Assistant communicates with a number of other parties. Here's how it functions with all the key actors: Sales, Admin, Employee, and Customers.

Admin:
The administration is in charge of managing the pharmacy's general operations. The majority of the system's functions, including the ability to manage suppliers, staff, inventory, and sales data, are available to them.The administrator can add, amend, or remove personnel records by interacting with the system.
In charge of the sales and purchase reports.
Maintain supplier information and medication stock levels.
Produce operational reports for pharmacies.
Worker (Medical Assistant):

The employee or pharmacist is in charge of managing daily tasks such stock checks, customer service, and medication sales.
The worker engages with the system in order to:
handle client sales processing.
Examine the stock

Customer:
To buy medication, the customer deals with the pharmacist. They get their medication and, if necessary, provide prescriptions.
An staff of the pharmacy can use the system to: Look up available medications for consumers.
Save client data for future use or in the event that prescriptions are needed on a frequent basis.
Record sales and handle payment processing.

Medicines:
The things that the pharmacy sells and stores are referred to as medicines in the system.
Information regarding each medicine's stock levels is managed by the system.
dates of expiration, to guarantee prompt disposal of outdated inventory.
Reorder quantities and provide low-stock notifications.
Details on the suppliers of every kind of medication.

Sales:
Every transaction in which a customer purchases medication is recorded as part of the sales process.
The following tasks are performed by the system: recording sales transactions with information on the medicine sold, its quantity, price, and the buyer.
updating the inventory levels instantly.
Creating sales reports so the administrator may track the performance of the business.
supplying external systems or payment gateways to handle transactions.

5 .DETAILED DESIGN
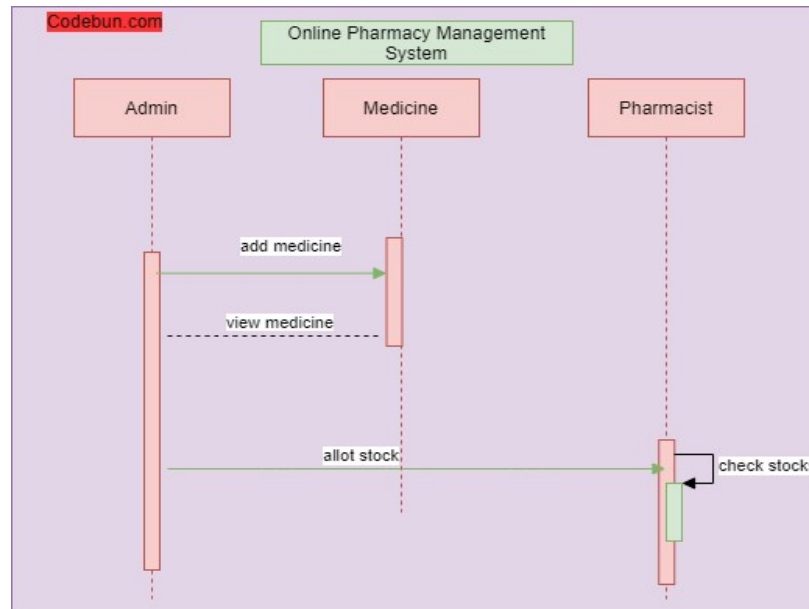
5.1 Sequence Diagram

Fig. 5.1 Sequence Diagram

The following interactions are depicted in the Pharmacia Pharmacy Assistant System sequence diagram:

Administrator:

After logging in, the administrator controls the system's essential features. The administrator can add, amend, or remove medication details from the database. Administrators manage personnel files and designate positions to workers. In addition, the administrator can create reports on sales, purchases, inventories, and supplier information.
Medical:

Administrators and staff have access to the system's medication stock details.

The system verifies if a medication is in stock when a customer makes a request. The employee can submit a reorder request or the system tells the admin to place a new order if the item is out of stock.

Worker:

Employees who handle consumer transactions, such as sales clerks or pharmacists, enter into the system.
To assist clients more rapidly, they can conduct name or category searches for medications.

Additionally, staff members can create new customer records for upcoming purchases or refill requests.

Sales:

The system updates the sales and stock data when a sale is made and records the transaction.
Workers enter the prescription drug's data and manage the sales procedure.
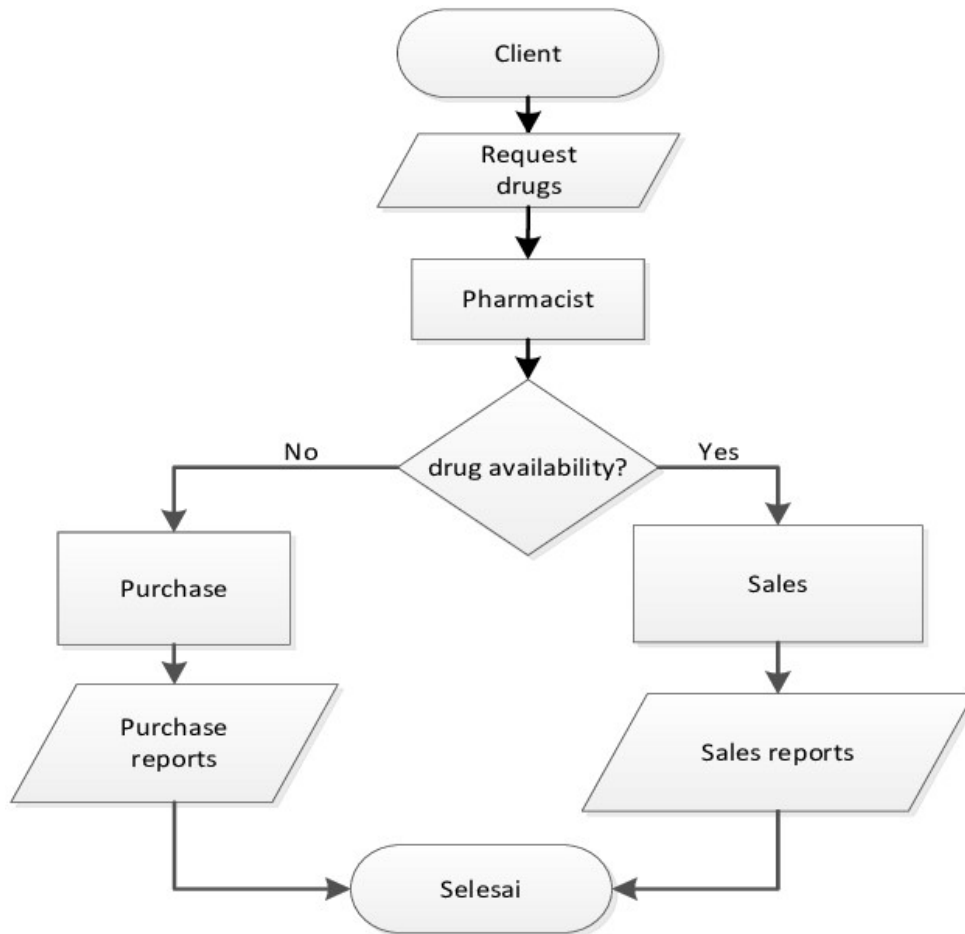The customer's purchase history is updated and a receipt is generated by the system.

5.2 Data Flow Diagram

Fig. 5.2 Data Flow Diagram

Data flow diagram pharmacy assistant

A data flow diagram (DFD) shows the flow of data through a system and the interactions between various entities. We'll think about the client (customer), pharmacist, drug (medicines), sales, and report generation in this environment.

Client-Customer Communication
When a client wants to buy medication or find out what medications are available, they communicate with the system.
Data Flow: Through the pharmacist, the consumer gives the system information such as prescriptions or drug queries.
When a medication is found in the Drug Database, the system searches for it and returns the relevant information.

Interaction with Pharmacists
The pharmacist is in charge of overseeing the sales of medications, maintaining inventory, and responding to customer inquiries.
Data Flow: The pharmacist queries the Drug Database to find out which drugs are available. The pharmacist enters the sales information into the system after making a transaction.
After processing this data, the system modifies the drug database's medicine inventory and updates the sales database.

Drug (Medicine) Index
All of the data regarding available medications, stock levels, expiration dates, and supplier details are kept in the Drug Database.

5.3 Activity Diagram

Activity Diagram for Pharmacy Management System
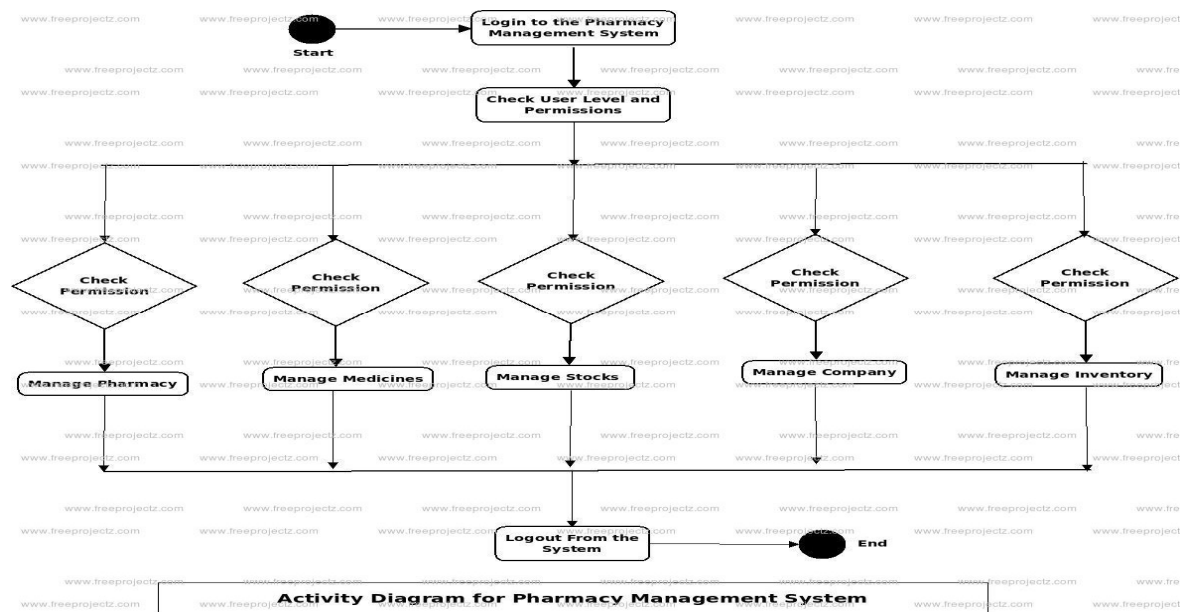
A Pharmacist Examines the Medicine Supply:
The pharmacist replenishes the pharmacy's inventory.
A reorder request is made by the pharmacist whenever any medication is running low.
As soon as suppliers send fresh stock, the system changes the inventory.

Customer Requests Medication:
A client comes to the pharmacist asking for a particular medication.
The pharmacist looks up the availability of medications in the system.
The pharmacist gets the medication for the consumer if it is available.

Completing the Sale:

The pharmacist accesses the system:
The pharmacist logs into the pharmacy assistant to begin the process.
The pharmacist's qualifications are confirmed by the system
The sale is entered into the system by the pharmacist.
The quantity sold is reflected in the system's automatic update of the medication stock.

Making a Receipt:
The pharmacist inputs the payment information.
The customer receives a receipt from the pharmacist that is generated by the system.

Revising Sales Documents:
The date, specifics about the medication, and client data are entered into the system along with the sale.
Later on, the pharmacist can create or see sales reports for analysis.

Pharmacist Examines Stock and Daily Sales:
The pharmacist examines sales and replenishes the supply of any medications at the end of the day.
For record-keeping purposes, the pharmacist can provide a report on sales and stock status.

5.4 Use Case Diagram:

ADMIN

PHARMACIST
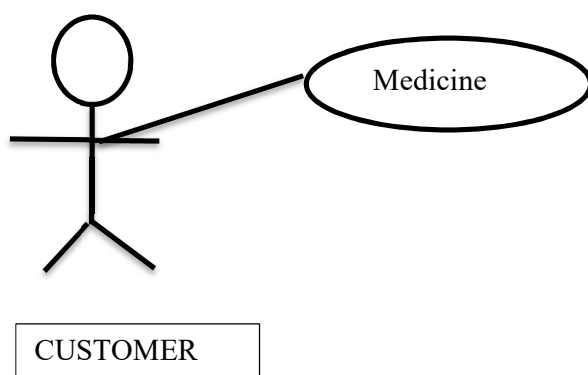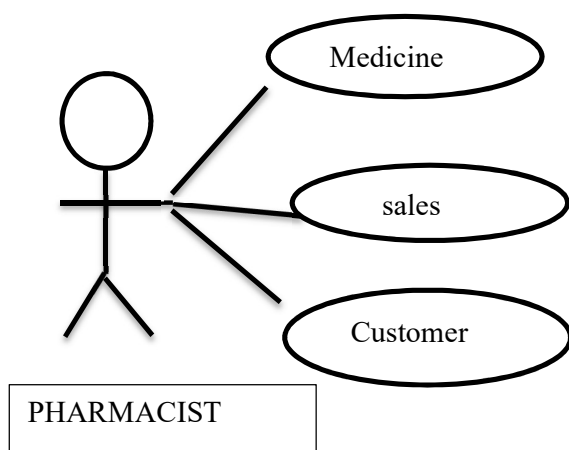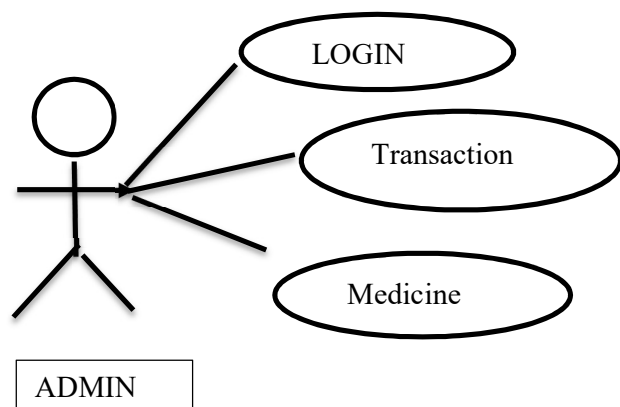
CUSTOMER

The interactions between the Administrator, Pharmacist, and Customer are depicted in a Use Case Diagram for the Pharmacy Assistant. The main use cases and their functions are

described in depth below:

Performers:
Admin: Takes care of the entire system.
Pharmacist: Manages day-to-day activities at the pharmacy, including inventory control and sales.
Customer: Purchases medications from the drugstore.

Use Cases:

Administrator:
Admins have the ability to add, amend, and delete medications from the system. By doing this, the pharmacy can be confident that its inventory of available pharmaceuticals is constantly current

.
Handle Pharmacists: The administrator modifies the roles of pharmacists and adds or removes them.

Manage Suppliers: The administrator orders medications in bulk, keeps track of inventory deliveries, and updates supplier information
Create Reports: To keep track of total sales, inventory levels, and transactions, the administrator creates thorough reports.

6.IMPLEMENTATION

6.1 Procedure

The implementation of the Pharmacy Assistant involves several steps, including:

Setting up the development environment: The system is built using PHP, HTML, CSS, and JavaScript. Therefore, the development environment must be set up using a server-side scripting language like XAMPP, which includes Apache, MySQL, and PHP.

Designing the database: The system's database is designed using MySQL, which provides the necessary tables and fields to store the pharmacy's data.

Creating the user interface: The user interface of the system is designed using HTML, CSS, and JavaScript. The user interface provides an easy-to-use platform for the user to interact with the system.

Writing the code: The system's functionality is implemented using PHP code, which handles the user input, database transactions, and system responses.

Testing the system: The system must be tested to ensure that it works correctly and efficiently. Testing includes unit testing, integration testing, and system testing.

Deploying the system: Once the system has been tested and debugged, it is ready to be deployed to the production environment.

The implementation of the Pharmacy Management System involves several challenges, including:

Data security: The system must be designed to ensure that the pharmacy's data is secure and not accessible to unauthorized personnel.

Usability: The system must be easy to use, even for users who are not familiar with the technology.

Performance: The system must be fast and responsive, even when handling large amounts of data.

Maintenance: The system must be designed to be easy to maintain, with the ability to update and modify the code and database as necessary. Database Architecture

MEDS: Contains details regarding the list of all medicines, mainly their type, the quantity currently present in the store and their price.

SUPPLIERS: Contains details regarding any of the drug suppliers who supply stock to the pharmacy.

PURCHASE: Contains details regarding any stock purchased by the company. Purchasing a stock consists of placing an order for multiple medicines and multiple suppliers via a single purchase on an online platform on a date as specified by purchase date (based on date of delivery). It also contains the manufacturing and expiry dates for the purchased items.

EMPLOYEES: Contains details regarding all employees, including Admin, Managers and Pharmacists.

CUSTOMERS: Contains details of all customers for ease during sales transactions. SALES: Contains details regarding all sales made by the pharmacy. It keeps track of the sale invoice number, the customer ID of the customer, the employee ID of the employee who conducted the sales, the total amount of sale and the sale date and time.

SALES_ITEMS: Contains details regarding the particular medicines sold during each sale. It keeps track of the sale invoice number, the medicine ID, the quantity of that medicine purchased and total cost for that particular sale.

ADMIN: Contains the employee ID, the username and password for the Admin. Only a single record exists. Admin capabilities can be implemented only by this login.

EMP_LOGIN: Contains the employee ID, the employee username and password for all the pharmacists and managers, apart from Admin. Pharmacist capabilities can be implemented by using any of the login details in the table.

Overall, the implementation of the Pharmacy Management System requires careful planning and attention to detail to ensure that the system is efficient, secure, and easy to use.

6.2 Snippet code

Config.php

```php
<?php
            $conn = mysqli_connect("localhost", "root", "", "pharmacy");
            if ($conn->connect_error) {
            die("Connection failed: " . $conn->connect_error);
            }
?>
```

Customer.php

```html
<!DOCTYPE html>

<html>

<head>

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<link rel="stylesheet" type="text/css" href="nav2.css">

<link rel="stylesheet" type="text/css" href="form4.css">

<title>

Customers

</title>

</head>

<body>

<div class="sidenav">

<h2 style="font-family:Arial; color:white; text-align:center;>   PHARMACIA </h2>

        <a href="adminmainpage.php">Dashboard</a>

        <button class="dropdown-btn">Inventory

        <i class="down"></i>

        </button>

        <div class="dropdown-container">

          <a href="inventory-add.php">Add New Medicine</a>

        <a href="inventory-view.php">Manage Inventory</a>
```

```
        <button class="dropdown-btn">Suppliers
          <i class="down"></i>
          </button>
         <div class="dropdown-container">
         <a href="supplier-add.php">Add New Supplier</a>
         <a href="supplier-view.php">Manage Suppliers</a>
          </div>
         <button class="dropdown-btn">Stock Purchase
          <i class="down"></i>
         </button>
           <div class="dropdown-container">
         <a href="purchase-add.php">Add New Purchase</a>
        <a href="purchase-view.php">Manage Purchases</a>
           </div>
         <button class="dropdown-btn">Employees
          <i class="down"></i>
         </button>
         <div class="dropdown-container">
         <a href="employee-add.php">Add New Employee</a>
          <a href="employee-view.php">Manage Employees</a>
         </div>
         <button class="dropdown-btn">Customers
          <i class="down"></i>
       </button>
     <div class="dropdown-container">
        <a href="customer-add.php">Add New Customer</a>
        <a href="customer-view.php">Manage Customers</a>
         </div>
      <a href="sales-view.php">View Sales Invoice Details</a>
      <a href="salesitems-view.php">View Sold Products Details</a>
```

```
        <a href="pos1.php">Add New Sale</a>
<button class="dropdown-btn">Reports
<i class="down"></i>
</button>
<div class="dropdown-container">
<a href="stockreport.php">Medicines - Low Stock</a>
<a href="expiryreport.php">Medicines - Soon to Expire</a>
<a href="salesreport.php">Transactions Reports</a>
</div>
        </div>
                    <div class="topnav">
                     <a href="logout.php">Logout</a>
                     </div>
                     <center>
                  <div class="head">
                   <h2> ADD CUSTOMER DETAILS</h2>
                  </div>
                   </center>


                <br><br><br><br><br><br><br><br>

                  <div class="one">
                  <div class="row">
                 <form action="<?=$_SERVER['PHP_SELF']?>" method="post">
                    <div class="column">
                    <p>
                       <label for="cid">Customer ID:</label><br>
                      <input type="number" name="cid">
                      </p>
                       <p>
```

```
                    <label for="cfname">First Name:</label><br>
                  <input type="text" name="cfname">
              </p>
             <p>
               <label for="clname">Last Name:</label><br>
               <input type="text" name="clname">
               </p>
               <p>
               <label for="age">Age:</label><br>
               <input type="number" name="age">
               </p>


               <p>
               <label for="sex">Sex: </label><br>
               <select id="sex" name="sex">
               <option   value="selected">Select</option>
               <option>Female</option>
               <option>Male</option>
               <option>Others</option>
               </select>
               </p>
               </div>
               <div class="column">
                <p><label for="phno">Phone Number: </label><br>
                   <input type="number" name="phno"></p>


                   <p><label for="emid">Email ID:</label><br>
                    <input type="text" name="emid"></p>
                </div>
              <input type="submit" name="add" value="Add Customer">
```

```
                              </form>
                           <br>
                        <?php
                        include "config.php";


                        if(isset($_POST['add']))
                        {
                        $id = mysqli_real_escape_string($conn, $_REQUEST['cid']);
                        $fname = mysqli_real_escape_string($conn, $_REQUEST['cfname']);
                        $lname = mysqli_real_escape_string($conn, $_REQUEST['clname']);
                        $age = mysqli_real_escape_string($conn, $_REQUEST['age']);
                        $sex = mysqli_real_escape_string($conn, $_REQUEST['sex']);
                        $phno = mysqli_real_escape_string($conn, $_REQUEST['phno']);
                        $mail = mysqli_real_escape_string($conn, $_REQUEST['emid']);
                        $sql    =    "INSERT    INTO    customer    VALUES    ($id,    '$fname',
'$lname',$age,'$sex',$phno, '$mail')";
                         if(mysqli_query($conn, $sql)){
                       echo "<p style='font-size:8;'>Customer successfully added!</p>";
                        } else{
                        echo "<p style='font-size:8; color:red;'>Error! Check details.</p>";
                        }
                        }
                         $conn->close();
                        ?>
                   </div>
          </div>


</body>
<script>
        var dropdown = document.getElementsByClassName("dropdown-btn");
        var i;
```

```
            for (i = 0; i < dropdown.length; i++) {

              dropdown[i].addEventListener("click", function() {

              this.classList.toggle("active");

              var dropdownContent = this.nextElementSibling;

              if (dropdownContent.style.display === "block") {

              dropdownContent.style.display = "none";

              } else {

              dropdownContent.style.display = "block";

              }

              });

            }
                    </script></html>
```

Login Page.php

```
body{

      font-family:Arial;

      background-image:url("pharm1.png");

      background-size:cover;

      overflow:hidden;

}


.header {

  padding: 10px;

  margin:-10px;

  text-align: center;

  background: #003366;

  color: white;

  font-size: 30px;

  overflow:hidden;

}
```

```
.footer {

  position: fixed;

  left: 0;

  bottom: 0;

  width: 100%;

  right:0;

  background-color: #003366;

  color: white;

  text-align: center;

  overflow:hidden;

}


.container{

   width:30%;

        margin:auto;

        background-color:white;


}



#div_login{

   border:1px solid gray;

   border-radius: 3px;

   width: 30%px;

   height: 280px;

   box-shadow: 0px 2px 2px 0px  gray;

   margin: 0 auto;

}
```

```
#div_login h1{

    margin-top: 0px;

    font-weight: normal;

    padding: 10px;

    background-color: #003366;

    color: white;

    font-family: sans-serif;

}


#div_login div{

    clear: both;

    margin-top: 10px;

    padding: 5px;

        padding-right: 15px;

}


#div_login .textbox{

    width: 90%;

    padding: 7px;


}


input[type=submit]{

  background-color: #0077b3;

  color: white;

  padding: 12px 20px;

  border: none;

  border-radius: 4px;

  cursor: pointer;

  display:inline-block;
```

```
    margin-top:5px;

}

MainPage.php

<!DOCTYPE html>

<html>


<link rel="stylesheet" type="text/css" href="login1.css">

<head>

<div class="header">

  <h1>PHARMACIA</h1>

 <p style="margin-top:-20px;line-height:1;font-size:30px;">Pharmacy Management
System</p>

</div>

<title>

Pharmacia

</title>

</head>


<body>

<br><br><br><br>

<div class="container">

<form method="post" action="">

<div id="div_login">

<h1>Admin Login</h1>

<center>

<div>

<input type="text" class="textbox" id="uname" name="uname" placeholder="Username"
</div>

<div>

<input type="password" class="textbox" id="pwd" name="pwd"
placeholder="Password"/></div>
```

```php
<div><input type="submit" value="Submit" name="submit" id="submit" />

<input type="submit" value="Click here for Pharmacist Login" name="psubmit" id="submit"
/>


<?php

include "config.php";

if(isset($_POST['submit']))

        $uname = mysqli_real_escape_string($conn,$_POST['uname']);

        $password = mysqli_real_escape_string($conn,$_POST['pwd']);

if ($uname != "" && $password != ""){

$sql="SELECT * FROM admin WHERE a_username='$uname' AND
a_password='$password';

$result = $conn->query($sql);

$row = $result->fetch_row();

if(!$row) {

echo "<p style='color:red;'>Invalid username or password!</p>";

                                    }

else {

session_start();

$_SESSION['user']=$uname;

header('location:adminmainpage.php');

                                    }

                        }

                }


if(isset($_POST['psubmit']))

{

        header("location:mainpage1.php");

                }

        ?>        </div></center></div></form></div>

<div class=footer>
```

```
<br>

Powered by VE Technologies.

<br><br>

</div

</body>

</html>


<!DOCTYPE html>

<html>

<head>

<link rel="stylesheet" type="text/css" href="login1.css">

<div class="header">

<h1>PHARMACIA</h1>

<p       style="margin-top:-20px;line-height:1;font-size:30px;">Pharmacy       Management
System</p>

</div>

<title>

Pharmacia

</title>

</head>

<body>

<br><br><br><br>

<div class="container">

<form method="post" action="">

        <div id="div_login">

        <h1>Pharmacist Login</h1>

        <center>

<div>

<input type="text" class="textbox" id="uname" name="uname" placeholder="Username" />

</div>

<div>
```

```php
<input type="password" class="textbox" id="pwd" name="pwd" placeholder="Password"/>
</div>
<div><input type="submit" value="Submit" name="submit" id="submit" />
<input type="submit" value="Click here for Admin Login" name="psubmit" id="submit" />
</div>
        <?php
include "config.php";
if(isset($_POST['submit'])){
$uname = mysqli_real_escape_string($conn,$_POST['uname']);
$password = mysqli_real_escape_string($conn,$_POST['pwd']);
if ($uname != "" && $password != ""){
        $sql="SELECT  e_id  FROM  emplogin  WHERE  e_username='$uname'  AND
e_pass='$password'";
$result = $conn->query($sql);
$row = $result->fetch_row();
        if(!$row) {
        echo "<p style='color:red;'>Invalid username or password!</p>";
                                }
        else {
            $emp=$row[0];
          session_start();
        $_SESSION['user']=$emp;
        header("location:pharmmainpage.php");
                        }
                    }
                }

        if(isset($_POST['psubmit']))
        {
                header("location:mainpage.php");
                }
```

```
?>
   </center>
</div>
</form>
</div>
<div class=footer>
<br>
Powered by VE Technologies.
<br><br>
</div>
</body>
</html>
```

```
?>
```

6.3 Screenshots (With Explaination)

1.Admin Login Page

The Admin Login Page in a Pharmacy Assistant system allows authorized administrators to securely log in using a username/email and password. After successful login, admins can manage pharmacy operations like inventory, user access, and sales. It includes security features like password encryption and authentication checks to ensure only authorized access. The page typically redirects to an admin dashboard with management tools

The **Admin Dashboard** provides a centralized interface where the administrator can monitor and manage key pharmacy operations. It typically displays metrics like inventory levels, sales data, and prescription details. The dashboard allows easy access to sections like user management, order tracking, and reporting. It may also offer quick links for updating product details, processing sales, and generating reports. This helps admins efficiently oversee the pharmacy's daily activities and make informed decisions.

A **Transaction Report** in a Pharmacy Assistant system provides a detailed summary of all financial transactions, such as sales, purchases, and refunds. It typically includes information like transaction IDs, dates, amounts, payment methods, and the products involved. Admins can filter and sort reports by date, customer, or transaction type for better analysis. The report helps track revenue, monitor cash flow, and ensure accurate accounting. It is essential for auditing, financial planning, and identifying trends in pharmacy sales.

PHARMACIA   Logout

Dashboard
Inventory ⌄
Suppliers ⌄
Stock Purchase ⌄
Employees ⌄
Customers ⌄
View Sales Invoice Details
View Sold Products Details
Add New Sale
Reports ⌄

TRANSACTION REPORTS

Start Date: 01 - 03 - 2020

End Date: 05 - 12 - 2020

View Records

PHARMACIA   Logout

Dashboard
Inventory ⌄
Suppliers ⌄
Stock Purchase ⌄
Employees ⌄
Customers ⌄
View Sales Invoice Details
View Sold Products Details
Add New Sale
Reports ⌄

TRANSACTION REPORTS

Start Date: dd - mm - yyyy

End Date: dd - mm - yyyy

View Records

Purchase ID	Supplier ID	Medicine ID	Quantity	Date of Purchase	Cost of Purchase(in Rs)
1001	136	123010	200	2020-03-01	1500.50
1003	145	123006	20	2020-04-22	800.00
1004	156	123004	250	2020-04-02	1000.00
Total					Rs.3300.50

Sale ID	Customer ID	Employee ID	Date	Sale Amount(in Rs)
1	987101	4567009	2020-04-15	180.00
2	987106	1	2020-04-21	585.00

PHARMACIA   Logout

Dashboard
Inventory ⌄
Suppliers ⌄
Stock Purchase ⌄
Employees ⌄
Customers ⌄
View Sales Invoice Details
View Sold Products Details
Add New Sale
Reports ⌄

Sale ID	Customer ID	Employee ID	Date	Sale Amount(in Rs)
1	987101	4567009	2020-04-15	180.00
2	987106	1	2020-04-21	585.00
3	987103	4567010	2020-04-15	120.00
4	987104	4567006	2020-04-14	955.00
5	987103	1	2020-04-21	45.00
6	987102	4567001	2020-03-11	140.00
7	987105	1	2020-04-24	350.00
8	987104	4567001	2020-04-24	35.00
12	987103	1	2020-04-24	60.00
13	987104	4567001	2020-04-24	62.50
15	987107	1	2020-12-04	420.00
16	987106	1	2020-12-04	30.00
17	987103	1	2020-12-04	57.50
18	987105	4567001	2020-12-04	160.00
20	987103	4567001	2020-12-04	150.00
Total				Rs.3350.00

| Transaction Amount | | | | Rs.49.50 |

PHARMACIA   Logout

Dashboard
Inventory ⌄
Suppliers ⌄
Stock Purchase ⌄
Employees ⌄
Customers ⌄
View Sales Invoice Details
View Sold Products Details
Add New Sale
Reports ⌄

MEDICINE INVENTORY

Medicine ID	Medicine Name	Quantity Available	Category	Price	Location in Store	Action	
123001	Dolo 650 MG	625	Tablet	1.00	rack 5	Edit	Delete
123002	Panadol Cold & Flu	90	Tablet	2.50	rack 6	Edit	Delete
123003	Livogen	25	Capsule	5.00	rack 3	Edit	Delete
123004	Gelusil	440	Tablet	1.25	rack 4	Edit	Delete
123005	Cyclopam	120	Tablet	6.00	rack 2	Edit	Delete
123006	Benadryl 200 ML	35	Syrup	50.00	rack 10	Edit	Delete
123007	Lopamide	15	Capsule	5.00	rack 7	Edit	Delete
123008	Vitamic C	90	Tablet	3.00	rack 8	Edit	Delete

PHARMACIA   Logout

Dashboard
Inventory ⌄
Suppliers ⌄
Stock Purchase ⌄
Employees ⌄
Customers ⌄
View Sales Invoice Details
View Sold Products Details
Add New Sale
Reports ⌄

STOCK EXPIRING WITHIN 6 MONTHS

Purchase ID	Supplier ID	Medicine ID	Quantity	Cost of Purchase	Date of Purchase	Manufacturing Date	Expiry Date
1001	136	123010	200	1500.50	2020-03-01	2019-05-05	2021-05-10
1002	123	123002	1000	3000.00	2020-02-01	2018-06-01	2020-12-05
1005	123	123005	200	1200.00	2020-02-01	2019-08-02	2021-04-01

Login Page

The **Login Page** for pharmacists in a Pharmacy Assistant system is where authorized pharmacists securely access their accounts. It typically includes fields for entering a username or email and a password. The page may also have options like "Forgot Password" to help pharmacists recover access if they forget their credentials. After successful login, pharmacists can view and manage tasks such as prescriptions, patient details, and inventory. Security measures like encryption and CAPTCHA ensure only authorized users can access sensitive information.

The **Pharmacist Dashboard** is the main interface after logging into the Pharmacy Assistant system. It provides pharmacists with a quick overview of important tasks such as managing prescriptions, patient records, and inventory levels. The dashboard often includes key metrics like daily sales, upcoming prescription refills, and stock alerts. It may also offer easy access to features like processing new prescriptions, updating medication details, and generating reports. The goal is to streamline pharmacy operations, allowing pharmacists to efficiently handle their responsibilities and provide better patient care.

PHARMACIA   Logout(signed in as Varshini)

Dashboard
View Inventory
Add New Sale
Customers ⌄

MEDICINE INVENTORY

Enter any value to Search   Submit

Medicine ID	Medicine Name	Quantity Available	Category	Price	Location in Store
123001	Dolo 650 MG	625	Tablet	1.00	rack 5
123002	Panadol Cold & Flu	115	Tablet	2.50	rack 6
123003	Livogen	25	Capsule	5.00	rack 3
123004	Gelusil	450	Tablet	1.25	rack 4
123005	Cyclopam	190	Tablet	6.00	rack 2
123006	Benadryl 200 ML	38	Syrup	50.00	rack 10
123007	Lopamide	20	Capsule	5.25	rack 7
123008	Vitamic C	100	Tablet	3.00	rack 8
123009	Omeprazole	40	Capsule	4.00	rack 1
123010	Concur 5 MG	600	Tablet	3.50	rack 9
123011	Augmentin 250 ML	117	Syrup	80.00	rack 7

PHARMACIA   Logout(signed in as Varshini)

Dashboard
View Inventory
Add New Sale
Customers ⌄

POINT OF SALE

*Select Customer ID (only once for a customer's sales)   Add to Proceed

Select Medicine   Search

| Medicine ID: | | Category: | | Quantity Available: | |
| Medicine Name: | | Location: | | Price of One Unit: | |

Quantity Required: Add Medicine

PHARMACIA   Logout(signed in as Varshini)

Dashboard
View Inventory
Add New Sale
Customers ⌄

SALES INVOICE

Medicine ID	Medicine Name	Quantity	Price	Total Price	Action
123003	Livogen	5	5.00	25.00	Delete
123008	Vitamic C	5	3.00	15.00	Delete

Go Back to Sales Page   Complete Order

| Total | | | 40.00 | | |

7.SOFTWARE TESTING

7.1 System Testing

A thorough software testing approach needs to be used to guarantee the Pharmacy Management System's performance, dependability, and quality. Below is a summary of the main testing methods and procedures that need to be used for this project.**The goal of unit testing** is to verify that each unit of the system operates appropriately when it is tested separately. Test features such as adding, editing, and removing medical records fall under this scope. Make that the calculations for sales transactions are accurate. Check stock levels after the addition or sale of new medications. Tools: Any unit testing framework appropriate for the language being used, such as JUnit or NUnit.

Integration Testing Goal: Examine how various modules interact with one another to make sure everything functions as it should. Test the interplay between the pharmacist module and its scope.

Ensure that every feature performs as intended by testing the system against the functional requirements. This is known **as functional testing.** Scope: Examine user authentication and login for the roles of administrator, pharmacist, and customer. Make that the administrator can add, edit, and remove medications. Make that the pharmacist is able to process orders and verify the availability of medications. Examine how well the reports on sales and inventory are generated. Selenium and TestComplete are the tools.

Usability Testing Goal: Make sure all users (Admin, Pharmacist, Customer) can easily navigate and use the system. Test the user interface (UI) to make sure that it is easy for users to manage and search for medications. Make sure that both customers' purchasing and pharmacists' sales management are simple.

Evaluate how easy it is to manage stock, suppliers, and reports using the admin dashboard.

The goal of performance testing is to make sure the system operates effectively under stress and in anticipated circumstances. Scope: Evaluate how quickly the system responds when handling several transactions at once. Test the most recent upgrades to inventory management when sales are high. Make sure that even with high loads, the system stays stable..

Security Testing Goal: Find system weaknesses to guarantee data security. Scope: Check for efforts by unauthorized parties to get sensitive data (such as customer information and pharmaceutical stocks). Make that the password protection and user authentication systems are strong. Check for possible data breaches, cross-site scripting (XSS), and SQL injections in the system.

7.2 Test Cases

Pharmacy Management System - Test Cases

Test Case ID	Test Description	Steps	Expected Result
TC01	Verify valid Admin/Pharmacist login	1. Open login page 2. Enter valid credentials 3. Click 'Login'	User successfully logs in
TC02	Verify invalid login attempt	1. Open login page 2. Enter invalid credentials 3. Click 'Login'	Error message: 'Invalid Username or Password'
TC03	Verify Admin adds new medicine	1. Admin logs in 2. Enter new medicine details 3. Click 'Save'	Medicine added to inventory
TC04	Verify medicine search by Pharmacist	1. Pharmacist logs in 2. Search for medicine by name	Medicine details displayed
TC05	Verify sales processing by Pharmacist	1. Pharmacist logs in 2. Add to cart 3. Complete sale	Sale recorded, stock updated
TC06	Verify out-of-stock alert	1. Pharmacist searches for out-of-stock medicine 2. Try to add to cart	Alert: 'Medicine out of stock'
TC07	Verify Admin updates medicine details	1. Admin logs in 2. Select medicine to update 3. Save changes	Medicine details updated
TC08	Verify sales history viewing	1. Pharmacist logs in 2. Navigate to 'Sales' section	Sales history displayed
TC09	Verify Admin generates sales report	1. Admin logs in 2. Go to 'Reports' section 3. Generate report	Sales report generated
TC10	Verify stock updates after sale	1. Pharmacist logs in 2. Process sale 3. Check inventory	Stock reduced for sold medicine

8.CONCLUSION

Innovations driven by technology continue to improve the efficiency of daily operations by cutting down on the time and effort needed to execute jobs. The goal of the planned Pharmacy Management System (Pharmacia) is to make it easier and faster for clients to receive prescription drugs. Pharmacies can handle prescription management, billing, and inventory control more efficiently by switching to a digital platform from manual techniques. The system's intuitive interface makes it easier to find necessary medications and does away with the necessity for labor-intensive, error-prone manual checks. By providing a variety of safe payment alternatives and guaranteeing a flawless shopping experience, the advent of online payment facilities further improves customer convenience.

This system's strong database administration is one of its essential elements. Accurately managing pharmaceutical inventory, sales, and prescriptions requires a well-kept database. Consistent data checks on a regular basis and fast inventory updates guarantee seamless operations and guard against stockouts and overstocking. Furthermore, the system improves data security by offering a dependable method for safeguarding private data, including medical Records   and   consumer   information

Through the reduction of wait times, improvement of medication accessibility, and assurance of transaction security, the Pharmacy Management System not only enhances operating efficiency but also helps to improve customer care. Over time, it is an affordable and adaptable solution that can be tailored to pharmacies' changing requirements, guaranteeing efficient workflow   management,   inventory   control,   and   business   expansion.

9. FUTURE ENHANCEMENT

Pharmacy Assistant With its ability to streamline operations for hospitals and medical stores, the Pharmacy Management System is a useful tool for managing things like processing sales, keeping track of inventory, and maintaining records. Still, there are a number of possible upgrades that could further boost the system's performance, increasing its efficiency and integration. The implementation of a system for hospital and doctor identification is one of the main upcoming improvements. Pharmacists would be able to obtain prescriptions directly from hospitals and doctors using the patient's Customer ID or Patient ID thanks to this functionality, which would enable the Pharmacy Management System to link directly to healthcare providers. Pharmacists would be able to swiftly confirm prescriptions and lower the mistakes that come with manual entry with such connectivity. Furthermore, this would facilitate communication between physicians, medical facilities, and pharmacists.

The adoption of an Internet of Things (IoT)-based real-time inventory management system could be another important improvement. Pharmacies may automatically monitor stock levels and receive warnings when inventory is low by installing smart sensors in their medical stores. This would guarantee that patients always have access to necessary medications and help reduce stockouts.

Moreover, adding a mobile application for clients and pharmacists may improve accessibility and ease. Customers could order medications, schedule pickups, and follow their prescriptions straight from their mobile devices, and pharmacists could handle inventory, process sales, and receive notifications while on the road.

Putting in place an AI-driven analytics module could also yield insightful data on client preferences, inventory turnover, and sales patterns. Through data analysis, pharmacies can maximize inventory levels.
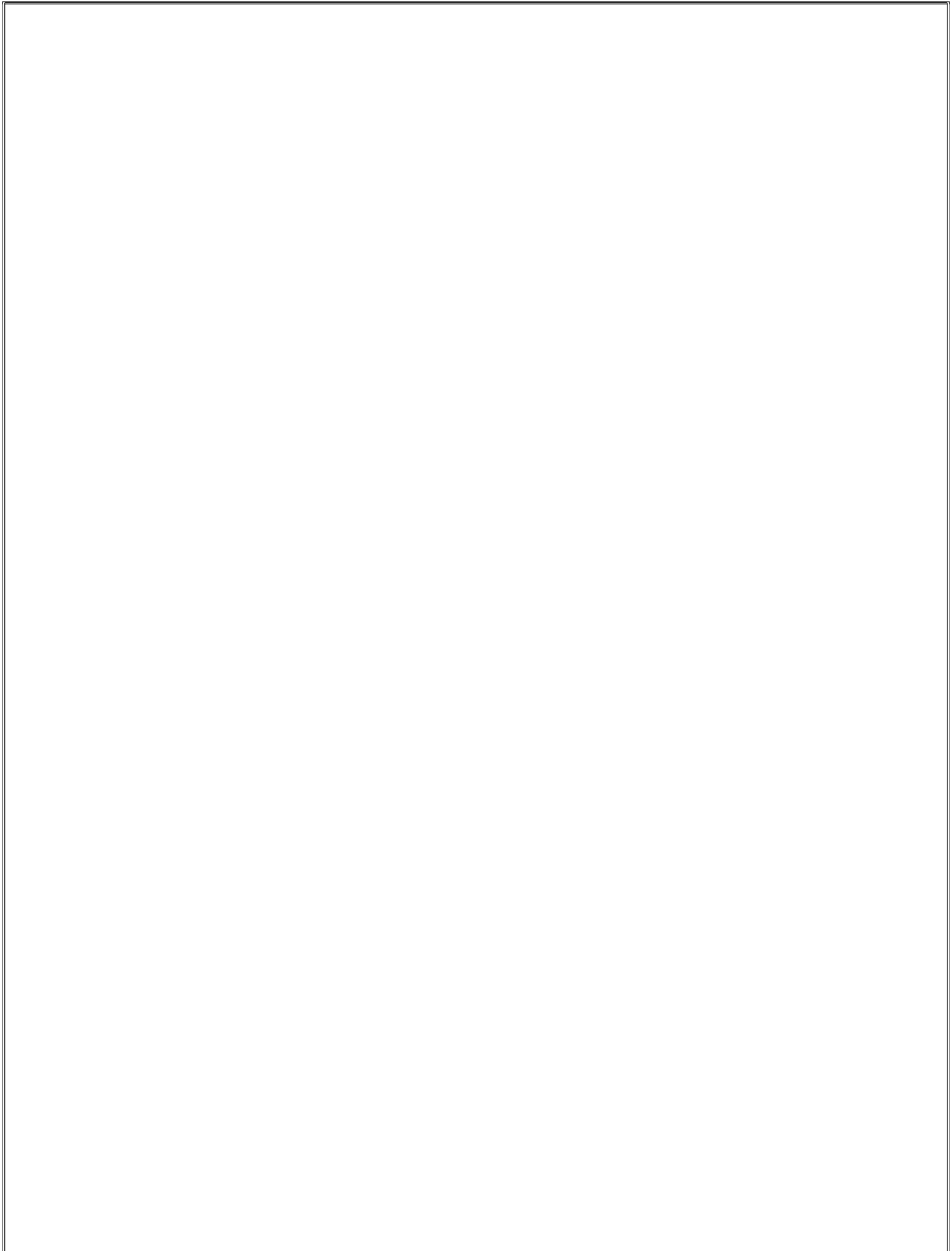
Sensitive patient data will also be further protected by upgrading the system's security features to include multi-factor authentication and enhanced encryption. Ensuring data security is critical, particularly in light of the tightening laws surrounding data privacy.

Last but not least, clients' transactions would be made simpler if the system was integrated with insurance carriers to process direct claims. This would enable them to pay simply the co-pay at the pharmacy, with the system taking care of handling the claims with the insurer. This feature would lower out-of-pocket costs at the moment of sale, which would increase consumer satisfaction.

In conclusion, the Pharmacy Assistant functionality, effectiveness, and user experience could all be greatly enhanced by upcoming improvements. By putting in place elements like AI analytics, mobile accessibility, real-time inventory management, doctor and hospital IDs, improved security, and insurance.

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