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Final Project Documentation

DPMS

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Declaration

We, the undersigned members of the group, collectively declare that the project report titled "DPMS (Dispensary & Pharmacy Management System)" submitted for Diploma in Computer System Design in School of Computing and Engineering at NIBM Galle is our original work.

We jointly certify that This project does not incorporate, without acknowledgement, any material previously submitted for a Diploma in any institution. To the best of our knowledge and belief, this project does not contain any material previously published or written by another person or ourselves, except where due reference is made in the text.

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We understand the importance of academic integrity and the consequences of plagiarism. We have appropriately acknowledged all sources used in this project, and the work presented is the result of our joint efforts.

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Abstract

The DPMS (Dispensary & Pharmacy Management System) project represents a transformative initiative within the healthcare landscape, undertaken by the Ministry of Health. In response to the evolving needs of the healthcare system, this project aims to introduce a comprehensive computerized system that interconnects pharmacies and dispensaries across the nation.

The core features of DPMS include the implementation of an electronic prescription (e-prescription) system, enabling doctors to generate secure prescriptions with a unique reference number linked to patient identification. This innovative system addresses the issue of counterfeit prescriptions by allowing pharmacies to verify prescriptions in real-time.

Through the interconnected network of pharmacies and dispensaries, the DPMS project seeks to streamline prescription and pharmacy management, fostering improved patient care and service efficiency. The project aligns with the Ministry of Health's commitment to advancing healthcare practices through technological solutions, promoting accessibility, and ensuring the highest standards of healthcare delivery.

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Chapter 1: Introduction

1.1 Introduction of the Company

In response to the identified challenges within the current healthcare system, the Ministry of Health is spearheading the implementation of the Dispensary & Pharmacy Management System (DPMS). This transformative initiative seeks to address prevalent issues encountered by citizens when interacting with dispensaries and pharmacies, offering a comprehensive solution to enhance the overall patient experience and improve the efficiency of healthcare delivery.

The Digital Pharmacy Management System (DPMS) is an innovative project aimed at revolutionizing the way patients interact with pharmacies and dispensaries. As an integral part of the Ministry of Health's commitment to ensuring quality healthcare services, DPMS leverages advanced technology to streamline prescription management and enhance the accessibility of patient health records.

The primary mission of DPMS is to mitigate common challenges faced by individuals within the healthcare system, such as damaged prescriptions, forgetfulness in bringing prescriptions to the pharmacy, and unauthorized use of prescription papers. By introducing a fully computerized system, DPMS aims to create a seamless and secure process that ensures the accuracy of prescriptions, minimizes the risk of fraud, and facilitates efficient tracking of patients' health records.

1.2 Dispensary & Pharmacy Management System (DPMS) Company Structure

The organizational structure of DPMS is meticulously designed to ensure seamless functionality, efficient communication, and optimal performance in achieving its overarching objectives. The structure reflects a commitment to accuracy, security, and user satisfaction in prescription and pharmacy management.

1. Executive Leadership:

- **Chief Executive Officer (CEO):** Provides strategic vision and leadership.
- **Chief Technology Officer (CTO):** Guides technological innovations.
- **Chief Operating Officer (COO):** Manages day-to-day operations.
- **Chief Financial Officer (CFO):** Handles financial aspects.

2. **Departments:**

a. **Operations:**

- Operations Manager: Overseeing daily operations.
- Logistics Coordinator: Managing distribution logistics.
- Quality Assurance Specialist: Ensuring operational quality.

b. **Technology:**

- IT Manager: Overseeing information technology infrastructure.
- Software Development Team: Developing and maintaining DPMS software.
- System Analysts: Analyzing and optimizing DPMS systems.

c. **Marketing and Communications:**

- Chief Marketing Officer (CMO): Leading marketing strategy.
- Marketing Manager: Implementing marketing campaigns.
- Communications Specialist: Managing external communications.

d. **Sales:**

- Chief Sales Officer (CSO): Overseeing sales strategy.
- Sales Manager: Managing the sales team.
- Sales Representatives: Engaging with clients for DPMS adoption.

e. **Customer Support:**

- Customer Support Manager: Managing customer support operations.
- Support Representatives: Providing assistance to DPMS users.

3. **Finance:**

- Chief Financial Officer (CFO): Managing financial planning and budgeting.
- Finance Manager: Overseeing financial operations.
- Accountants: Handling financial transactions.

g. Human Resources:

- Human Resources Manager: Managing HR functions.
- HR Specialists: Handling employee relations, recruitment, and training.

4. Research and Development:

- R&D Manager: Leading research initiatives.
- Research Analysts: Conducting research for ongoing improvement.
- Product Development Team: Innovating new features for DPMS.

1.3 Current Operations of Dispensary & Pharmacy Management System (DPMS)

Dispensary & Pharmacy Management System (DPMS) is currently engaged in a comprehensive initiative to revolutionize healthcare interactions within the Ministry of Health. At its core, DPMS aims to optimize prescription and pharmacy management, offering innovative solutions to address common challenges faced by healthcare providers and patients alike.

1. System Implementation and Maintenance:

- Ensuring the DPMS software is effectively implemented in pharmacies and dispensaries.
- Regular maintenance and updates to enhance system functionality and security.

2. User Support and Training:

- Providing customer support to doctors, pharmacies, and other users of the DPMS.
- Conducting training sessions for new users to ensure proper utilization of the system.

3. Security and Compliance:

- Implementing and maintaining robust security measures to protect patient data.
- Ensuring compliance with healthcare and data protection regulations.

4. Continuous Improvement:

- Conducting research and development activities to enhance DPMS features and capabilities.
- Collecting user feedback for continuous improvement.

5. **Marketing and Adoption:**

- Marketing the DPMS to attract new pharmacies, doctors, and healthcare providers.
- Promoting the benefits of DPMS to increase user adoption.

6. **Financial Management:**

- Overseeing financial aspects, including budgeting and financial planning.
- Managing revenue streams and financial transactions related to DPMS.

7. **Collaborations and Partnerships:**

- Exploring and establishing partnerships with healthcare organizations, pharmacies, or other relevant stakeholders.
- Collaborating with technology providers for system integrations or enhancements.

8. **Quality Assurance:**

- Ensuring the quality and reliability of DPMS through rigorous testing.
- Addressing any reported issues or bugs promptly.

9. **Monitoring and Reporting:**

- Monitoring the usage of DPMS to identify trends and areas for improvement.
- Generating reports for pharmacies, doctors, or regulatory purposes.

1.4 Users and Responsibilities in Dispensary & Pharmacy Management System (DPMS)

Dispensary & Pharmacy Management System (DPMS) involves a diverse set of users, each with specific responsibilities to ensure the efficient functioning of the system. Understanding the roles and responsibilities of these users is essential for the successful implementation and operation of DPMS.

1. **System Administrators:**

- **Responsibilities:**
- Oversee the overall operation and maintenance of DPMS.
- Manage user access and permissions.

- Ensure system security and compliance with regulations.
- Implement updates and system enhancements.

2. Doctors:

Responsibilities:

- Create electronic prescriptions for patients.
- Access and update patient health records.
- Provide accurate and timely information to pharmacies.
- Collaborate with other healthcare providers using DPMS.

3. Pharmacies:

Responsibilities:

- Receive and process electronic prescriptions from doctors.
- Dispense medications accurately based on DPMS information.
- Track medicine usage for patient follow-ups.
- Ensure the security and confidentiality of patient data.

4. Patients:

Responsibilities:

- Provide accurate personal and medical information for electronic prescriptions.
- Confirm the receipt of medications and report any discrepancies.
- Participate in tracking their health records within DPMS.
- Communicate effectively with healthcare providers using the system.

5. IT Support Team:

Responsibilities:

- Provide technical support to users experiencing system-related issues.
- Ensure the smooth functioning of DPMS hardware and software.

- Conduct regular system backups and maintenance.

6. Customer Support Representatives:

Responsibilities:

- Assist users with general inquiries and navigation of DPMS.
- Address user concerns and feedback.
- Provide training and guidance to new users.
- Collaborate with the IT support team to resolve technical issues.

7. Quality Assurance Specialists:

Responsibilities:

- Conduct testing to ensure the reliability and accuracy of DPMS functionalities.
- Identify and report any bugs or issues for resolution.
- Collaborate with the development team for continuous improvement.

8. Research and Development Team:

Responsibilities:

- Innovate new features and functionalities for DPMS.
- Stay informed about industry trends and technological advancements.
- Conduct research to enhance the overall capabilities of the system.

1.5 Problem Definition - Dispensary & Pharmacy Management System (DPMS)

Dispensary & Pharmacy Management System (DPMS) aims to address several critical challenges within the current healthcare system, highlighting the necessity for a comprehensive, computerized solution. The identified problems that DPMS seeks to alleviate include:

Common Issues in the Current Healthcare System:

1. Damage to Prescription Papers:

- Challenge: Patients often damage the physical prescription papers provided by doctors.

- Impact: This may lead to difficulties in accurately interpreting prescriptions and dispensing medications.

2. Forgetfulness in Carrying Prescriptions:

- Challenge: Patients frequently forget to carry their paper prescriptions to the pharmacy.
- Impact: Delays in medication dispensing and potential interruptions in treatment plans.

3. Illegal and Unauthorized Prescription Usage:

- Challenge: Unscrupulous individuals may use illegal or forged prescription papers to obtain medications.
- Impact: Compromises the integrity of the healthcare system, posing risks to patient safety.

4. Loss of Patient Record Books:

- Challenge: In cases of patient record book damage or dismissal, there is no alternative method to track past health records.
- Impact: Lack of access to comprehensive patient health histories, hindering informed medical decision-making.

5. Illegible Doctor Handwriting:

- Challenge: Doctors' handwriting can be challenging to decipher, leading to potential errors in medication dispensing.
- Impact: Risk of providing incorrect medications, jeopardizing patient safety and health outcomes.

1.6 Project Objectives - Dispensary & Pharmacy Management System (DPMS)

The Dispensary & Pharmacy Management System (DPMS) is strategically designed to achieve several key objectives, aiming to revolutionize and enhance the efficiency of healthcare processes within the Ministry of Health. The project's primary goals are as follows

1. Implementation of a Comprehensive Computerized System:

- Objective: Introduce a fully integrated computerized system within the Ministry of Health.
- Rationale: Streamline healthcare operations by replacing manual processes with a technologically advanced solution.

2. Interconnection of Pharmacies and Dispensaries:

- Objective: Establish a network where all pharmacies and dispensaries are interconnected through DPMS.
- Rationale: Facilitate real-time communication and data sharing among healthcare providers to improve collaboration and patient care.

3. Introduction of E-Prescription System:

- Objective: Enable doctors to create electronic prescriptions using DPMS.
- Rationale: Enhance prescription accuracy, reduce paper-based inefficiencies, and provide a digital record of patient prescriptions.

4. Secure Access with Reference-Based System:

- Objective: Implement a secure reference-based access system for pharmacies to retrieve e-prescriptions.
- Rationale: Mitigate the risk of fake prescriptions, ensuring that only authorized pharmacies can access and dispense medications.

5. Elimination of Paper-Based Prescription Issues:

- Objective: Address common challenges such as prescription paper damage, forgetfulness, and illegibility.
- Rationale: Improve the overall reliability and accessibility of prescriptions, minimizing errors and delays in medication dispensing.

6. Creation of a Centralized Patient Health Record Repository:

- Objective: Establish a centralized repository within DPMS for tracking patient health records.
- Rationale: Provide healthcare providers with a comprehensive view of a patient's medical history, facilitating informed decision-making.

7. Enhancement of Medication Dispensing Accuracy:

- Objective: Improve the accuracy of medication dispensing by providing clear, electronically generated prescriptions.
- Rationale: Reduce the risk of dispensing errors caused by illegible handwriting or unauthorized prescriptions.

8. Promotion of User Satisfaction:

- Objective: Prioritize user satisfaction by creating a user-friendly interface and providing necessary support.

- Rationale: Ensure that healthcare professionals, pharmacies, and patients find DPMS intuitive, efficient, and supportive of their needs.

9. Integration of Security Measures and Regulatory Compliance:

- Objective: Implement robust security measures to protect patient data and ensure compliance with healthcare regulations.
- Rationale: Safeguard sensitive healthcare information, maintaining the integrity and confidentiality of patient records.

10. Facilitation of Efficient Healthcare Operations:

- Objective: Enhance overall healthcare operations by leveraging technology to streamline processes.
- Rationale: Improve the efficiency of prescription and pharmacy management, leading to better patient outcomes and satisfaction.

1.7 Proposed Solution - Dispensary & Pharmacy Management System (DPMS)

Dispensary & Pharmacy Management System (DPMS) presents a comprehensive and innovative solution to address the current challenges within the Ministry of Health's healthcare system. The proposed solution is designed to revolutionize prescription and pharmacy management, promoting efficiency, accuracy, and enhanced patient care. The key components of the proposed DPMS solution are as follows:

1. Fully Computerized System:

- Description: Introduce a state-of-the-art, fully integrated computerized system within the Ministry of Health.
- Benefits:
 - Streamline healthcare operations through automation.
 - Eliminate manual errors and inefficiencies.
 - Enhance overall system reliability and accessibility.

2. Interconnected Pharmacies and Dispensaries:

- Description: Establish a robust network that interconnects all pharmacies and dispensaries through DPMS.
- Benefits:
 - Facilitate seamless communication among healthcare providers.
 - Enable real-time data sharing for improved collaboration.
 - Enhance the overall efficiency of the healthcare ecosystem.

3. E-Prescription System:

- Description: Enable doctors to create electronic prescriptions using DPMS.
- Benefits:
- Improve prescription accuracy and legibility.
- Reduce paper-based inefficiencies and environmental impact.
- Provide a digital record of patient prescriptions for easy retrieval.

4. Secure Reference-Based Access System:

- Description: Implement a secure reference-based system for pharmacies to access and retrieve e-prescriptions.
- Benefits:
- Mitigate the risk of fake prescriptions and unauthorized access.
- Ensure that only authorized pharmacies can dispense medications.
- Enhance the overall security and integrity of the prescription system.

5. Centralized Patient Health Record Repository:

- Description: Create a centralized repository within DPMS for tracking and managing patient health records.
- Benefits:
- Provide healthcare providers with a comprehensive view of patient medical history.
- Facilitate informed decision-making and personalized patient care.
- Ensure easy accessibility of patient records for authorized personnel.

6. Enhanced Medication Dispensing Accuracy:

- Description: Improve the accuracy of medication dispensing by providing clear and electronically generated prescriptions.
- Benefits:
- Reduce the risk of dispensing errors caused by illegible handwriting.
- Ensure that patients receive the correct medications, enhancing patient safety.
- Streamline the medication dispensing process for pharmacies.

7. User-Friendly Interface and Support:

- Description: Prioritize user satisfaction by designing a user-friendly interface and providing necessary support.

- Benefits:
- Enhance the overall user experience for healthcare professionals, pharmacies, and patients.
- Increase user adoption and acceptance of DPMS.
- Provide efficient customer support for any queries or issues.

8. Robust Security Measures and Regulatory Compliance:

- Description: Implement advanced security measures to protect patient data and ensure compliance with healthcare regulations.
- Benefits:
- Safeguard sensitive healthcare information from unauthorized access.
- Demonstrate adherence to regulatory standards, ensuring legal compliance.
- Build trust among users regarding data security and privacy.

9. Efficient Healthcare Operations:

- Description: Leverage technology to streamline healthcare processes and enhance overall operational efficiency.
- Benefits:
- Improve the speed and accuracy of healthcare-related tasks.
- Reduce waiting times for patients and optimize resource utilization.
- Contribute to a more responsive and patient-centric healthcare system.

1.8 Chapter Summary - Dispensary & Pharmacy Management System (DPMS) Project

In this introductory chapter, we navigated through various facets of the DPMS project, providing a foundational understanding of the company, its structure, current operations, users, challenges faced, project objectives, and the proposed solution.

1.1 Introduction of the Company:

- Briefly introduced the Ministry of Health as the government agency responsible for overseeing the healthcare system.
- Emphasized its pivotal role in formulating health policies, regulating providers, and monitoring health-related issues.

1.2 Company Structure:

- Explored the organizational structure of DPMS, outlining key departments, roles, and relationships within the company.
- Set the stage for a detailed examination of how the project is organized and managed.

1.3 Current Operations in the Company:

- Discussed the ongoing operations within DPMS, offering insights into the team's activities, roles, and tasks.
- Outlined the collaborative efforts and challenges faced by the team in executing the project.

1.4 Users and Responsibilities in the Company:

- Defined the various users involved in DPMS, such as administrators, doctors, pharmacies, patients, and support teams.
- Articulated the distinct responsibilities of each user group, highlighting their crucial roles in the system.

1.5 Problem Definition:

- Identified common issues within the healthcare system, including damage to prescription papers, forgetfulness in carrying prescriptions, illegal prescription usage, loss of patient records, and illegible doctor handwriting.
- Set the stage for the formulation of project objectives and the proposed solution to address these challenges.

1.6 Project Objectives:

- Established clear and concise objectives for the DPMS project, ranging from the implementation of a computerized system to the enhancement of medication dispensing accuracy.
- Outlined the overarching goals guiding the development and implementation of DPMS.

1.7 Proposed Solution:

- Unveiled the proposed solution of DPMS, encompassing a fully computerized system, interconnected pharmacies, e-prescription creation, secure access, centralized patient health records, and enhanced medication dispensing accuracy.

- Emphasized the transformative nature of DPMS in revolutionizing prescription and pharmacy management.

Chapter 2. Methodology

2.1. Introduction

The methodology employed in the development of the Dispensary & Pharmacy Management System (DPMS) is a carefully structured and comprehensive approach aimed at ensuring the success of the project in addressing healthcare challenges and improving overall efficiency. This section introduces the key components and principles that guide the research design, system development lifecycle, and user-centered design principles inherent in the DPMS project.

The research design serves as the backbone of the DPMS project, providing a roadmap for its development and implementation. A systematic and well-defined approach is imperative to navigate the complexities of healthcare systems and deliver a solution that meets the diverse needs of stakeholders. By adopting a structured system development lifecycle, DPMS ensures that each phase, from conceptualization to deployment and maintenance, is meticulously planned and executed.

User-centered design principles play a pivotal role in shaping DPMS, ensuring that the system is not only technologically robust but also intuitive and user-friendly. Prioritizing the needs and experiences of healthcare professionals, pharmacists, and patients contributes to the overall success and acceptance of the system. Collaboration among multidisciplinary teams is emphasized to integrate diverse perspectives, fostering a holistic understanding of user requirements.

The iterative prototyping approach is employed to actively involve users throughout the development process. Continuous feedback and refinement based on real-time user interactions contribute to the evolution of DPMS, aligning it more closely with user expectations. This collaborative development approach, coupled with iterative prototyping, enhances the adaptability of DPMS to the dynamic healthcare landscape.

Diverse data collection methods, both quantitative and qualitative, are leveraged to gather insights into user needs, system performance, and overall effectiveness. Usability testing sessions provide invaluable feedback on user interface design and navigation, ensuring that DPMS meets high standards of usability. Additionally, performance evaluations assess factors such as response times, data accuracy, and system reliability in real-world scenarios.

Security and compliance are paramount in healthcare systems, and DPMS undergoes a thorough audit to ensure alignment with data protection regulations and maintain the confidentiality of patient information. This rigorous approach contributes to building trust in the system and safeguarding sensitive healthcare data.

The methodology also incorporates mechanisms for continuous improvement, allowing DPMS to evolve in response to changing user needs and technological advancements. Integration of feedback loops, regular performance evaluations, and staying attuned to emerging healthcare requirements ensure that DPMS remains a cutting-edge and adaptive solution.

2.2. Data Collection Method(s)

The success of the Dispensary & Pharmacy Management System (DPMS) project relies on a robust data collection methodology that captures essential information to inform development, implementation, and evaluation. The chosen data collection methods are diverse, combining both quantitative and qualitative approaches to ensure a comprehensive understanding of user needs, system performance, and overall effectiveness.

1. Surveys and Questionnaires:

- Purpose: Surveys and questionnaires are employed to gather quantitative data on user preferences, expectations, and challenges within the current healthcare system.
- Rationale: By quantifying responses, these methods provide statistical insights into the prevailing issues and priorities of healthcare professionals, pharmacists, and patients.

2. Interviews:

- Purpose: In-depth interviews with key stakeholders, including healthcare professionals, system administrators, and end-users, are conducted to gain qualitative insights into specific challenges, expectations, and user experiences.
- Rationale: Interviews offer a more nuanced understanding of individual perspectives, motivations, and potential pain points within the current healthcare system.

3. Focus Group Discussions:

- Purpose: Focus group discussions are organized to facilitate group interactions among diverse stakeholders, uncovering collective insights and shared experiences.
- Rationale: These discussions provide a platform for stakeholders to express their opinions, validate concerns, and generate ideas collaboratively.

4. Usability Testing:

- Purpose: Usability testing sessions are conducted to assess the ease of use, efficiency, and overall user satisfaction with the DPMS interface.

- Rationale: By observing users interacting with the system in real-time, usability testing identifies potential usability issues, ensuring a user-friendly experience.

5. **System Performance Metrics:**

- Purpose: Performance metrics, such as response times, system uptime, and data accuracy, are continuously monitored to gauge the technical efficiency of DPMS.
- Rationale: These metrics provide quantitative indicators of system performance, helping identify areas for optimization and improvement.

6. **Security and Compliance Audits:**

- Purpose: Security and compliance audits are conducted to assess DPMS's adherence to data protection regulations and ensure the confidentiality of patient information.
- Rationale: Rigorous audits are essential to identify and address potential vulnerabilities, ensuring the system meets the highest standards of data security and legal compliance.

7. **Observational Studies:**

- Purpose: Observational studies involve direct observation of users interacting with the current healthcare system and, subsequently, DPMS.
- Rationale: Observations provide qualitative insights into user behavior, system usage patterns, and areas where improvements can enhance overall workflow.

8. **Document Analysis:**

- Purpose: Existing documents, such as patient records, prescription papers, and healthcare policies, are analyzed to understand the current documentation practices and identify areas for digital integration.
- Rationale: Document analysis informs the development of DPMS by identifying the information flow and documentation requirements within the healthcare system.

2.3. **Software Process Model**

Selecting an appropriate software process model is a critical decision in the development lifecycle of the Dispensary & Pharmacy Management System (DPMS). The chosen model defines the sequence and structure of activities, guiding the project team through the phases of planning, design, implementation, testing, deployment, and maintenance. Considering the complexities of healthcare systems and the need

for iterative development, the Agile software development process model is deemed most suitable for the DPMS project.

Agile Software Development Model:

1. Iterative and Incremental Development:

- Explanation: Agile promotes an iterative and incremental approach, allowing for the development of DPMS in small, manageable increments.
- Rationale: This iterative process enables continuous feedback from users, facilitating the incorporation of changes and improvements at every stage.

2. Flexibility and Adaptability:

- Explanation: Agile emphasizes flexibility and adaptability to changing requirements throughout the development cycle.
- Rationale: Given the dynamic nature of healthcare systems, Agile allows the DPMS team to respond promptly to evolving user needs and emerging technological advancements.

3. Cross-Functional Collaboration:

- Explanation: Agile encourages collaboration among cross-functional teams, including developers, healthcare professionals, pharmacists, and end-users.
- Rationale: This collaborative approach ensures that diverse perspectives are considered, leading to a more comprehensive and user-focused DPMS.

4. User-Centric Design:

- Explanation: Agile places a strong emphasis on user involvement and feedback throughout the development process.
- Rationale: User-centric design principles are integral to DPMS, ensuring that the system is not only technically robust but also aligns with the needs and expectations of healthcare stakeholders.

5. Continuous Delivery:

- Explanation: Agile supports continuous delivery, allowing for the regular release of functional increments of DPMS.

- Rationale: Continuous delivery enables stakeholders to experience tangible progress regularly and provides an opportunity for early identification of issues.

6. **Emphasis on Working Software:**

- Explanation: Agile prioritizes the delivery of working software at the end of each iteration.
- Rationale: This ensures that DPMS is consistently evolving and providing tangible value with each iteration, enhancing overall project transparency and accountability.

7. **Frequent Review and Retrospective:**

- Explanation: Agile incorporates frequent reviews and retrospectives to assess project progress and identify areas for improvement.
- Rationale: Regular reviews allow the DPMS team to evaluate functionality, gather user feedback, and refine subsequent iterations based on lessons learned.

8. **Risk Mitigation:**

- Explanation: Agile allows for the early identification and mitigation of risks through continuous monitoring and adaptation.
- Rationale: Proactive risk management is crucial for DPMS, especially in a complex healthcare environment, ensuring that potential challenges are addressed in a timely manner.

9. **Adaptation to Changing Requirements:**

- Explanation: Agile accommodates changes in requirements even late in the development process.
- Rationale: Given the evolving nature of healthcare policies and user needs, this flexibility allows DPMS to adapt seamlessly to changing requirements.

2.4 Software Development Tools

The development of the Dispensary & Pharmacy Management System (DPMS) leverages a suite of robust and versatile software development tools to ensure efficient implementation and seamless functionality. The chosen tools encompass a range of technologies, languages, and databases, enabling the creation of a dynamic and user-friendly healthcare management system.

Selected Software Development Tools for DPMS:

1. **HTML (Hypertext Markup Language):**

- Purpose: HTML is employed for creating the structure and layout of the DPMS web-based interface.
- Rationale: As a fundamental markup language for web development, HTML provides a standardized structure for presenting information, ensuring a consistent and accessible user interface.

2. **CSS (Cascading Style Sheets):**

- Purpose: CSS is utilized for styling and formatting, enhancing the visual appeal and user experience of the DPMS interface.
- Rationale: CSS enables the customization of the visual presentation of DPMS, ensuring a cohesive design, responsiveness, and an engaging user interface.

3. **JavaScript:**

- Purpose: JavaScript is integrated for dynamic and interactive features within the DPMS interface, enhancing user engagement.
- Rationale: JavaScript adds interactivity, responsiveness, and real-time updates to the DPMS interface, contributing to a more intuitive and user-friendly experience.

4. **MySQL:**

- Purpose: MySQL serves as the relational database management system (RDBMS) for storing and retrieving structured data within DPMS.
- Rationale: As a powerful and reliable database solution, MySQL facilitates efficient data management, ensuring the secure storage and retrieval of patient records, prescriptions, and other critical information.

5. **PHP (Hypertext Preprocessor):**

- Purpose: PHP is utilized as the server-side scripting language for DPMS, enabling dynamic content generation and interaction with the MySQL database.
- Rationale: PHP supports the seamless integration of the DPMS frontend and backend, facilitating the processing of user requests, data retrieval, and system functionality.

Advantages of Selected Tools:

1. Compatibility and Interoperability:

- The combination of HTML, CSS, JavaScript, MySQL, and PHP ensures compatibility across various devices and browsers, promoting a consistent user experience.

2. Scalability and Performance:

- MySQL, as a robust RDBMS, supports the scalable storage and retrieval of healthcare data, ensuring optimal performance as DPMS usage grows.

3. Security Measures:

- MySQL, coupled with PHP, allows for the implementation of security measures to protect sensitive patient information and maintain data confidentiality.

4. Responsive User Interface:

- HTML, CSS, and JavaScript contribute to the creation of a responsive and user-friendly interface, accommodating diverse user devices and screen sizes.

5. Dynamic Content Management:

- PHP enables the dynamic generation and management of content, supporting real-time updates and interactions within the DPMS interface.

6. Cost-Effectiveness:

- The selected tools are open-source and widely adopted, contributing to the cost-effectiveness of DPMS development and maintenance.

2.5. Testing Strategies

Testing is a crucial phase in the development of the Dispensary & Pharmacy Management System (DPMS) to ensure the system's reliability, security, and adherence to user requirements. The testing strategies employed for DPMS encompass a comprehensive approach that includes various testing types to address different aspects of the system's functionality.

Testing Strategies for DPMS:

1. Unit Testing:

- Objective: Verify the correctness of individual components and functions within DPMS, such as HTML templates, CSS styles, JavaScript functions, PHP scripts, and database queries.
- Rationale: Unit testing ensures that each component operates as intended, identifying and addressing any issues at an early stage of development.

2. Integration Testing:

- Objective: Evaluate the interactions and interoperability of integrated components within DPMS, such as the seamless connection between the frontend (HTML, CSS, JavaScript) and backend (PHP, MySQL).
- Rationale: Integration testing identifies potential conflicts or inconsistencies between components, ensuring a cohesive and functional system.

3. System Testing:

- Objective: Validate the DPMS system as a whole, assessing its compliance with specified requirements, functionality, and overall performance.
- Rationale: System testing provides a comprehensive evaluation of DPMS, addressing end-to-end scenarios to ensure the system meets user expectations.

4. User Acceptance Testing (UAT):

- Objective: Involve end-users, including healthcare professionals, pharmacists, and other stakeholders, in testing DPMS to ensure it meets their needs and expectations.
- Rationale: UAT validates the usability, user-friendliness, and overall satisfaction of DPMS, incorporating feedback from those who will interact with the system daily.

5. Performance Testing:

- Objective: Assess the speed, responsiveness, and overall performance of DPMS under varying conditions, ensuring it can handle the expected load.
- Rationale: Performance testing identifies potential bottlenecks, ensuring DPMS can provide a smooth and efficient experience even during peak usage.

6. **Security Testing:**

- Objective: Evaluate DPMS for vulnerabilities, ensuring that patient data and system integrity are protected against unauthorized access or malicious activities.
- Rationale: Security testing identifies and addresses potential threats, ensuring DPMS complies with healthcare data protection regulations.

7. **Usability Testing:**

- Objective: Assess the user interface and overall user experience of DPMS, focusing on intuitiveness, navigation, and user satisfaction.
- Rationale: Usability testing ensures that DPMS is user-friendly, reducing the learning curve for healthcare professionals and pharmacists.

8. **Regression Testing:**

- Objective: Ensure that new changes or enhancements do not negatively impact existing functionalities within DPMS.
- Rationale: Regression testing prevents the introduction of new issues or bugs when updates or modifications are made to DPMS.

9. **Data Integrity Testing:**

- Objective: Verify the accuracy, consistency, and integrity of data stored and retrieved within DPMS, particularly in the MySQL database.
- Rationale: Data integrity testing ensures that patient records, prescriptions, and other critical information remain accurate and reliable.

Automation Testing:

- Objective: Implement automated testing scripts to streamline repetitive testing processes, particularly for regression testing and performance testing.
- Rationale: Automation testing accelerates the testing process, reduces human error, and ensures consistent test execution.

Advantages of Testing Strategies:

- Ensures the reliability and stability of DPMS.

- Identifies and resolves issues at early stages of development.
- Validates the system's compliance with user requirements.
- Enhances user satisfaction through usability testing.
- Guarantees the security and protection of sensitive healthcare data.
- Provides a systematic approach to testing, covering various aspects of the system's functionality.

2.6. Implementation Plan

The implementation of the Dispensary & Pharmacy Management System (DPMS) involves a carefully devised plan to transition from development to live deployment. The implementation plan outlines the steps, timeline, and resources required to ensure a smooth integration of DPMS into the healthcare environment.

Key Components of the Implementation Plan:

1. Assessment of Infrastructure:

- Objective: Evaluate the existing infrastructure of healthcare facilities, including pharmacies and dispensaries, to ensure compatibility with DPMS requirements.

Actions:

- Assess hardware capabilities (servers, workstations).
- Verify network infrastructure and bandwidth.
- Confirm compatibility with required software components.

2. User Training:

- Objective: Provide comprehensive training sessions for healthcare professionals, pharmacists, and other end-users to familiarize them with DPMS functionality.

Actions:

- Develop training modules for each user category.
- Conduct interactive training sessions.
- Provide user manuals and documentation.

3. **Data Migration:**

- Objective: Transfer existing patient records, prescriptions, and relevant data from legacy systems or manual records to DPMS.

Actions:

- Develop a data migration strategy.
- Ensure data accuracy and integrity during the migration process.

4. **Integration with Existing Systems:**

- Objective: Integrate DPMS with existing healthcare information systems, ensuring seamless communication and data exchange.

Actions:

- Implement APIs or data interfaces for integration.
- Test interoperability with other healthcare systems.

5. **Pilot Testing:**

- Objective: Conduct a small-scale pilot test of DPMS in a controlled environment to identify and address any issues before full deployment.

Actions:

- Select a representative sample of pharmacies and dispensaries for the pilot.
- Gather feedback from users.
- Make necessary adjustments based on pilot test results.

6. **Rollout Plan:**

- Objective: Implement DPMS in a phased manner, gradually extending its use across all healthcare facilities.

Actions:

- Define a rollout schedule for different regions or facilities.
- Provide on-site support during initial implementation.

- Monitor system performance and address issues in real-time.

7. **User Support and Helpdesk:**

- Objective: Establish a dedicated support system, including a helpdesk, to assist users with queries and address any issues post-implementation.

Actions:

- Train support staff.
- Set up a helpdesk for user assistance.
- Provide documentation for common issues and resolutions.

8. **Quality Assurance:**

- Objective: Implement ongoing quality assurance measures to continuously monitor and improve DPMS performance.

Actions:

- Conduct regular audits of system usage.
- Collect user feedback for continuous improvement.
- Address any identified issues promptly.

9. **Security Measures:**

- Objective: Implement and reinforce security measures to safeguard patient data and ensure compliance with healthcare data protection regulations.

Actions:

- Regularly update security protocols.
- Conduct security audits.
- Provide training on data protection practices.

10. **Monitoring and Evaluation:**

- Objective: Continuously monitor the performance and effectiveness of DPMS, making necessary adjustments based on ongoing evaluation.

Actions:

- Implement monitoring tools for system performance.
- Collect feedback from users.
- Evaluate the achievement of project objectives.

Timeline:

- Develop a detailed timeline outlining each phase of the implementation plan.
- Define milestones for key activities, such as pilot testing, rollout, and ongoing support.

Resources:

- Allocate necessary resources, including personnel, training materials, and technical support.
- Ensure availability of hardware, software licenses, and any additional infrastructure required.

Contingency Plan:

- Develop a contingency plan to address unforeseen challenges or issues that may arise during implementation.
- Establish protocols for rapid response and problem resolution.

Communication Plan:

- Develop a communication plan to keep stakeholders informed throughout the implementation process.
- Communicate updates, milestones, and any changes to the plan regularly.

2.7. Methodology Summary

The Dispensary & Pharmacy Management System (DPMS) project adopts a systematic and comprehensive methodology, encompassing various stages from needs assessment to implementation. This methodology is designed to ensure the successful development, testing, and deployment of a robust healthcare management system. The following paragraphs provide a summary of the key elements of the DPMS project methodology.

Needs Assessment:

The project began with a thorough needs assessment, delving into the intricacies of the existing healthcare system. Stakeholders, including healthcare professionals, pharmacists, and patients, were actively engaged to identify challenges and opportunities for improvement. This initial phase laid the foundation for understanding user requirements and shaping the subsequent stages of development.

System Design:

Based on the insights gathered from the needs assessment, a meticulous system design was crafted. This design incorporated essential features such as e-prescriptions, interconnectivity between pharmacies, and secure patient record management. Utilizing HTML, CSS, JavaScript, MySQL, and PHP, the development tools were chosen strategically to ensure the system's robustness, scalability, and adherence to industry standards.

Declaration of Objectives:

Clear and concise project objectives were defined to guide the development process. These objectives focused on delivering accurate information to pharmacies, preventing illegal prescriptions, efficiently tracking health records, avoiding medication errors, saving time for patients, and ensuring overall user satisfaction. This declaration set a clear path for the project's goals and outcomes.

Testing Strategies:

A comprehensive testing strategy was implemented to validate the functionality and reliability of DPMS. Various testing types, including unit testing, integration testing, system testing, user acceptance testing, performance testing, security testing, usability testing, regression testing, and data integrity testing, were conducted. This rigorous testing approach aimed to identify and address issues at every stage of development, ensuring a high-quality end product.

Agile Development Model:

The Agile software development model was embraced, fostering iterative and incremental development. This flexible approach allowed for the adaptation of the project to evolving requirements, prioritizing collaboration and continuous improvement. Agile principles ensured that DPMS could respond effectively to changing needs and deliver value incrementally.

Implementation Plan:

A detailed implementation plan was formulated to guide the transition from development to live deployment. This plan covered critical aspects such as infrastructure assessment, user training, data migration, system integration, pilot testing, rollout strategy, user support, quality assurance, security measures, and ongoing monitoring and evaluation. The phased deployment approach aimed to minimize disruptions and facilitate a seamless integration process.

User Involvement:

User involvement was a central theme throughout the project. From the pilot testing phase to ongoing user support, a user-centric design approach was prioritized to enhance the overall user experience. Feedback from healthcare professionals, pharmacists, and other stakeholders played a pivotal role in shaping and refining DPMS.

Continuous Improvement:

The methodology places a strong emphasis on continuous improvement. Mechanisms for ongoing monitoring, evaluation, and feedback collection were established to identify areas for enhancement. A proactive approach was adopted to address issues promptly and optimize DPMS based on user feedback and system performance.

Security Measures:

Security considerations were paramount throughout the development process. A robust security infrastructure was implemented, incorporating security testing, regular updates to protocols, and compliance with data protection regulations. This focus aimed to safeguard patient data and ensure the highest standards of security.

Communication and Contingency Planning:

Effective communication and contingency planning were integral components of the methodology. A communication plan was devised to keep stakeholders informed throughout the project, providing updates on milestones and changes. Additionally, a contingency plan was established to address unforeseen challenges promptly, ensuring a rapid response and effective problem resolution.

Chapter 3. Analysis

3.1. Introduction

The Dispensary and Pharmacy Management System is a comprehensive solution designed to streamline and enhance the operations of healthcare facilities, providing efficient management of patient records, medical prescriptions, and pharmacy inventory. This system integrates seamlessly with dispensary workflows, ensuring accurate tracking of patient medical history, prescription issuance, and medication dispensing. Through an intuitive user interface, healthcare professionals can access real-time patient data, facilitating informed decision-making and personalized care. The pharmacy module enables effective inventory management, minimizing medication errors and optimizing stock levels. This system not only improves the overall efficiency of dispensary and pharmacy operations but also enhances patient safety and satisfaction by delivering timely and accurate healthcare services.

3.2. UML Diagram

Use Case Diagram

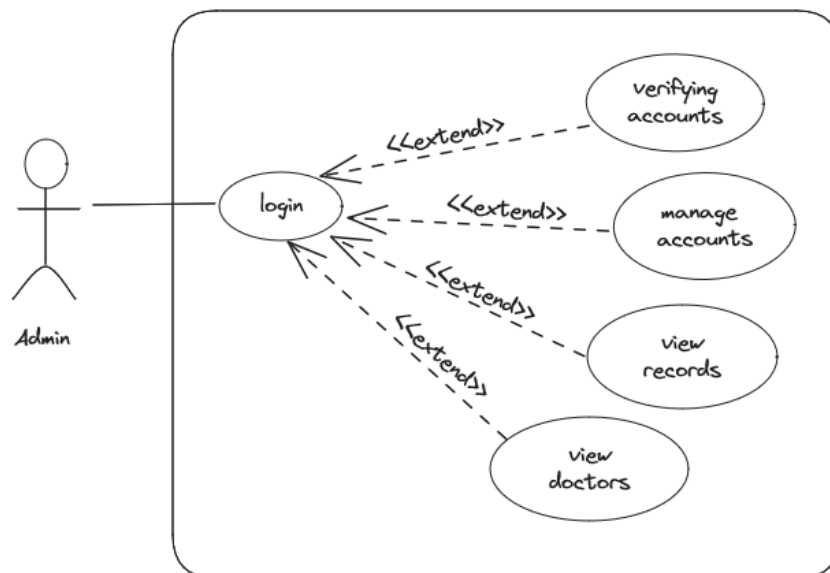


Figure 1 Use Case Diagram – Admin

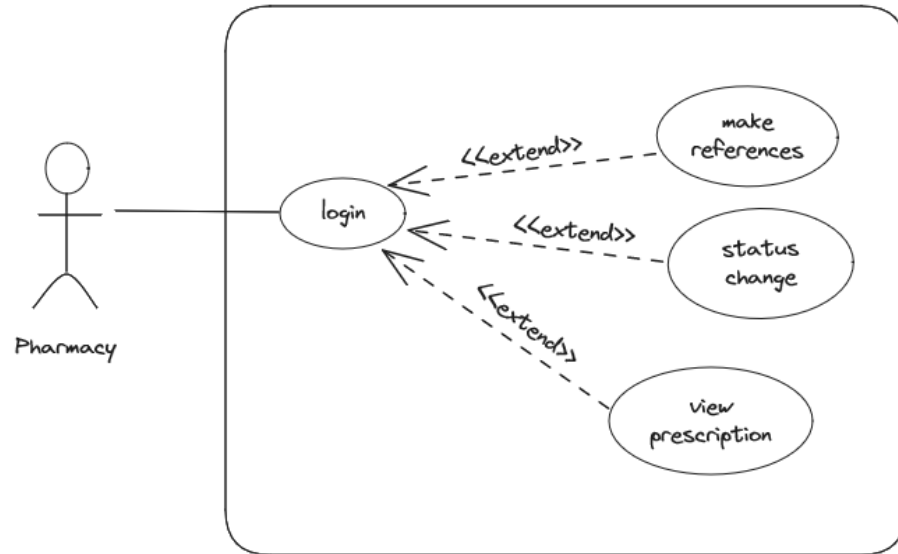


Figure 2 Use Case Diagram – Pharmacy

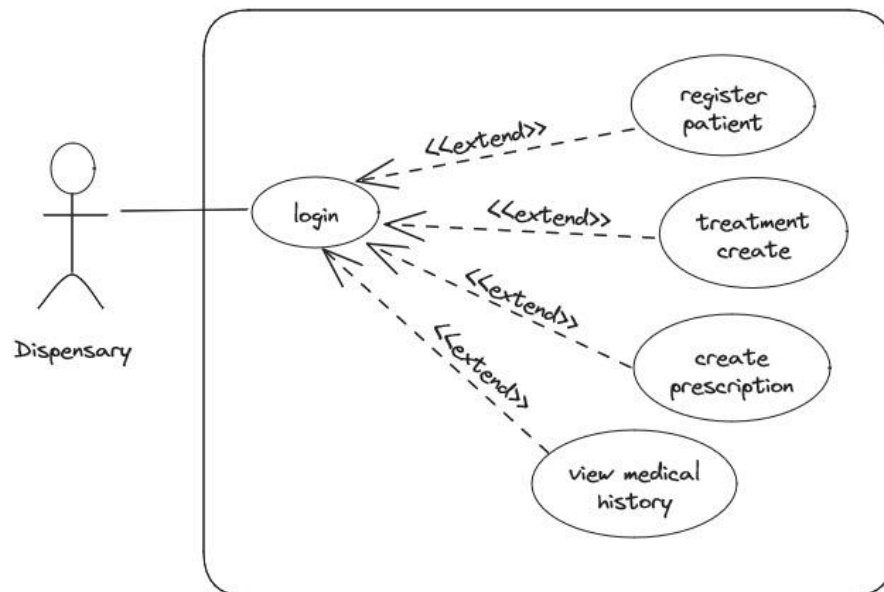


Figure 3 Use Case Diagram – Dispensary

Sequence Diagram

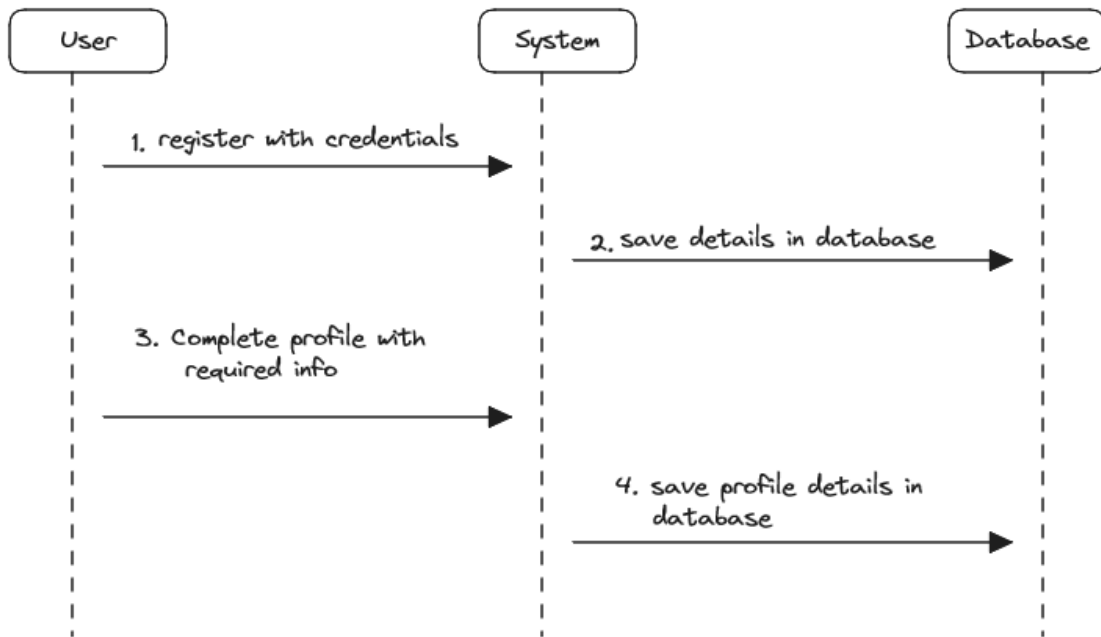


Figure 4 Sequence Diagram Registration

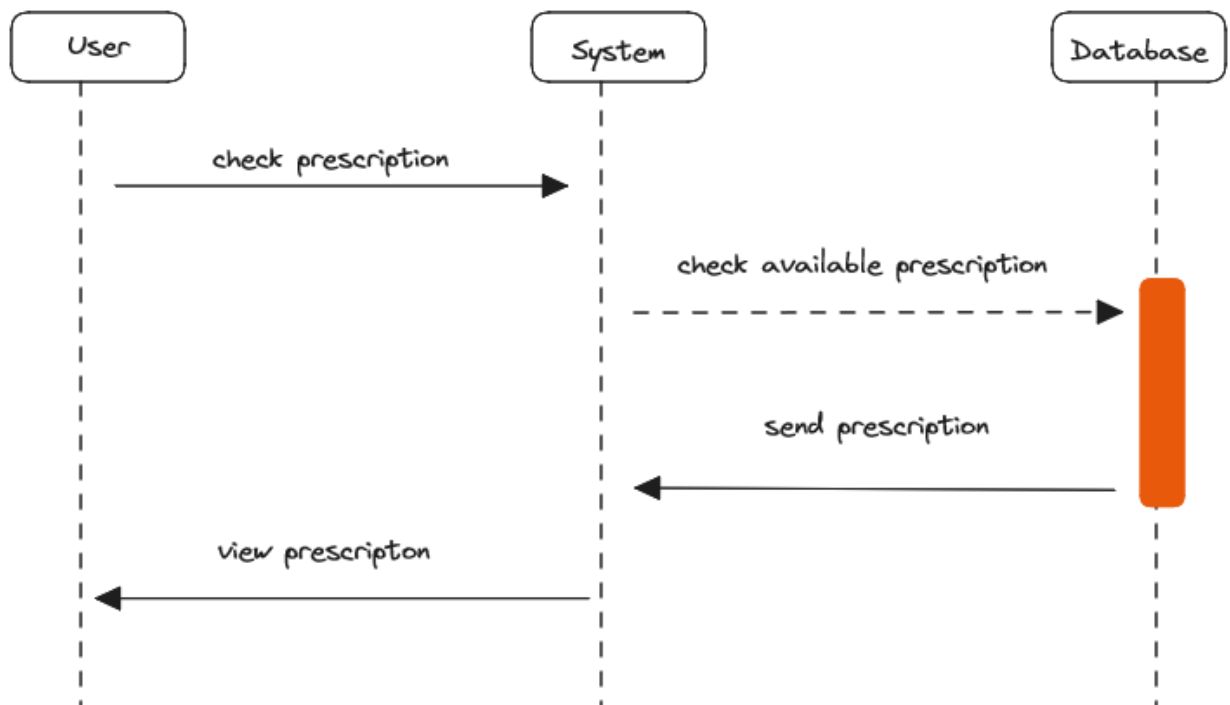


Figure 5 Sequence Diagram View prescription

Class Diagram

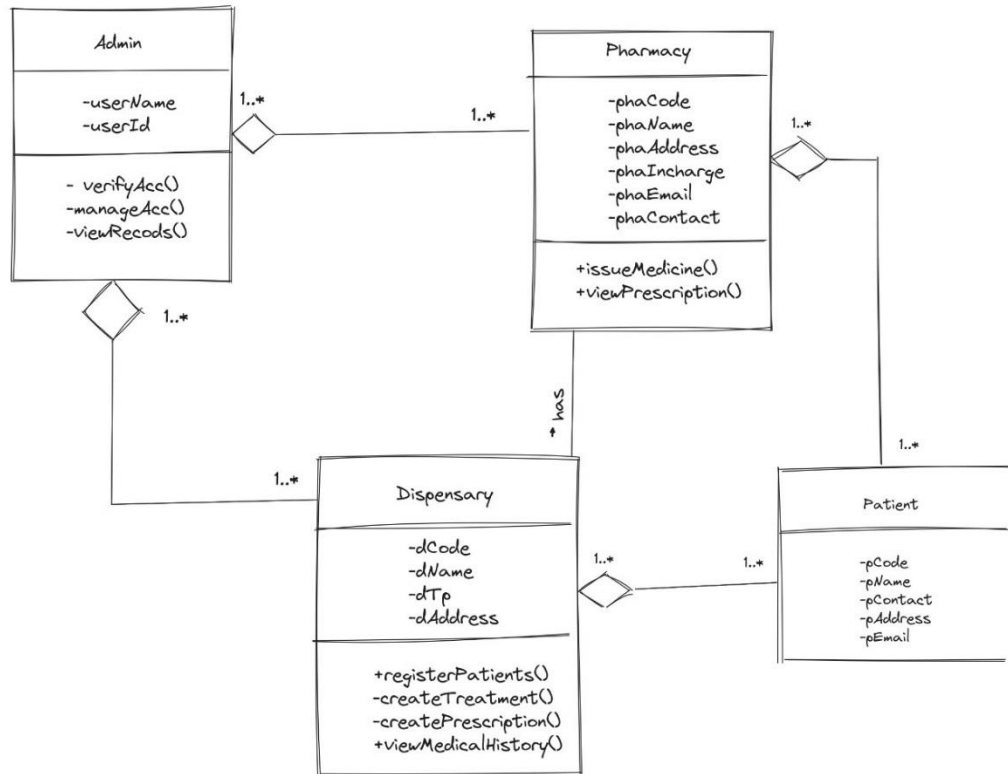


Figure 6 Class Diagram

3.3. ER Diagram of the Proposed System

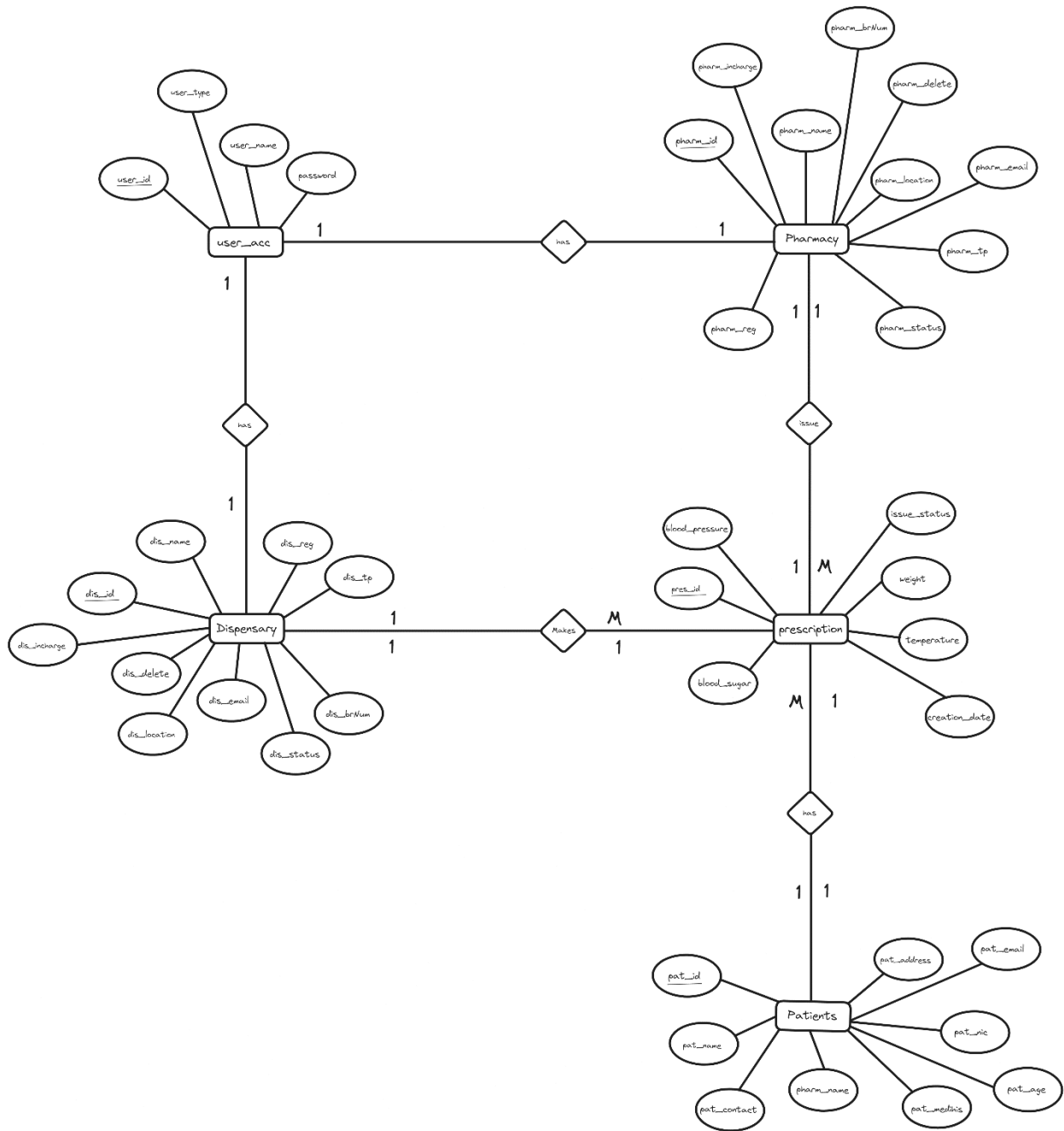


Figure 7 ER Diagram

Chapter 4. Solution Design

4.1. Introduction

In the landscape of healthcare management, challenges in prescription handling, patient record maintenance, and inventory management within pharmacies and dispensaries are prevalent. The DPMS emerges as a holistic solution, aiming to seamlessly connect healthcare providers and pharmacies. At its core, DPMS facilitates the generation and fulfillment of e-prescriptions, forging an interconnected network to streamline healthcare operations.

4.2. Interface Design

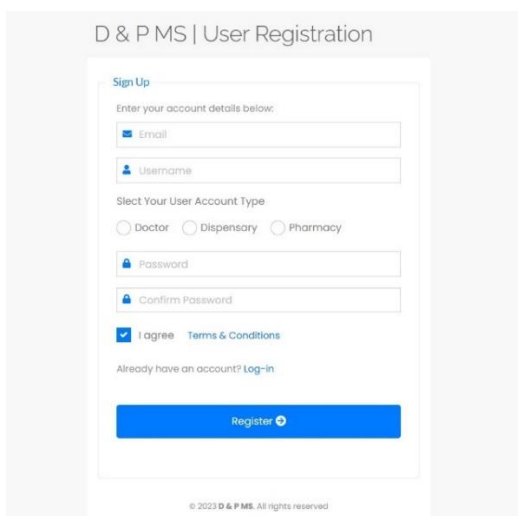
The Interface Design phase of the Dispensary & Pharmacy Management System (DPMS) is pivotal in shaping the visual and interactive elements of the system. This section delves into the specific details of designing interfaces for doctors, pharmacists, and administrators, ensuring a user-centric and efficient experience.

The Interface Design for DPMS caters to the specific needs of doctors, pharmacists, and users, offering an intuitive and efficient experience. By prioritizing ease of use, real-time interactions, and consistent design principles, DPMS aims to enhance the overall healthcare management process for all stakeholders involved.

Interface No. 01

Interface Name: User Registration

Description: This is the user registration form for all the dispensaries and pharmacies.



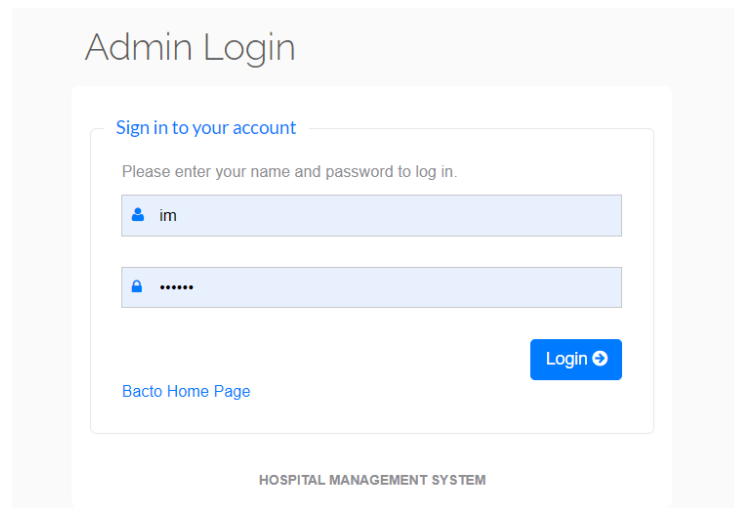
The screenshot displays the 'D & P MS | User Registration' interface. It features a 'Sign Up' section with the instruction 'Enter your account details below:'. The form includes input fields for 'Email' and 'Username'. Below these, there is a 'Select Your User Account Type' section with three radio button options: 'Doctor', 'Dispensary', and 'Pharmacy'. Further down are 'Password' and 'Confirm Password' fields, each with a lock icon. A checkbox labeled 'I agree' is followed by a link to 'Terms & Conditions'. At the bottom, there is a link 'Already have an account? Log-in' and a prominent blue 'Register' button with a right-pointing arrow. A small copyright notice '© 2023 D & P MS. All rights reserved' is visible at the very bottom.

Figure 8 User Registration Interface

Interface No. 02

Interface Name: Admin Login

Description: Admin login



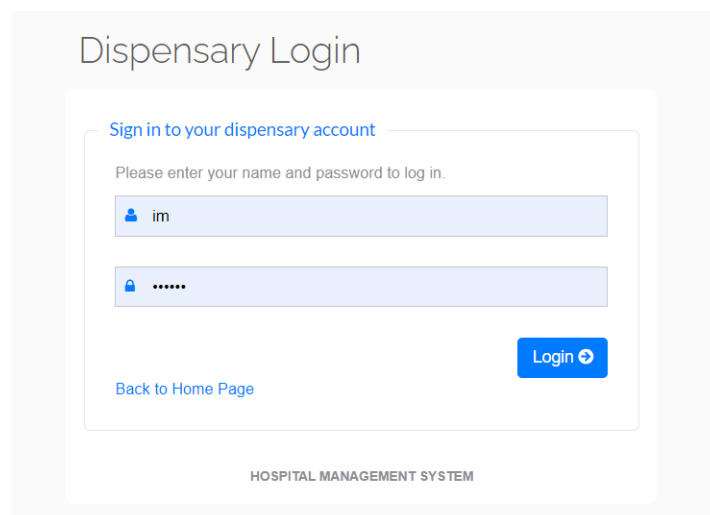
The screenshot shows the 'Admin Login' interface. At the top, the title 'Admin Login' is displayed. Below it, a section titled 'Sign in to your account' contains the instruction 'Please enter your name and password to log in.' There are two input fields: the first is for the username 'im' and the second is for the password, represented by dots. A blue 'Login' button with a right-pointing arrow is located to the right of the password field. Below the input fields, there is a link 'Back to Home Page'. At the bottom of the interface, the text 'HOSPITAL MANAGEMENT SYSTEM' is displayed.

Figure 9 Admin Login Interface

Interface No. 03

Interface Name: Dispensary Login

Description: Dispensary login



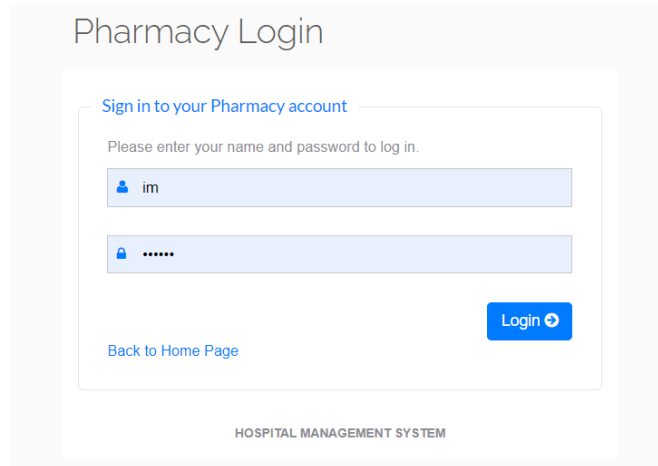
The screenshot shows the 'Dispensary Login' interface. At the top, the title 'Dispensary Login' is displayed. Below it, a section titled 'Sign in to your dispensary account' contains the instruction 'Please enter your name and password to log in.' There are two input fields: the first is for the username 'im' and the second is for the password, represented by dots. A blue 'Login' button with a right-pointing arrow is located to the right of the password field. Below the input fields, there is a link 'Back to Home Page'. At the bottom of the interface, the text 'HOSPITAL MANAGEMENT SYSTEM' is displayed.

Figure 10 Dispensary Login Interface

Interface No. 04

Interface Name: Dispensary Login

Description: Dispensary login



The image shows a 'Pharmacy Login' interface. At the top, it says 'Pharmacy Login'. Below that, there is a link 'Sign in to your Pharmacy account'. A message says 'Please enter your name and password to log in.' There are two input fields: the first is for the username 'im' and the second is for the password, represented by dots. A blue 'Login' button is to the right of the password field. Below the input fields is a link 'Back to Home Page'. At the bottom, it says 'HOSPITAL MANAGEMENT SYSTEM'.

Figure 11 Pharmacy Login Interface

Interface No. 05

Interface Name: Admin Dashboard

Description: Admin Dashboard

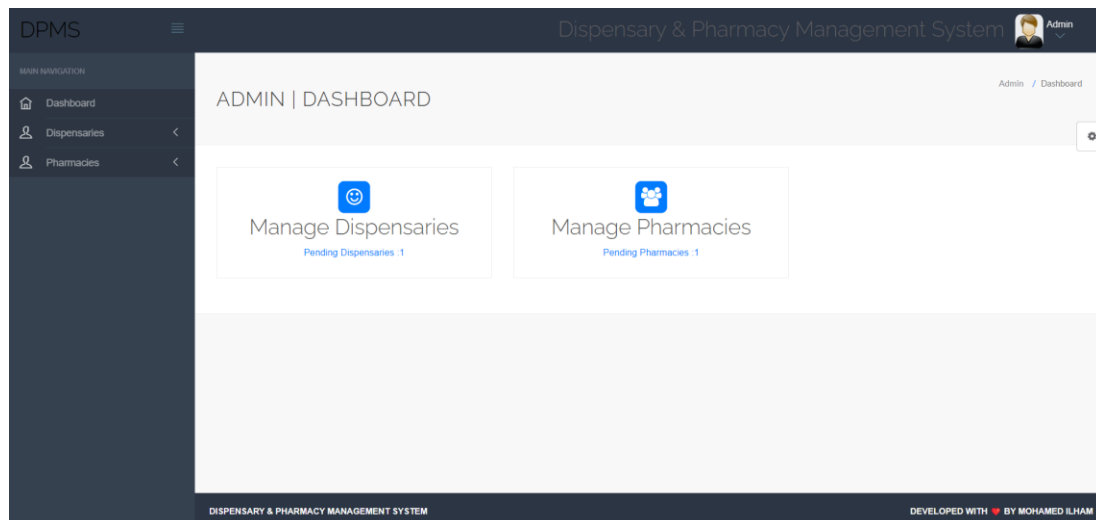


Figure 12 Admin Dashboard Interface

Interface No. 06

Interface Name: Admin Pending Dispensaries

Description: Admin Dashboard

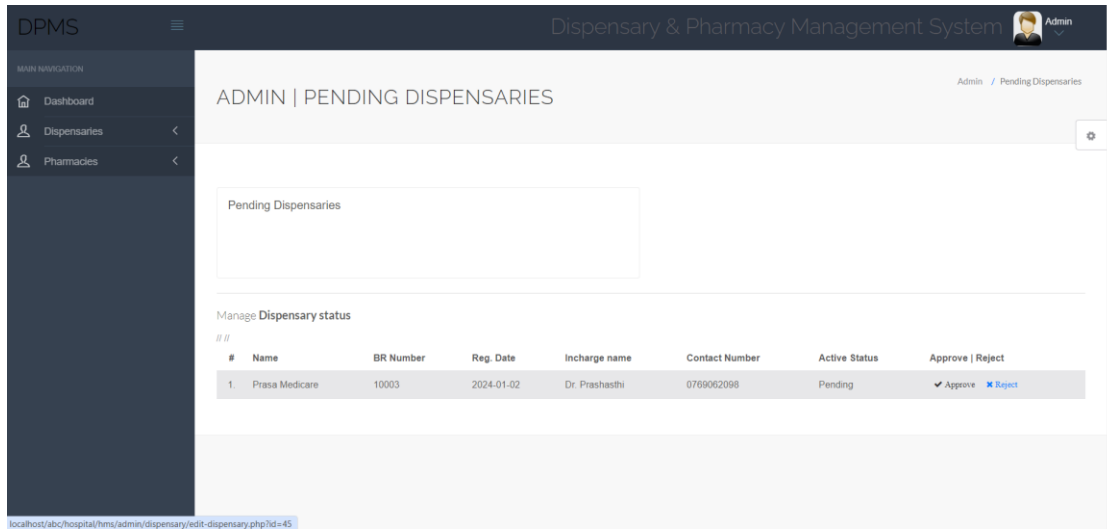


Figure 12 Dispensary & Pharmacy Approval Interface

Interface No. 07

Interface Name: Admin View All Registered Dispensaries

Description: Admin Dashboard

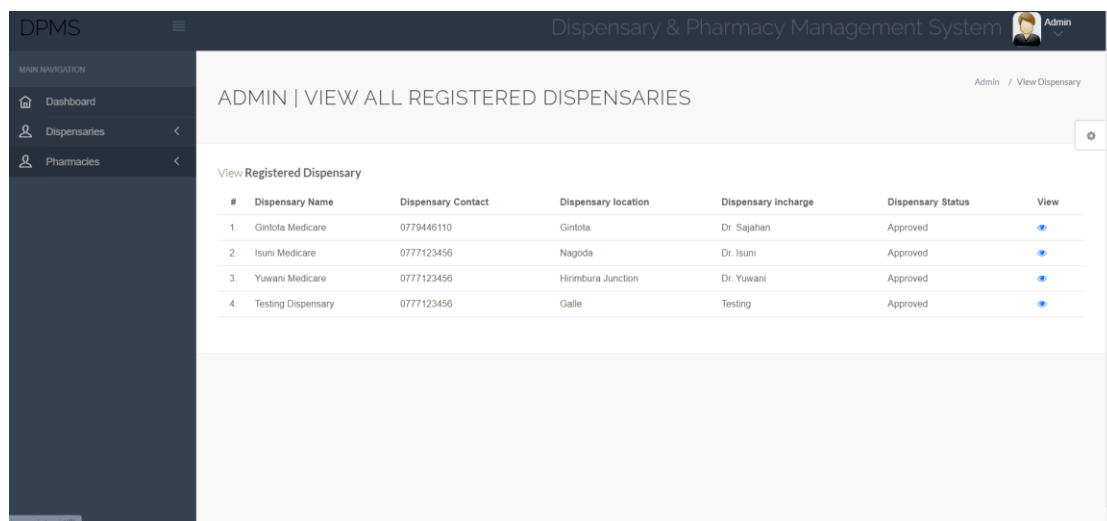
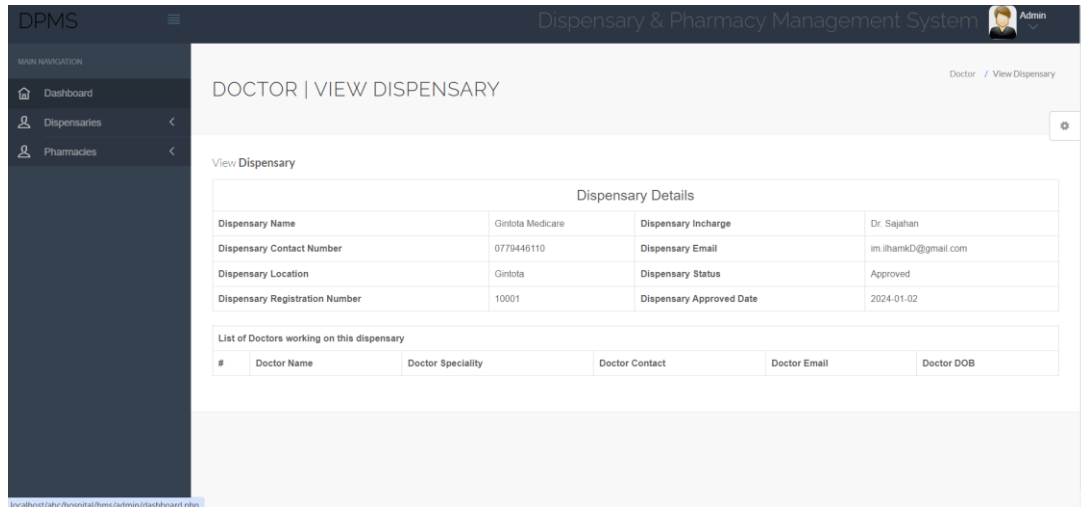


Figure 13 View Registered Dispensary & Pharmacy Interface

Interface No. 09

Interface Name: Admin View Dispensary

Description: Admin Dashboard



The screenshot shows the 'DOCTOR | VIEW DISPENSARY' interface. It features a sidebar with 'Dashboard', 'Dispensaries', and 'Pharmacies'. The main content area displays 'View Dispensary' details for 'Gintola Medicare'. Below this is a table for 'List of Doctors working on this dispensary'.

Dispensary Details					
Dispensary Name	Gintola Medicare	Dispensary Incharge	Dr. Sajahan		
Dispensary Contact Number	0779446110	Dispensary Email	im.ihamkD@gmail.com		
Dispensary Location	Gintola	Dispensary Status	Approved		
Dispensary Registration Number	10001	Dispensary Approved Date	2024-01-02		

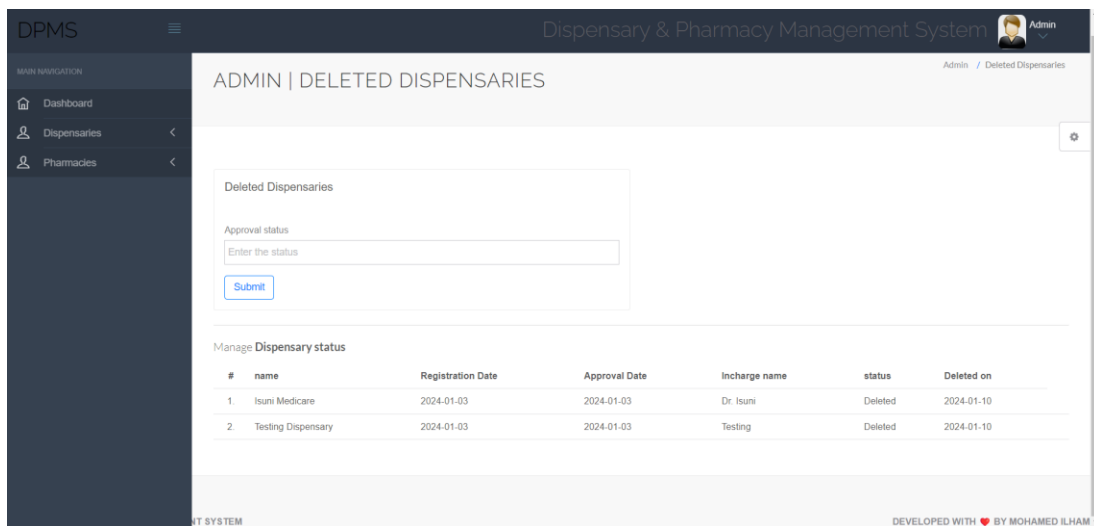
List of Doctors working on this dispensary					
#	Doctor Name	Doctor Speciality	Doctor Contact	Doctor Email	Doctor DOB

Figure 14 View Dispensary Interface

Interface No. 10

Interface Name: Admin Deleted Dispensary

Description: Admin Dashboard



The screenshot shows the 'ADMIN | DELETED DISPENSARIES' interface. It includes a sidebar and a main content area with a 'Deleted Dispensaries' form and a table for 'Manage Dispensary status'.

Deleted Dispensaries

Approval status

Enter the status

Submit

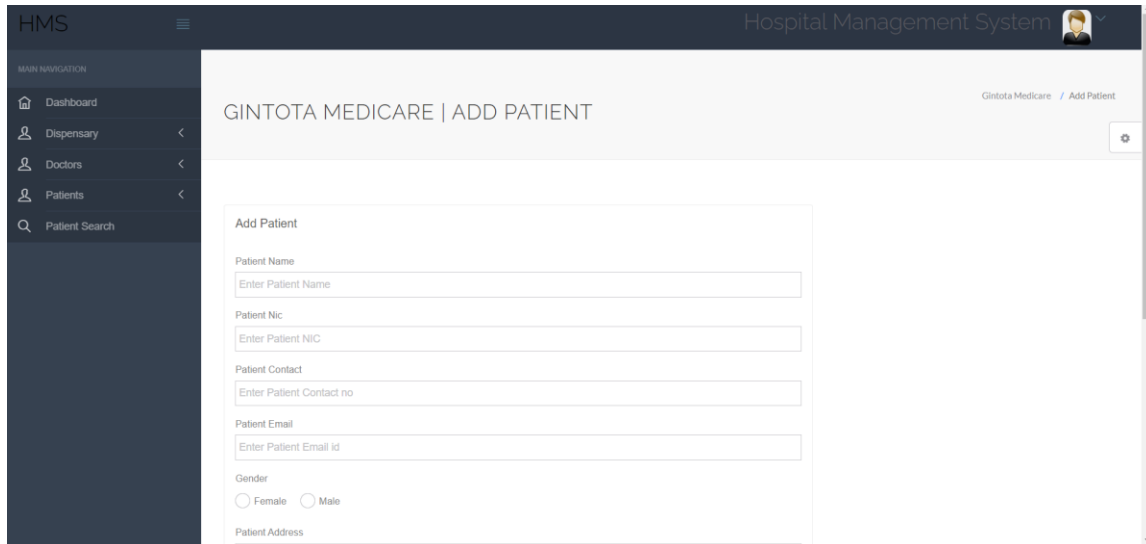
Manage Dispensary status						
#	name	Registration Date	Approval Date	Incharge name	status	Deleted on
1.	Isuni Medicare	2024-01-03	2024-01-03	Dr. Isuni	Deleted	2024-01-10
2.	Testing Dispensary	2024-01-03	2024-01-03	Testing	Deleted	2024-01-10

Figure 15 Deleted Dispensary Interface

Interface No. 11

Interface Name: Dispensary Dashboard Add New Patient

Description: Dispensary Dashboard



HMS Hospital Management System

MAIN NAVIGATION

- Dashboard
- Dispensary
- Doctors
- Patients
- Patient Search

GINTOTA MEDICARE | ADD PATIENT

Form Fields:

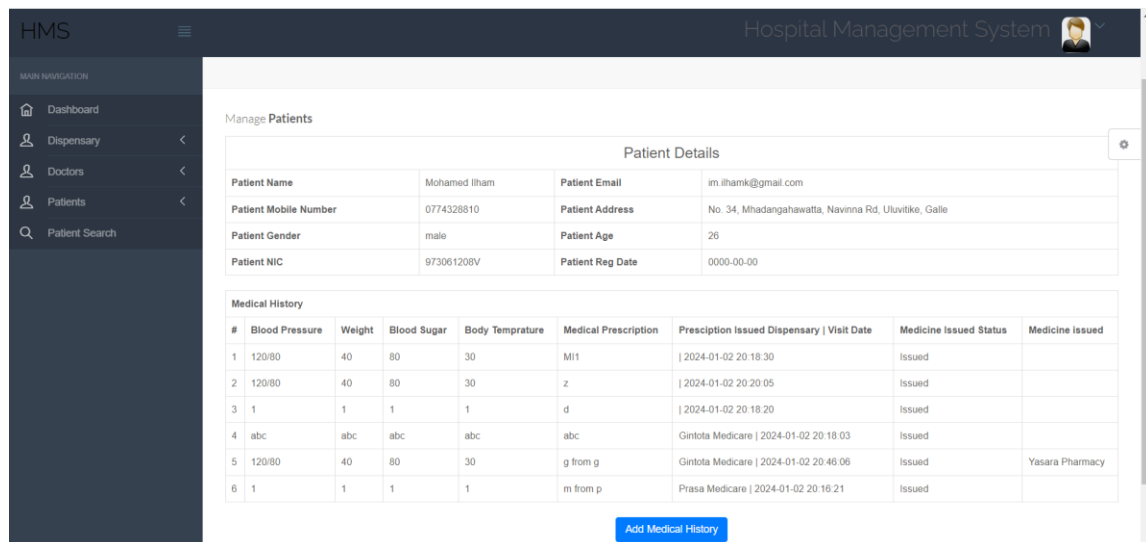
- Patient Name: Enter Patient Name
- Patient Nic: Enter Patient NIC
- Patient Contact: Enter Patient Contact no
- Patient Email: Enter Patient Email id
- Gender: ☐ Female ☐ Male
- Patient Address

Figure 16 Dispensary Dashboard Add New Patient Interface

Interface No. 12

Interface Name: Dispensary Dashboard View Patient

Description: Dispensary Dashboard



HMS Hospital Management System

MAIN NAVIGATION

- Dashboard
- Dispensary
- Doctors
- Patients
- Patient Search

Manage Patients

Patient Details

Patient Name	Mohamed Iham	Patient Email	im.ihamk@gmail.com
Patient Mobile Number	0774328810	Patient Address	No. 34, Mhadangahawatta, Navinna Rd, Uluvitke, Galle
Patient Gender	male	Patient Age	26
Patient NIC	973061208V	Patient Reg Date	0000-00-00

Medical History

#	Blood Pressure	Weight	Blood Sugar	Body Temperature	Medical Prescription	Prescription Issued Dispensary Visit Date	Medicine issued Status	Medicine issued
1	120/80	40	80	30	M11	2024-01-02 20:18:30	Issued	
2	120/80	40	80	30	z	2024-01-02 20:20:05	Issued	
3	1	1	1	1	d	2024-01-02 20:18:20	Issued	
4	abc	abc	abc	abc	abc	Gintota Medicare 2024-01-02 20:18:03	Issued	
5	120/80	40	80	30	g from g	Gintota Medicare 2024-01-02 20:46:06	Issued	Yasara Pharmacy
6	1	1	1	1	m from p	Prasa Medicare 2024-01-02 20:16:21	Issued	

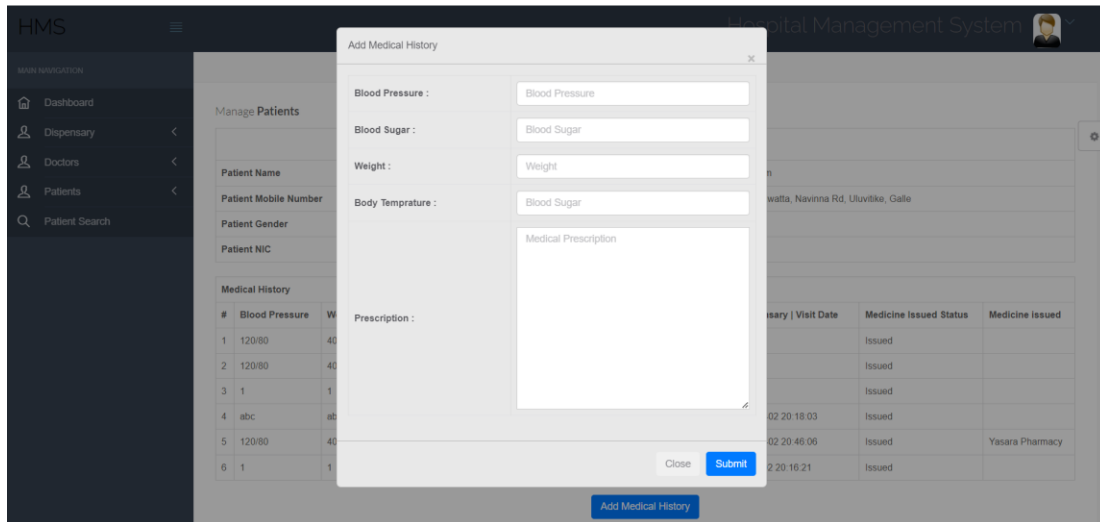
Add Medical History

Figure 16 Dispensary Dashboard View Patient Interface

Interface No. 13

Interface Name: Dispensary Dashboard Add Medical Record

Description: Dispensary Dashboard



Add Medical History

Blood Pressure :

Blood Sugar :

Weight :

Body Temperature :

Medical Prescription

Prescription :

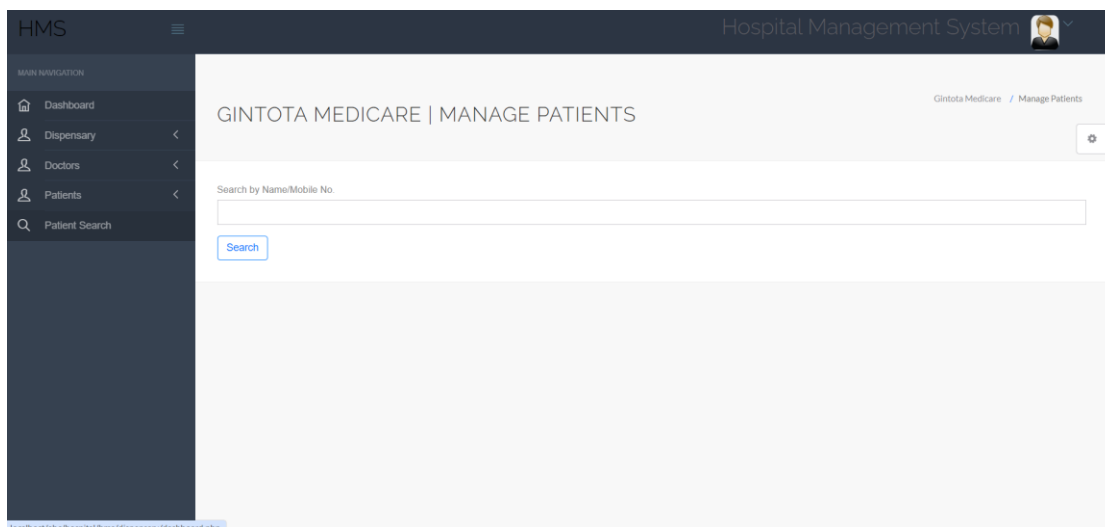
Close Submit

Figure 17 Dispensary Dashboard Add Medical Record Interface

Interface No. 14

Interface Name: Dispensary Dashboard Search Patient

Description: Dispensary Dashboard



HMS Hospital Management System

MAIN NAVIGATION

- Dashboard
- Dispensary
- Doctors
- Patients
- Patient Search

GINTOTA MEDICARE | MANAGE PATIENTS

Search by Name/Mobile No.

Search

Figure 18 Dispensary Dashboard Search Patient Interface

Interface No. 15

Interface Name: Pharmacy Dashboard

Description: Pharmacy Dashboard

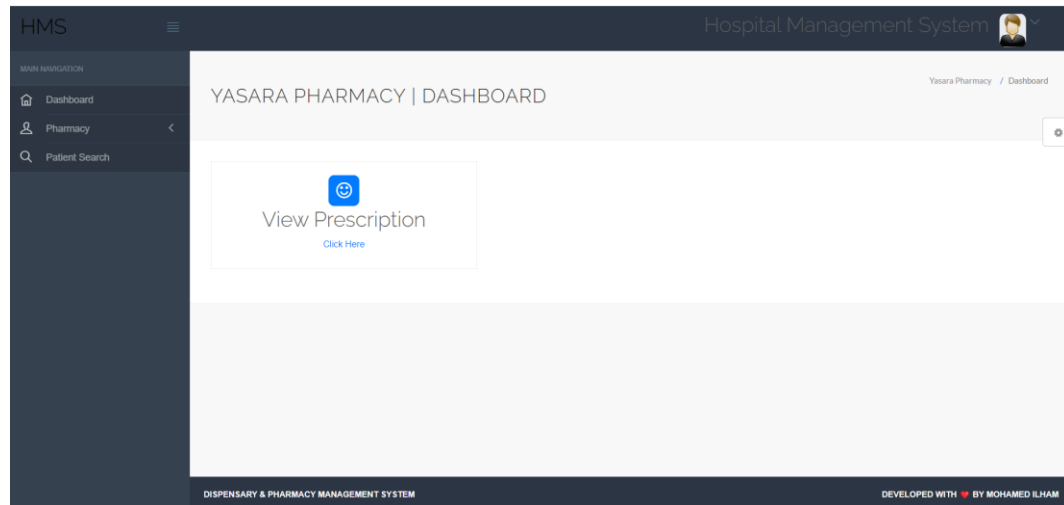


Figure 19 Pharmacy Dashboard Interface

Interface No. 16

Interface Name: Pharmacy Dashboard Search Patient

Description: Pharmacy Dashboard

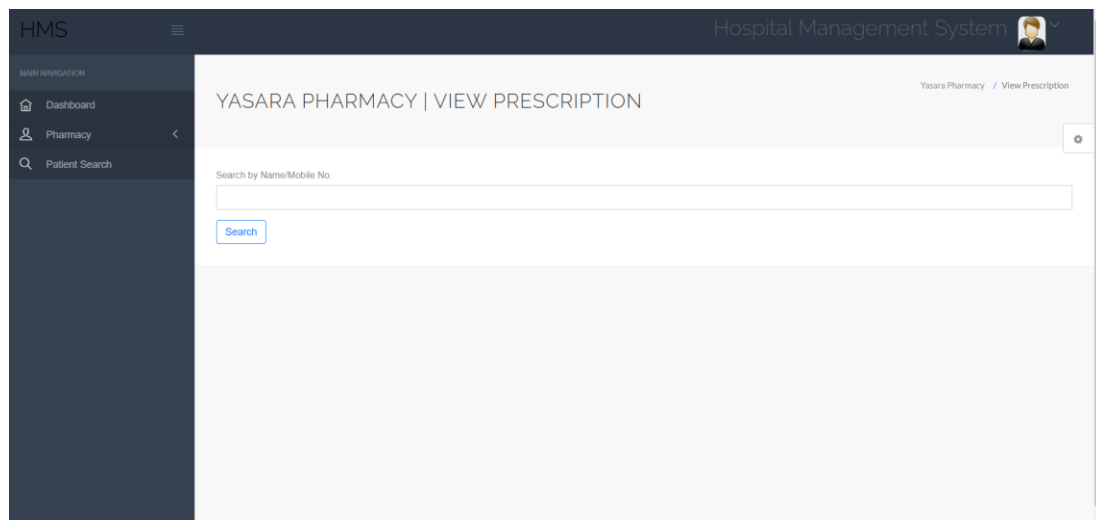


Figure 21 Pharmacy Dashboard Search Patient Interface

Interface No. 17

Interface Name: Pharmacy Dashboard Issue Medicine

Description: Pharmacy Dashboard

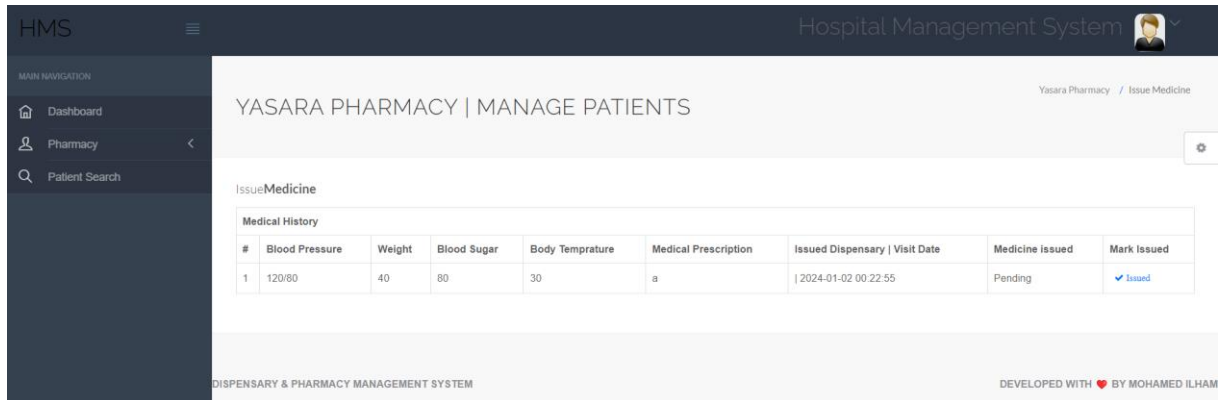


Figure 20 Pharmacy Dashboard Issue Medicine Interface

4. Database Design

Table User Login

userid	username	password	usertype
u001	imilham	00im	Dispensary
u002	ilhamk	m0012	Pharmacy
u003	Mohamed	abcd	Doctor

Table Doctor

dispensary_ID	dispensary_name	dispensary_location	dispensary_tp	dispensary_email
44	Gintota Medicare	Gintota	Dr. Sajahan	779446110

dispensary_emnchargeail	dispensary_reg	dispensary_deletion	userid	dispensary_status
im.ilhamkD@gmail.com	0:06:00	4:03:00	315	Approved

dis_brNumber
10001

Table Pharmacy

pharmacy_ID	pharmacy_name	pharmacy_location	pharmacy_tp	pharmacy_email
11	Yasara Pharmacy	Hirimbura Junction	Mr. Yasarithne	777123456

pharmacy_email	pharmacy_reg	pharmacy_deletion	pharmacy_status	userid
im.ilhamkP@gmail.com	2:04:00	0000-00-00	Approved	316

pharmacy_brNumber
10002

Table Patient

patient_nic	patient_name	patient_age	patient_contact	patient_address	patient_email
200168501472	Nawodya	22	774328817	Hirimbura Lane Galle	yuwani@gmail.com

patient_id	patient_gender	medhistory	medicine	status	CreationDate	UpdateDate
31	female	none			0000-00-00	0000-00-00

dispensary_id	pharmacy_id
01	02

01 - Yuwani Medicare

02 - Yasara Pharmacy

Table Medical Prescription

ID	PatientID	BloodSugar	Weight	Temperature	MedicalPres	issue_status
46	27	80	40	30	g from g	Issued

issued_pharmacy	BloodPressure	issued_dispensary	CreationDate
Yasara Pharmacy	120/80	Gintota Medicare	2024-01-02 20:46:06

Chapter 5: Implementation

```
<script type="text/javascript">

function valid()
{
    if(document.registration.password.value != document.registration.password_again.value)
    {
        //alert("Password and Confirm Password Field do not match !!");
        document.getElementById("user-availability-status4").style.color = "red";
        document.getElementById("user-availability-status4").textContent = "Password Not Matching";

        document.registration.password_again.focus();
        return false;
    }
    document.getElementById("user-availability-status4").style.color = "black";
    document.getElementById("user-availability-status4").textContent = "";

    return true;
}
</script>
```

Figure 22 function checking the validity

```
<script>
function userNameAvailability()
{
    $("#loaderIcon").show();
    jQuery.ajax
    ({
        url: "check_availability.php",
        data:'userName='+$("#userName").val(),
        type: "POST",
        success:function(data){
            $("#user-availability-status2").html(data);
            $("#loaderIcon").hide();
        },
        error:function (){}
    });
}
</script>
```

Figure 23 function checking the username availability

```
<script>
function brNumAvailability()
{
    $("#loaderIcon").show();
    jQuery.ajax
    ({
        url: "check_availability.php",
        data: 'brNum='+$("#brNum").val(),
        type: "POST",
        success:function(data){
            $("#user-availability-status3").html(data);
            $("#loaderIcon").hide();
        },
        error:function (){}
    });
}
```

Figure 24 Function to check brnumber availability

```
//dispensary enabling
function disEnableTextField() {
    document.getElementById("brNum").disabled = false;
    document.getElementById("brNum").placeholder = "Dispensary Registration number";
    document.getElementById("brNumDiv").style.display = "block";
    document.getElementById("brNum").required = "false";
}

//pharmacy enabling
function pharmEnableTextField() {
    document.getElementById("brNum").disabled = false;
    document.getElementById("brNum").placeholder = "Pharmacy Registration number";
    document.getElementById("brNumDiv").style.display = "block";
}

//disable br number for doctor
function disableTextField() {
    //document.getElementById("brNum").disabled = true;
    document.getElementById("brNum").value = "";
    document.getElementById("user-availability-status3").innerHTML = "";
    document.getElementById("brNum").placeholder = "";
    //document.getElementById("brNum").required = "false";
    document.getElementById("brNumDiv").style.display = "none";
}
```

Figure 25 functions to enable & disable textfields & buttons

Chapter 6: conclusion

In conclusion, the Dispensary and Pharmacy Management System stands as a cornerstone in modern healthcare administration, revolutionizing the way medical facilities manage patient data and pharmaceutical resources. This comprehensive solution addresses the challenges faced by dispensaries and pharmacies, offering a user-friendly platform for seamless integration of medical records, prescription management, and inventory control.

Through the implementation of this system, healthcare providers experience a paradigm shift in their daily operations. The streamlined workflow allows for quick and precise access to patient records, empowering medical professionals to make informed decisions promptly. The automated prescription issuance and dispensing process not only enhance efficiency but also significantly reduce the risk of medication errors, promoting patient safety.

Moreover, the pharmacy module of the system introduces a new era of inventory management, optimizing stock levels and ensuring the availability of medications when needed. This not only prevents shortages but also minimizes wastage, contributing to cost-effectiveness in pharmaceutical operations.

Ultimately, the Dispensary and Pharmacy Management System represents a pivotal advancement in healthcare technology, fostering improved patient care, operational excellence, and overall efficiency in medical facilities. By embracing this innovative solution, healthcare institutions are better equipped to meet the evolving demands of the industry while prioritizing the well-being of their patients.