**GROUP 8**

**DCIT 415**

**GROUP 8(Pharmaceutical Company)**

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**Select a client:**

For our software engineering project, we have chosen a client in Kumasi for developing a pharmacy management system. This client is a local pharmacy business looking to streamline its operations and improve overall efficiency.

**Define the exact problem:**

The client is facing challenges in managing inventory, tracking sales, and ensuring accurate prescription fulfillment. There is a need for a comprehensive pharmacy management system to automate these processes, reduce errors, and enhance customer service.

**Gather business requirements:**

Functional Requirements:

Inventory Management: The system should track stock levels, expiration dates, and restocking needs.

Sales Tracking: Record and manage sales transactions, generate receipts, and provide sales reports.

Prescription Management: Capture and store prescription details, alert on refill needs.

User Authentication: Differentiate access levels for employees (pharmacists, cashiers) and administrators.

Reporting: Generate reports on sales, inventory, and prescription history.

Non-Functional Requirements:

Performance: The system should handle concurrent users and provide real-time updates.

Security: Ensure secure access with encrypted data transmission.

Usability: User-friendly interface for quick adoption by pharmacy staff.

Scalability: The system should accommodate future growth in inventory and customer base.

**Software Requirements Specification (SRS)**

**For Potter's Pharmacy System**

* **Version 1.0**
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* **Introduction**

Potter's Pharmacy seeks to modernize their current document handling and workflow through the development of a new pharmacy system tailored to their needs.

* **Objectives**

The aim of the project is to design and implement a pharmacy system that:

* Digitizes document handling processes for prescriptions, inventory, and customer management.
* Provides a user-friendly interface for staff.
* Ensures secure storage and easy retrieval of pharmacy records.
* Improves efficiency and accuracy in pharmacy operations.
* **Target Audience**

The primary users of this system will be the pharmacists and staff at Potter's Pharmacy. Secondary users will include customers who will interact with the system for services such as prescription refills and medication information.

* **Scope of Work**

The project scope includes:

* Requirement analysis and system design.
* Development of the pharmacy system using Python.
* Testing and deployment of the system.
* Training for staff on system usage.
* Completion of the project within a 2-month timeframe.
* **Overall Functionality of the Pharmacy System**

**1 Inventory Management**

* **2.1.1 Stock Tracking:**
* The system shall accurately track stock levels for each pharmaceutical product.
* It should provide real-time updates on stock quantities.
* Alerts should be generated for low stock levels and expired products.
* **2.1.2 Restocking Needs:**
* The system shall analyze historical sales data to predict restocking needs.
* A user interface should facilitate the easy initiation of restocking processes.

**2.2 Sales Tracking**

* **2.2.1 Transaction Recording:**
* The system shall record and store details of each sales transaction.
* It should include information such as product, quantity, date, and customer details.
* **2.2.2 Receipt Generation:**
* The system shall automatically generate receipts for completed sales transactions.
* Receipts should include relevant details and be printable or digitally shareable.
* **2.2.3 Sales Reports:**
* The system shall provide comprehensive sales reports.
* Reports should be customizable based on specified parameters (e.g., date range, product category).

**2.3 Prescription Management**

* **2.3.1 Prescription Capture:**
* The system shall capture and store details of each prescription.
* Prescription details should include patient information, prescribed medications, and dosage instructions.
* **2.3.2 Refill Alerts:**
* The system shall generate alerts for prescription refills based on specified criteria (e.g., remaining quantity, expiration date).

**2.4 User Authentication**

* **2.4.1 Access Levels:**
* The system shall differentiate access levels for employees:
* Pharmacists: Full access to inventory, sales, and prescription management.
* Cashiers: Limited access to sales transactions and receipt generation.
* Administrators: Full access to all system functionalities.

**2.5 Reporting**

* **2.5.1 Sales Reports:**
* The system shall generate detailed sales reports for specified time frames and products.
* **2.5.2 Inventory Reports:**
* The system shall generate reports on current inventory status, including stock levels and expiration dates.
* **2.5.3 Prescription History Reports:**
* The system shall provide reports on prescription history, including refill activities.

**3. System Architecture**

**3.1 High-Level Architecture**

* The system shall follow a three-tier architecture, comprising a presentation layer, application layer, and data layer.
* Database management will be implemented to ensure data integrity and reliability.

**3.2 Security Measures**

* User authentication and authorization will be implemented using industry-standard encryption and access control practices.
* Access logs will be maintained for auditing purposes.

**4. User Interfaces**

* **4.1 Login Page:**
* The system shall provide a secure login page with fields for username and password.
* **4.2 Dashboard:**
* A user-friendly dashboard shall display key metrics and shortcuts to major functionalities for quick access.

**Non-Functional Requirements**

**6.1 Performance**

* **6.1.1 Concurrent User Handling:**
* The system shall support a minimum of twenty(20) concurrent users.
* Response time for standard transactions should not exceed 2 seconds.
* **6.1.2 Real-time Updates:**
* The system shall provide real-time updates for inventory changes, sales transactions, and prescription management.
* Updates should be reflected instantly across all user interfaces.

**6.2 Security**

* **6.2.1 Secure Access:**
* User authentication shall be encrypted using industry-standard protocols.
* Access to sensitive data (e.g., prescription details) shall be restricted based on user roles.
* **6.2.2 Data Transmission:**
* All data transmission between the client application and the server shall be encrypted using TLS/SSL.
* The system shall employ secure communication channels to protect against data breaches.

**6.3 Usability**

* **6.3.1 User-Friendly Interface:**
* The user interface shall be intuitive and easy to navigate for pharmacy staff.
* Common tasks, such as sales transactions and prescription management, should be easily accessible with minimal training.
* **6.3.2 Help Documentation:**
* The system shall include comprehensive help documentation accessible from within the application.
* Help documentation should provide step-by-step guidance for various tasks.

**6.4 Scalability**

* **6.4.1 Inventory and Customer Base Growth:**
* The system architecture shall be designed to accommodate a 50% growth in inventory items and customer transactions over the next two years.
* Database structures and indexing shall be optimized for efficient handling of increased data.
* **6.4.2 Modular Design:**
* The system shall be modular to facilitate the addition of new features or integrations in the future.
* Modules shall be developed independently, allowing for easier scalability and maintenance.

**7. System Maintenance**

**7.1 Updates and Upgrades**

* The system shall support seamless updates and upgrades without disrupting normal operations.
* Regular maintenance schedules shall be established to address security vulnerabilities and performance improvements.
* 7. **Technical Requirements**

The system will be developed in Python and will utilize a simple and secure database for data storage. The interface will be designed to be intuitive and responsive to different devices, ensuring accessibility across desktop and mobile platforms.

* **8.Project Management**

A project manager will coordinate with a team of developers to ensure the project is completed within the specified timeframe and budget. Regular meetings will be scheduled to monitor progress and address any issues.

* **9.Project Phases and the Corresponding Deliverables**

|  |  |  |
| --- | --- | --- |
| **Phase Title** | **Period (Weeks)** | **Expected Deliverables** |
| **Software Analysis & Requirement** | 2 | Requirement Specification |
| **Product Design** | 2 | System Architecture and Design Documents |
| **Implementation or Development** | 4 | Pharmacy System Modules |
| **Testing & Deployment** | 2 | Test Cases, Final Product |
| **System Maintenance** | Ongoing | Maintenance Plan |

* **Budget**

The total budget for the project is GHS 20000, which will cover:

* Developer and staff training costs.
* Software development tools and licenses.
* Initial deployment and setup costs.

USE CASE AND UML BELOW;



