

CHAPTER 1: PROBLEM STATEMENT

The healthcare industry faces significant challenges in managing and sharing patient health data, scheduling appointments, and ensuring effective communication between patients and healthcare providers. Traditional healthcare systems often rely on fragmented, paper-based processes or outdated digital solutions, which result in inefficiencies, errors, and delays. Moreover, patients struggle with managing their health records across different healthcare providers and lack seamless access to timely healthcare services.

The need for a comprehensive, integrated web application that streamlines health data management, appointment scheduling, health monitoring, and communication has become crucial. The Health Data Information & Management System (HDIMS) web application aims to address these challenges by providing a centralized platform that enables secure management of patient health records, seamless appointment scheduling, real-time health tracking through wearable devices, and effective communication between patients and doctors.

This problem statement highlights the gaps in current healthcare systems and defines the need for an innovative solution that improves the accessibility, efficiency, and security of healthcare services, ultimately leading to better patient outcomes and more effective healthcare delivery. The HDIMS web application seeks to fulfil this need by offering a user-friendly, secure, and scalable solution that enhances both patient and healthcare provider experiences.

CHAPTER 2: SOFTWARE REQUIREMENT SPECIFICATION

Health Data Information & Management System Website Application (HDIMS)

1. Introduction

1.1 Purpose of this Document

This document serves as the comprehensive Software Requirements Specification (SRS) for the Health Data Information & Management System (HDIMS) Website application. It outlines the system's objectives, functionalities, constraints, and interfaces, ensuring that all stakeholder needs are clearly defined. This SRS will guide the development team and provide clarity to stakeholders, developers, and project managers regarding the scope and requirements of the HDIMS project.

1.2 Scope of the Document

The scope covers all aspects of HDIMS development, including system functionalities, features, interface requirements, performance metrics, and constraints. The HDIMS application is designed to facilitate health data management, appointment scheduling, health monitoring via wearable devices, and enhanced communication with healthcare professionals. The project aims for deployment on both Android and iOS platforms within a 12-month timeline and an estimated budget of \$300,000.

1.3 Overview

The HDIMS Website application will enable patients, doctors, and administrators to securely and efficiently interact with health data. Key functionalities include health record management, appointment scheduling, health monitoring through wearables, prescription management, and patient-doctor communication. The application aims to enhance healthcare delivery by improving accessibility and efficiency through Website technology.

2. General Description

2.1 Product Perspective

The HDIMS Website application operates as a standalone system while integrating with external health services, such as Electronic Health Records (EHRs), lab results, and wearable devices (e.g., smartwatches). The application is designed for accessibility on smartphones running iOS and Android platforms.

2.2 Product Features

- **Patient Health Records:** Manage and share medical history, diagnoses, prescriptions, and lab reports.

- **Appointment Scheduling:** Seamlessly book and manage appointments.
- **Health Monitoring:** Sync data from wearables to track vital health metrics.
- **Prescription Management:** Facilitate electronic prescriptions shared with pharmacies.
- **Notifications:** Real-time alerts for appointments and health updates.
- **Doctor Profiles & Reviews:** Access doctor profiles and patient reviews.
- **Admin Dashboard:** Provide oversight tools for user management and app performance monitoring.

2.3 User Characteristics

- **Patients:** Individuals managing personal health data and seeking medical services.
- **Doctors:** Healthcare providers managing patient records and consultations.
- **Administrators:** Users overseeing application operations, including user roles and appointments.

2.4 System Features

- Secure user registration and login
- Comprehensive patient health record management
- Robust appointment booking functionality
- Integration with wearable devices for health tracking
- Notification system for reminders and alerts
- Doctor profiles with rating capabilities
- Administrative tools for system management

3. Functional Requirements

3.1 User Registration & Authentication

- Users can sign up using email or phone numbers.
- Multi-factor authentication (MFA) to enhance security.

3.2 Patient Health Records Management

- Ability to upload and store medical records.
- Doctors can retrieve patient records to make informed decisions.

3.3 Appointment Management

- Patients can book, reschedule, or cancel appointments.
- Doctors can approve or deny appointment requests.

3.4 Health Monitoring Integration

- Synchronize data from wearables to track metrics such as heart rate and activity levels.

3.5 Prescription Management

- Doctors can issue electronic prescriptions.
- Patients can share prescriptions with pharmacies.

3.6 Notification System

- Push notifications for appointment reminders, prescription updates, and health alerts.

3.7 Doctor Profile & Reviews

- Patients can view doctor profiles.
- Patients can rate and review doctors based on their experiences.

3.8 Admin Dashboard

- Tools to manage users, appointments, and monitor app performance analytics.

4. Interface Requirements

4.1 Software Interfaces

- **APIs:** REST APIs for backend communication.
- **Health Device Integration:** Utilize Google Fit or Apple HealthKit APIs.
- **Cloud Storage:** Secure storage solutions, such as AWS or Google Cloud.

4.2 User Interfaces

- Intuitive graphical user interface (GUI) designed for responsiveness across both Android and iOS devices.

4.3 Communication Interfaces

- Secure communication via HTTPS with SSL/TLS encryption.
- Push notifications managed through Firebase (Android) and Apple Push Notification service (iOS).

5. Performance Requirements

Requirement	Specification
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Response Time	Load within 3 seconds; critical features within 5 seconds
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Concurrent Users	Support up to 10,000 simultaneous users
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Storage	Initial capacity of 100 GB
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Error Rate	Maintain a maximum error rate of 0.1%
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6. Design Constraints

- **Algorithm Limitations:** Some algorithms may be restricted by device capabilities.
- **Hardware Requirements:** Compatibility with iOS 12 and above, Android 8 and above.
- **Development Tools:** Utilize React Native for cross-platform efficiency.

7. Non-Functional Requirements

- **Security:** Encrypt all patient data in transit (HTTPS) and at rest (AES-256).
- **Portability:** Ensure compatibility across both Android and iOS platforms.
- **Reliability:** Achieve a minimum uptime of 99.9%.
- **Scalability:** Design for future scalability to support millions of users.
- **Data Integrity:** Implement data validation processes to ensure data accuracy and prevent corruption.

8. Preliminary Schedule and Budget

8.1 Schedule

Phase	Duration
Phase 1 - Requirements & Design	2 months
Phase 2 - Development	6 months
Phase 3 - Testing & QA	2 months
Phase 4 - Deployment & Maintenance	Ongoing

Total Project Duration: 12 months

8.2 Budget

Item	Cost
Development Costs	\$200,000
Testing & Quality Assurance	\$50,000
Deployment & Marketing	\$30,000
Miscellaneous & Contingencies	\$20,000

Total Estimated Budget: \$300,000

9. Conclusion

The Health Data Information & Management System (HDIMS) Website application aims to revolutionize healthcare management by offering a robust, secure, and user-friendly platform for managing health records, scheduling appointments, monitoring health metrics, and enhancing communication between patients and healthcare providers. This document provides a comprehensive roadmap for developing the HDIMS application, ensuring that all functional, performance, and non-functional requirements are clearly defined. By adhering to this SRS, the development team will be equipped to deliver a high-quality solution that meets stakeholder expectations, improves healthcare outcomes, and sets a new standard in Website health technology.

CHAPTER 3: CLASS MODELING

UML Advanced Class Diagram

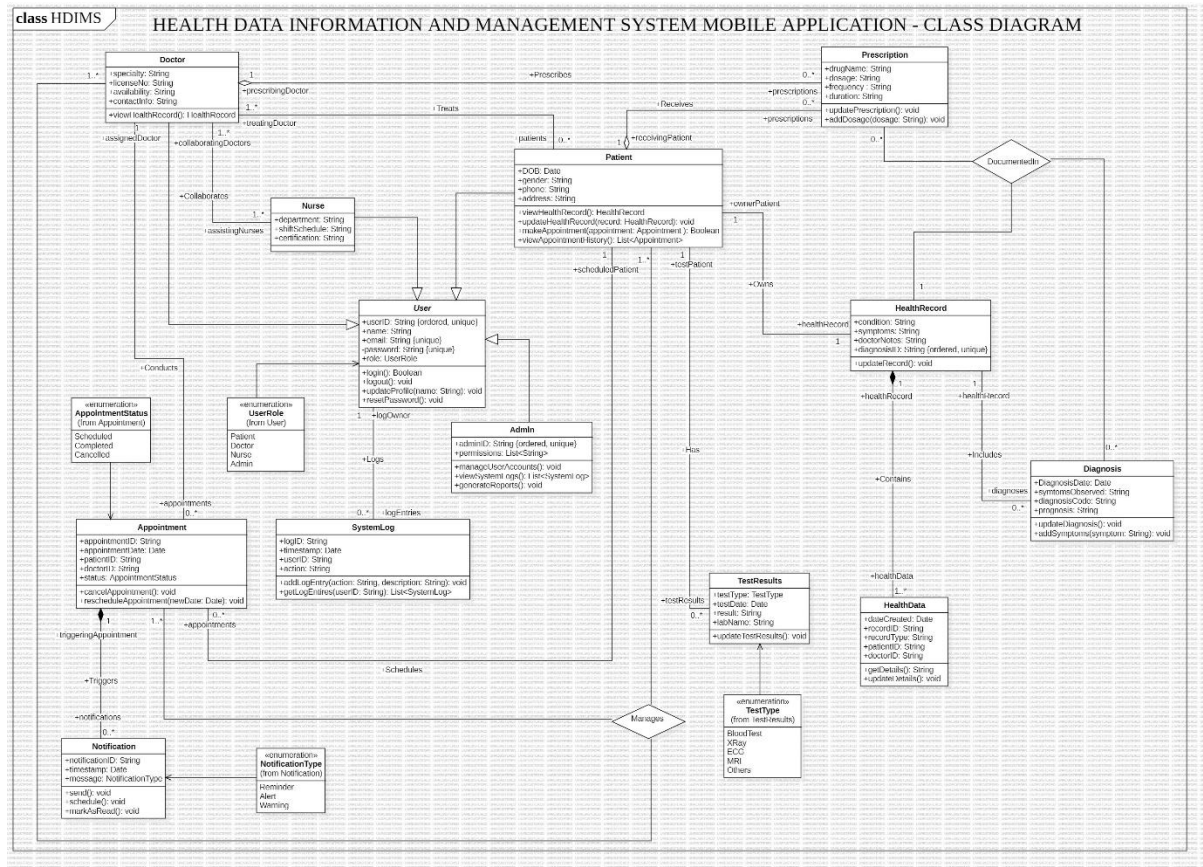


Figure 3.1: Class Diagram

The **Health Data Information & Management System (HDIMS)** is designed to streamline the management of patient health data, improve communication among healthcare providers, and facilitate efficient care delivery. The following descriptions outline the relevance of each class in the system, highlighting their crucial roles in ensuring smooth operations and providing effective healthcare services.

1. Doctor: This class manages all doctor-related information. It is crucial for maintaining and updating doctors' profiles, which are accessed by patients and administrators for appointment scheduling, consultations, and more.

2. Nurse: Similar to the Doctor class, this class stores and manages information about nurses, ensuring their availability and contact details are easily accessible for both patients and administrators.

3. Patient: Central to the system, this class holds patient-related information, including personal and medical history. It allows for effective patient management and facilitates interaction with healthcare professionals.

4. Appointment: This class is vital for managing the scheduling and status of patient appointments. It ensures that doctors and patients can easily set, modify, or cancel appointments as needed.

5. Symptom: This class catalogues symptoms reported by patients, aiding in diagnoses and the creation of personalized treatment plans. It is essential for tracking patient health details.

6. Prescription: It handles prescriptions issued by doctors. This class ensures that patients can access their prescribed medications and share the details with pharmacies, helping to manage medication administration.

7. Diagnosis: This class records diagnoses, allowing doctors to track patient conditions and making it easier to provide continuous care based on past and current medical findings.

8. Treatment: Tracks treatment details given to patients, which is crucial for monitoring patient recovery or response to therapies, ensuring all administered treatments are recorded.

9. Medication: Manages medication details, helping to ensure that the correct dosages are prescribed and taken, and preventing medication errors.

10. User: Manages user accounts and roles within the system, ensuring that different users (e.g., doctors, nurses, patients, administrators) have appropriate access to the system.

11. Login: Tracks user login sessions for security purposes, ensuring that login and logout activities are recorded for auditing and troubleshooting.

12. Approval: Manages the process of user account approval, ensuring compliance with system policies, especially when new users or actions need administrative review.

13. Role: This class defines the roles within the system (e.g., admin, doctor, patient). It ensures that each user has proper access levels and permissions according to their role.

14. Notification: Manages notifications within the system, ensuring that users are alerted about important events such as appointments, prescriptions, or health alerts.

15. Feedback: Collects user feedback about the system or healthcare services, providing valuable insights for improving the app and user satisfaction.

16. Report: Generates and manages reports on various aspects of the system (e.g., usage statistics, medical history, treatment outcomes), which are essential for decision-making and performance monitoring.

Each class within the HDIMS plays an essential role in ensuring the smooth operation of the system. By effectively managing various aspects of patient care, medical records, and user access, these classes contribute to a comprehensive and efficient healthcare management solution. Together, they form the backbone of the system, facilitating better healthcare outcomes and improving overall user experience.

CHAPTER 4: STATE MODELING

UML Advanced State Diagram

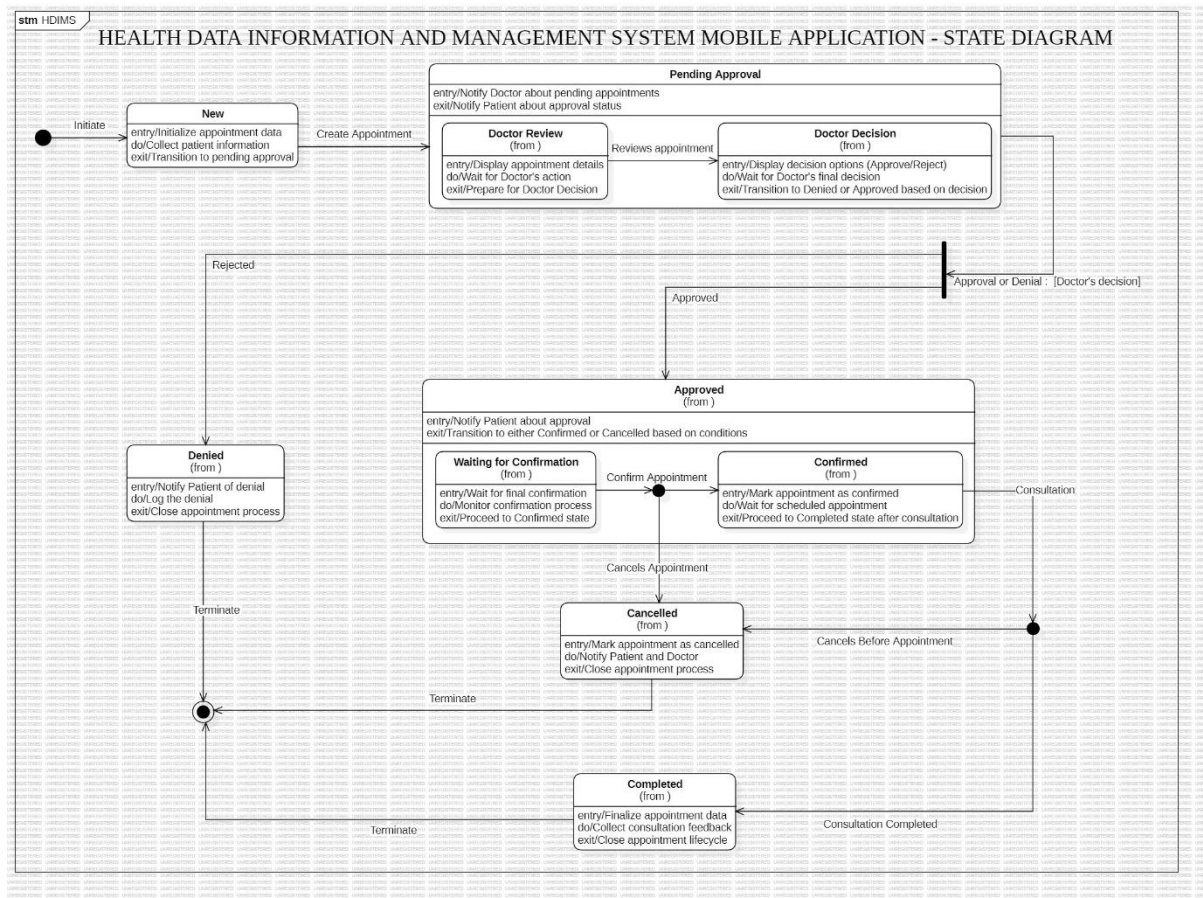


Figure 4.1: State Diagram

The **Health Data Information and Management System (HDIMS)** streamlines the management of patient appointments by capturing the full lifecycle from the creation of an appointment to its completion. The system ensures that all steps in the appointment process are tracked and managed efficiently, with clear transitions between states and actions triggered by specific events. The states and events play a crucial role in ensuring the smooth flow of operations, from initial creation to final confirmation or cancellation. This explanation outlines the relevance of each state and event within the system.

Relevance of Each State

1. **New:** The "New" state marks the beginning of the appointment process. It signifies that an appointment request has been created but not yet reviewed.
2. **Pending Approval:** In this state, the appointment is waiting for the doctor's review. The doctor will evaluate the request before deciding whether to approve or deny it.
3. **Approved:** This state indicates that the doctor has approved the appointment. The appointment is one step closer to being scheduled.
4. **Denied:** The "Denied" state signifies that the appointment was rejected by the doctor. This ends the appointment process.

5. **Waiting for Confirmation:** The system is waiting for the patient's confirmation of the appointment. The appointment cannot proceed until the patient confirms.
6. **Confirmed:** The appointment has been confirmed by the patient. This state signifies that both the doctor and the patient have agreed on the appointment.
7. **Cancelled:** This state is reached when the appointment is cancelled by either the patient or the system. It marks the end of the appointment process without completion.
8. **Completed:** The "Completed" state indicates that the appointment has successfully occurred. The process is finalized after the consultation or service.

Relevance of Each Event

1. **Create Appointment:** This event triggers the creation of a new appointment request in the system, marking the start of the process.
2. **Doctor Review:** The doctor reviews the details of the appointment request during the "Pending Approval" state, deciding whether it should proceed.
3. **Doctor Decision:** The doctor makes the final decision to approve or deny the appointment.
4. **Approve Appointment:** This event occurs when the doctor approves the appointment, signifying that the appointment will proceed to the next steps.
5. **Deny Appointment:** The doctor denies the appointment, ending the process.
6. **Patient Confirmation:** The patient confirms the appointment, ensuring that the appointment will proceed as planned.
7. **Confirm Appointment:** When the patient confirms the appointment, it locks the appointment in place, moving the system to the "Confirmed" state.
8. **Cancel Appointment:** The appointment is cancelled by either the patient or the system. This event marks the termination of the appointment process.
9. **Complete Appointment:** This event marks the end of the appointment after the consultation or service is provided, finalizing the appointment process.

The **Health Data Information and Management System** relies on well-defined states and events to manage patient appointments. Each state represents a crucial phase in the appointment lifecycle, from creation to completion or cancellation. Events trigger transitions between states, ensuring that the process is handled efficiently and effectively. By clearly defining each state and event, the system ensures smooth operation and enhances user experience, providing timely notifications and updates for all stakeholders involved.

CHAPTER 5: INTERACTION MODELING

UML Advanced Use Case Diagram

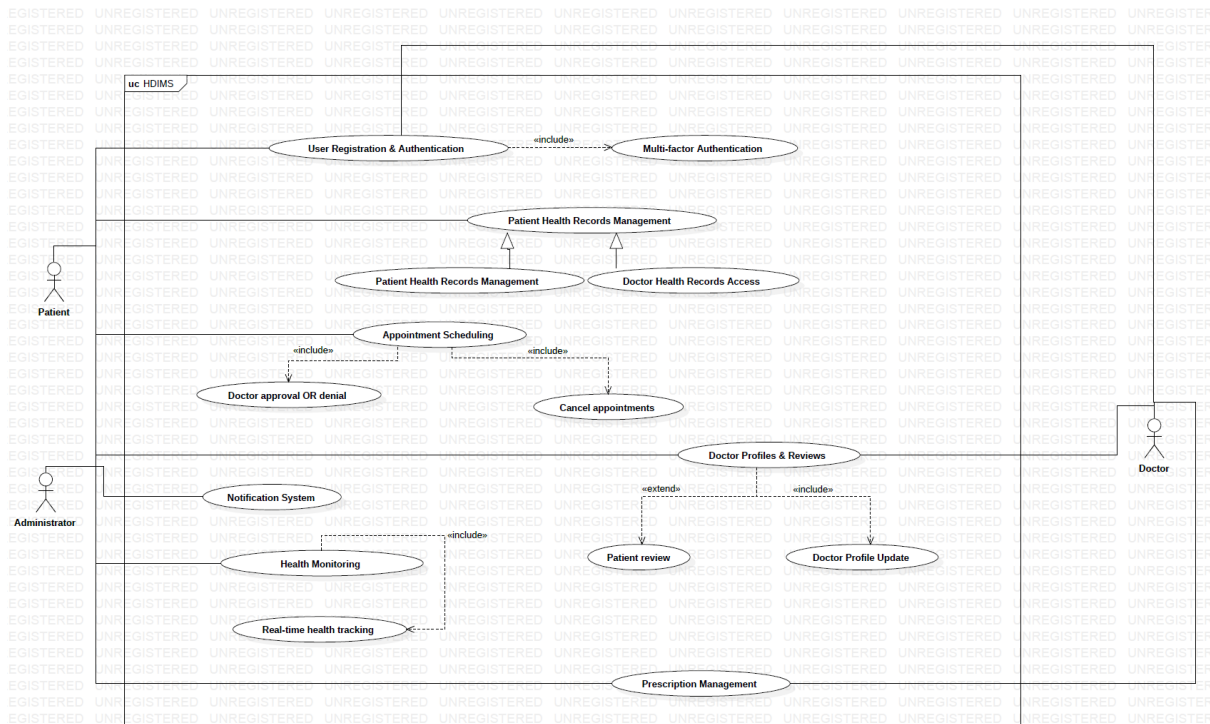


Figure 5.1: Use Case Diagram

The **Health Data Information & Management System (HDIMS)** is designed to streamline and enhance the management of healthcare services by providing a unified platform for patients, doctors, and administrators. This system aims to facilitate efficient handling of health records, appointment scheduling, prescription management, and more. The key actors—patients, doctors, and administrators—interact with the system to perform essential tasks that contribute to better healthcare delivery. The use case diagram illustrates the system’s functionalities and the relationships between them, providing a clear roadmap of how the system supports its users.

Relevance of Actors:

1. **Patient:** The **Patient** is central to the system’s purpose. Patients need access to their health records, the ability to schedule and manage appointments, and tools to track their health. The system’s ability to cater to these needs is critical for ensuring effective healthcare management.
2. **Doctor:** The **Doctor** plays a key role in diagnosing, treating, and monitoring patients. Doctors interact with the system to access health records, approve or deny appointments, issue prescriptions, and track health metrics. Their involvement is crucial for maintaining the quality and accuracy of medical care.
3. **Administrator:** The **Administrator** ensures the smooth operation of the system by managing user roles, monitoring appointments, and overseeing the performance of the

system. They maintain the system's security and functionality, ensuring users have access to necessary features and information.

Relevance of Use Cases:

1. **User Registration & Authentication:** This use case is critical for ensuring secure access to the system. Through multi-factor authentication, users (patients, doctors, administrators) can securely register and log in, ensuring that sensitive health data is protected from unauthorized access.
2. **Patient Health Records Management:** This use case allows patients to manage their medical records and ensures doctors can access the information needed for diagnosis and treatment. It is central to the system's ability to provide efficient healthcare management, making it easier to track and share health information.
3. **Appointment Scheduling:** Appointment scheduling allows patients to book, reschedule, or cancel appointments. Doctors can approve or deny appointments based on availability. This ensures that both patient and doctor schedules are efficiently managed and that care is delivered promptly.
4. **Health Monitoring Integration:** The integration of health monitoring devices enables patients to track their health metrics in real time, such as heart rate and activity levels. This functionality enhances care by providing continuous data for doctors to monitor and make informed decisions.
5. **Prescription Management:** Doctors can issue and manage prescriptions electronically, improving accuracy and reducing the potential for errors. Patients can easily share prescriptions with pharmacies, ensuring timely and secure dispensing of medication.
6. **Notification System:** The notification system plays a critical role in keeping patients, doctors, and administrators informed. It sends reminders for appointments, health alerts, and updates on system activities, ensuring that all parties remain engaged and aware of key events.
7. **Doctor Profiles & Reviews:** This use case allows patients to view doctor profiles and reviews, ensuring that they can make informed decisions about their healthcare providers. This feature also helps doctors update their professional profiles to reflect their qualifications and specialties.
8. **Admin Dashboard:** The admin dashboard enables administrators to manage user accounts, track appointments, and monitor system performance. It's crucial for maintaining the integrity and smooth operation of the system, providing a centralized hub for system oversight.

The HDIMS system provides an efficient healthcare management solution by illustrating key actor interactions and functionalities. The use case diagram defines core processes like user registration, health record management, appointment scheduling, and prescription management, ensuring smooth operation. The relationships between use cases clarify dependencies and demonstrate how the system integrates functionalities for a cohesive solution. This approach ensures all requirements are met and users can easily manage their healthcare needs.

UML Advanced Sequence Diagram

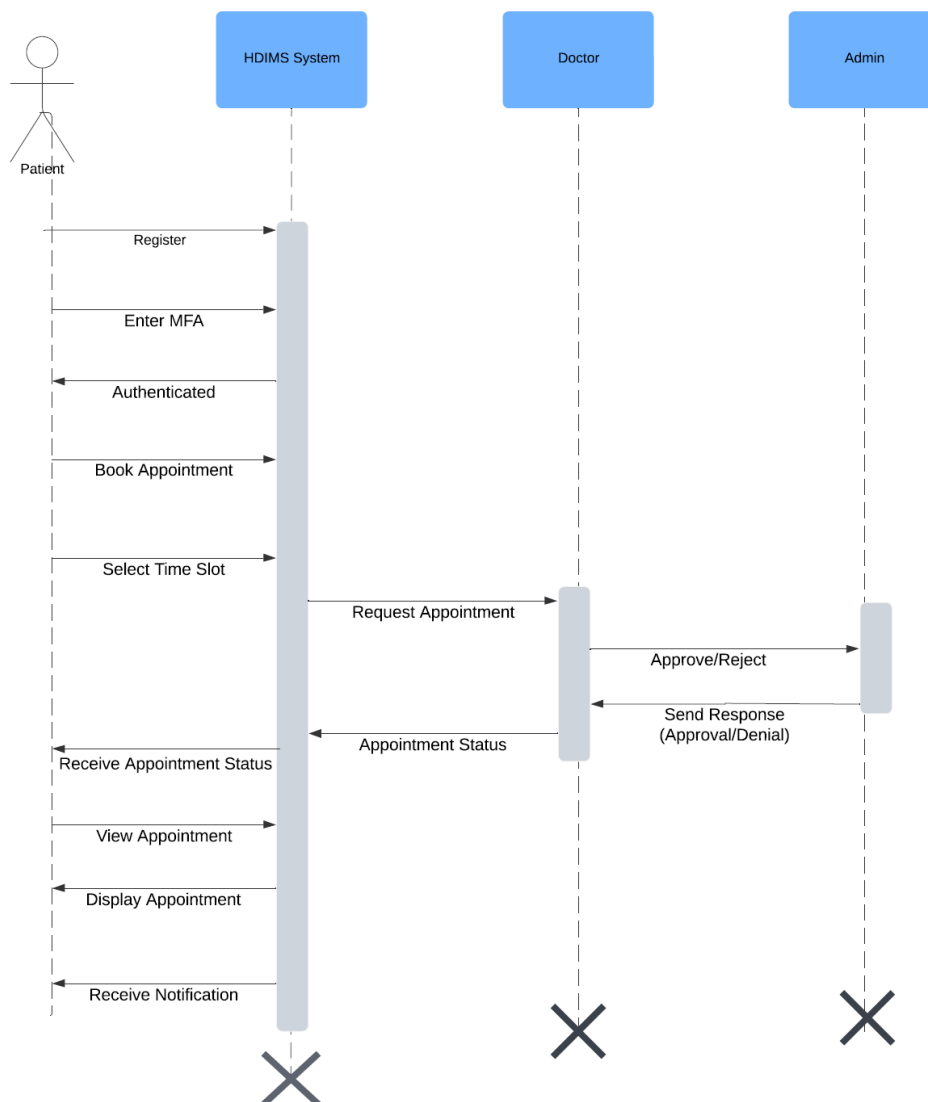


Figure 5.2: Sequence Diagram

The report outlines the interactions between patients, doctors, and administrators within the HDIMS system, focusing on the process of appointment management. The key actions and steps involved for each actor—**Patient**, **Doctor**, and **Admin**—are described, showcasing how the system facilitates the smooth flow of data and ensures efficient management of appointments.

Patient:

1. **Register:** The patient begins by registering in the HDIMS system, providing necessary personal and medical information to create an account.
2. **Enter MFA:** As part of the registration process, the patient enters Multi-Factor Authentication (MFA) details for added security.
3. **Authenticated:** The system then authenticates the patient's credentials, ensuring secure access to the platform.

4. **Book Appointment:** Once authenticated, the patient proceeds to book an appointment with a doctor. This involves selecting the required healthcare provider and services.
5. **Select Time Slot:** The patient selects an available time slot for the appointment based on the doctor's schedule.
6. **Receive Appointment Status:** After submitting the request, the patient receives an update on the status of the appointment, which could either be approved or denied by the doctor or admin.

Doctor:

1. **Request Appointment:** The doctor initiates the process by requesting an appointment with the patient. This typically occurs when a patient books an appointment, and the doctor's availability is assessed.
2. **Appointment Status:** After reviewing the appointment request, the doctor receives the status (approved or denied), based on availability or other factors.

Admin:

1. **Approve/Reject:** The admin plays a pivotal role by approving or rejecting appointment requests, either based on system parameters, availability, or administrative discretion.
2. **Send Response:** After deciding on the status, the admin sends a response (approval or rejection) to notify both the patient and doctor about the outcome of the appointment request.
3. **View Appointment:** The admin has access to view the details of all appointments within the system, ensuring all bookings are accurately tracked.
4. **Display Appointment:** The system displays appointment details to the admin for easier monitoring and management.
5. **Receive Notification:** The admin receives a notification about the appointment status, ensuring they stay updated on the system's activities and can take appropriate actions.

This report outlines the key interactions and steps in the appointment management process within the HDIMS system. Each actor (Patient, Doctor, Admin) plays a crucial role in ensuring appointments are correctly booked, processed, and managed, with clear actions for each step. The system integrates security, notification handling, and administrative oversight to create a seamless experience for all users involved in the healthcare process.

UML Advanced Activity Diagram

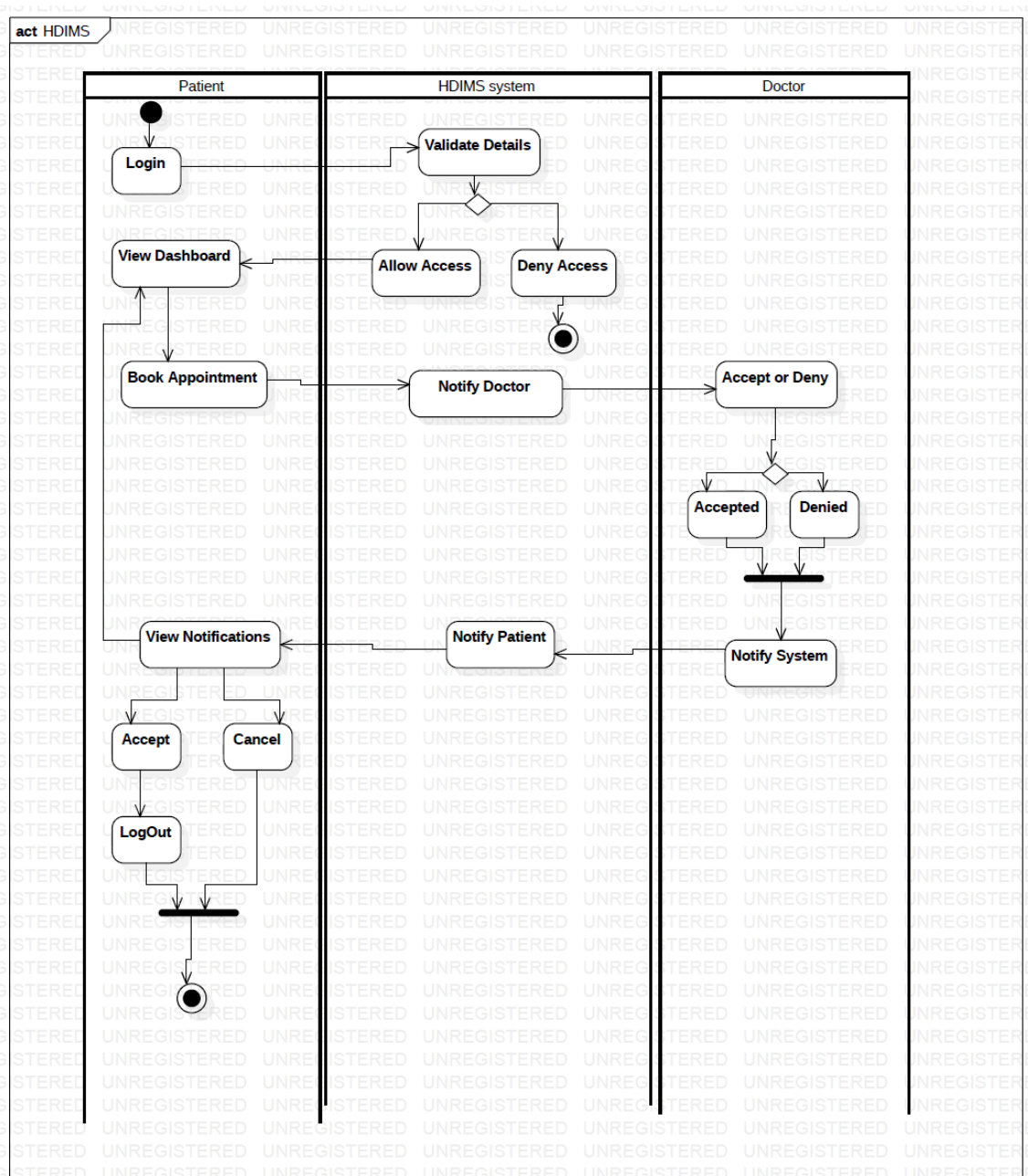


Figure 5.3: Activity Diagram

The report outlines the activity diagram for the HDIMS system, focusing on the actions performed by patients, doctors, and the system during the appointment management process. The activity diagram visually represents how the system operates, showing the sequence of events, the roles involved, and the flow of control within the system. It also highlights the splitting and merging of control as the process progresses.

Swimlanes:

1. **Patient Swimlane:** The patient is responsible for logging into the system, booking appointments, accepting appointment details, viewing the dashboard, and interacting

with notifications. The actions in this lane focus on the user's interactions with the system and how they manage appointments and notifications.

2. **HDIMS System Swimlane:** The system acts as an intermediary, validating patient details, granting or denying access, notifying the doctor about the appointment, and updating the patient with the status of their request. It ensures that the flow of the process is smooth and that all stakeholders are informed in real-time.
3. **Doctor Swimlane:** The doctor has the responsibility to accept or deny appointment requests. Once the doctor decides, they notify the system of their decision. This lane highlights the doctor's role in managing appointments based on availability and the patient's health requirements.

Splitting and Merging of Control:

1. **Splitting:** After the patient books an appointment, the control splits into two main paths:
 - The **system** validates the patient's details and either grants or denies access.
 - The **system** notifies the doctor about the appointment request.
2. **Merging:** Once the doctor accepts or denies the appointment, the control merges back to notify the **patient** of the final decision regarding the appointment request. The system updates the patient accordingly.

Explanation of the Diagram:

1. **Patient Actions:**
 - **Login:** The patient starts the process by logging into the system.
 - **Book Appointment:** The patient selects and books an appointment with the doctor.
 - **Accept:** After receiving the appointment details, the patient confirms and accepts them.
 - **Log-Out:** Once all interactions are complete, the patient logs out of the system.
 - **View Dashboard:** The patient can view their dashboard for an overview of upcoming appointments and other relevant data.
 - **View Notifications:** The patient checks notifications, such as appointment status updates or health-related messages.
 - **Cancel:** If the patient wants to cancel an action (like booking an appointment), they have the option to do so.
2. **HDIMS System Actions:**
 - **Validate Details:** The system checks the patient's credentials for correct authentication.
 - **Allow Access:** If the validation is successful, the system allows access to the patient.
 - **Notify Doctor:** Once the appointment is booked, the system notifies the doctor of the patient's request.
 - **Deny Access:** If the validation fails, access is denied, and the process ends.
 - **Notify Patient:** The system notifies the patient about the approval or rejection of their appointment request based on the doctor's decision.

3. Doctor Actions:

- **Accept or Deny:** The doctor reviews the appointment request and either accepts or denies it.
- **Accepted:** If the doctor accepts, they notify the system, which updates the patient's status accordingly.
- **Notify System:** The doctor informs the system of their decision.
- **Denied:** If the doctor denies the request, the system is updated, and the patient is notified of the denial.

The activity diagram for HDIMS illustrates the clear sequence of actions taken by the patient, doctor, and system. It highlights the flow of control through swim lanes, showing how each actor's actions are interdependent. The diagram demonstrates the splitting and merging of control at crucial points, such as when the patient books an appointment and the doctor accepts or denies the request. This visual representation helps to clarify the overall process of appointment management, ensuring all parties are informed and able to interact seamlessly within the system.

CHAPTER 6: USER INTERFACE (UI) DESIGN

Website

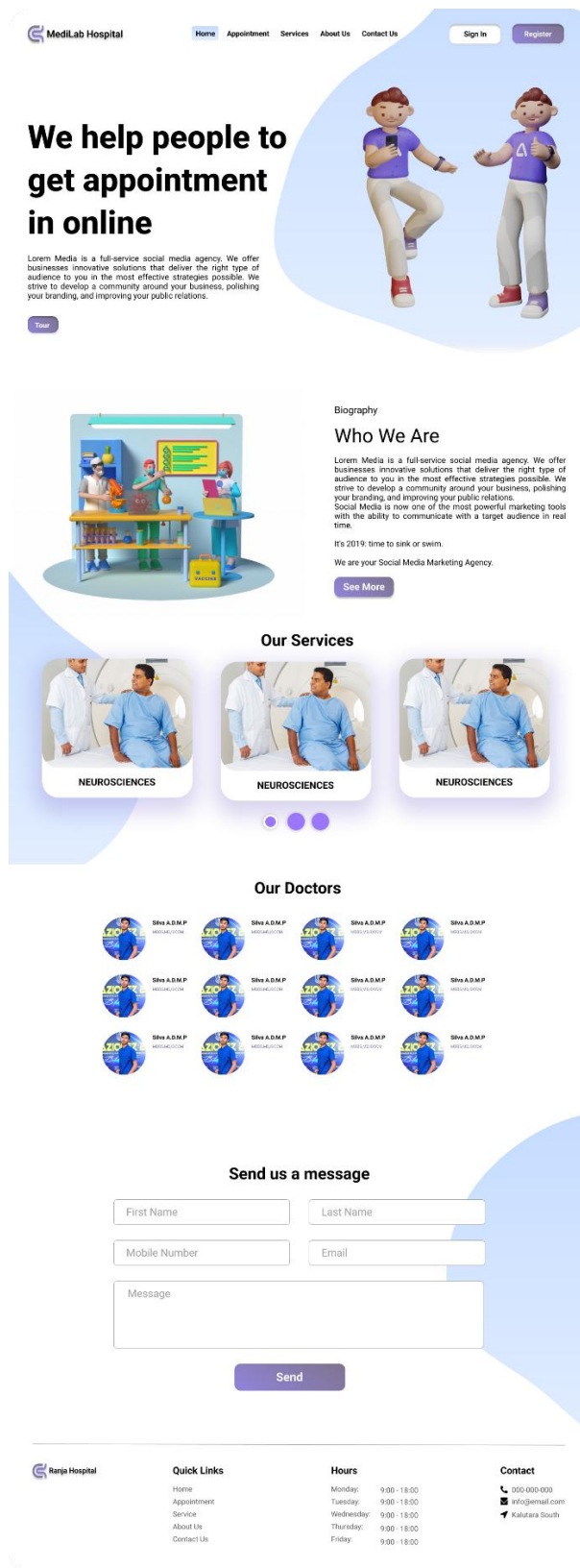


Figure 6.1.1: Home Page

We help people to get appointment in online

Lorem Media is a full-service social media agency. We offer businesses innovative solutions that deliver the right type of audience to you in the most effective strategies possible. We strive to develop a community around your business, polishing your branding, and improving your public relations.



Biography

Who We Are

Lorem Media is a full-service social media agency. We offer businesses innovative solutions that deliver the right type of audience to you in the most effective strategies possible. We strive to develop a community around your business, polishing your branding, and improving your public relations. Social Media is now one of the most powerful marketing tools with the ability to communicate with a target audience in real time.

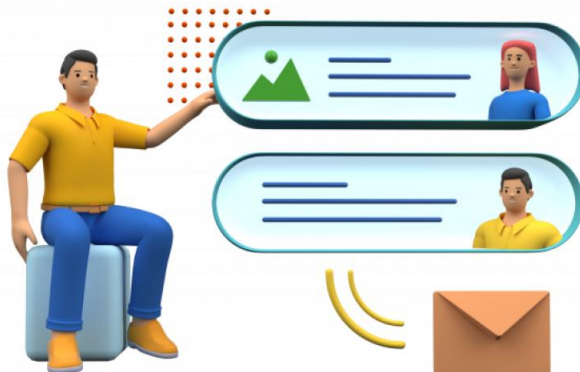
It's 2019: time to sink or swim.

We are your Social Media Marketing Agency.

Lorem Media is a full-service social media agency. We offer businesses innovative solutions that deliver the right type of audience to you in the most effective strategies possible. We strive to develop a community around your business, polishing your branding, and improving your public relations. Social Media is now one of the most powerful marketing tools with the ability to communicate with a target audience in real time.

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Sign Up

Please Sign Up To Continue

Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since.

Patient

Doctor

Admin

Register

Figure 6.1.3: Sign-Up Page

We help people to get appointment in online

Lorem Media is a full-service social media agency. We offer businesses innovative solutions that deliver the right type of audience to you in the most effective strategies possible. We strive to develop a community around your business, polishing your branding, and improving your public relations.



Appointment

[Register](#)

Figure 6.1.4: Appointment Page

Admin Panel

Dashboard

Staff

Lab

Ward

Treatment

Pharmacy

Patient

Madhusa

MediLab Hospital

Prasad

Supplier Management

Generate Report

Supplier ID

Search

Supplier Name

Location

Contact Number

Medicine name

QTY

RS: Unit Price

Add

Update

Delete

Recent Supplier

Lorem ipsum dolor sit amet, consectetur adipiscing elit.

ID	Medicine Name	Supplier name	Location	Contact Number	Unit Price	QTY		
1	Vitamin C	John	Kandana	976 - 5503638	1500.00	150		
2	Vitamin C	John	Kandana	976 - 5503638	1500.00	150		
3	Vitamin C	John	Kandana	976 - 5503638	1500.00	150		
4	Vitamin C	John	Kandana	976 - 5503638	1500.00	150		

Figure 6.2.1: Supplier Management

Dashboard

Staff

Lab

Ward

Treatment

Pharmacy

Patient

Madhusa

MediLab Hospital

Prasad

Ward Management

Generate Report

Ward ID

Search

Ward Name

Number of assign doctors

Number of nurses

Number of patients

RS: Total Ward charge

Add

Update

Delete

Recent Wards

Lorem ipsum dolor sit amet, consectetur adipiscing elit.

Ward ID	Ward name	Number of nurses	Total Ward charge	Number of assign doctors	Number of patients		
1	Base line	15	15000.00	3	18		
2	Frone line	10	10000.00	2	10		
3	Atlas	15	18000.00	4	15		
4	Base line	15	15000.00	3	18		

Figure 6.2.2: Ward Management

Madhusa

MediLab Hospital

Prasad

Dashboard

Staff

Lab

Ward

Treatment

Pharmacy

Patient

Lab Management

View All Lab Details

Generate Report

+

Assign Lab For Patient

Lab ID

Search

Lab

Patient Name

Date

Time

RS: Price

Add

Update

Delete

Recent Assign Lab For Patient

ID

Lab

Patient

Date

Time

Price

1

Blood

Madhusa

2022-02-15

1.25 PM

2500.00

2

Blood

Madhusa

2022-02-15

1.25 PM

2500.00

3

Blood

Madhusa

2022-02-15

1.25 PM

2500.00

4

Blood

Madhusa

2022-02-15

1.25 PM

2500.00

Figure 6.2.3: Lab Management

Madhusa

MediLab Hospital

Prasad

Dashboard

Staff

Lab

Ward

Treatment

Pharmacy

Patient

Prescription Management

Generate Report

Prescription ID

Search

Treatment Name

RS: Price

Patient Name

Prescription Note

Add

Update

Delete

Recent Prescriptions

Prescription ID

Patient Name

Treatment Name

Price

Prescription note

Issued Date

1

Kamal

Covid

2500.00

2500.00

2022-01-13

2

Nimal

Dengue

2500.00

2500.00

2022-01-13

3

Sunil

Malaria

2500.00

2500.00

2022-01-13

4

Sapooth

HIV

2500.00

2500.00

2022-01-13

Figure 6.2.4: Prescription Management

Madhusha

MediLab Hospital

Prasad

Dashboard

Staff

Lab

Ward

Treatment

Pharmacy

Patient

Medicine Management

Generate Report

Medicine ID

Search

Medicine name

Supplier Name

Expire Date

Manufacture Date

QTY

RS: Unit Price

Add

Update

Delete

Out of Stock

ID

Medicine Name

Expire Date

Manufacture Date

Supplier Name

Unit Price

QTY

1

Vitamin C

2025-04-13

2021-12-13

Kane

1500.00

150

2

Paracetamol

2025-05-13

2022-04-04

Kane

4500.00

225

3

Avatar

2026-01-16

2020-06-08

Kane

5000.00

65

4

Amoxicillin

2024-12-13

2021-01-13

Kane

1200.00

275

Figure 6.2.5: Medicine Management

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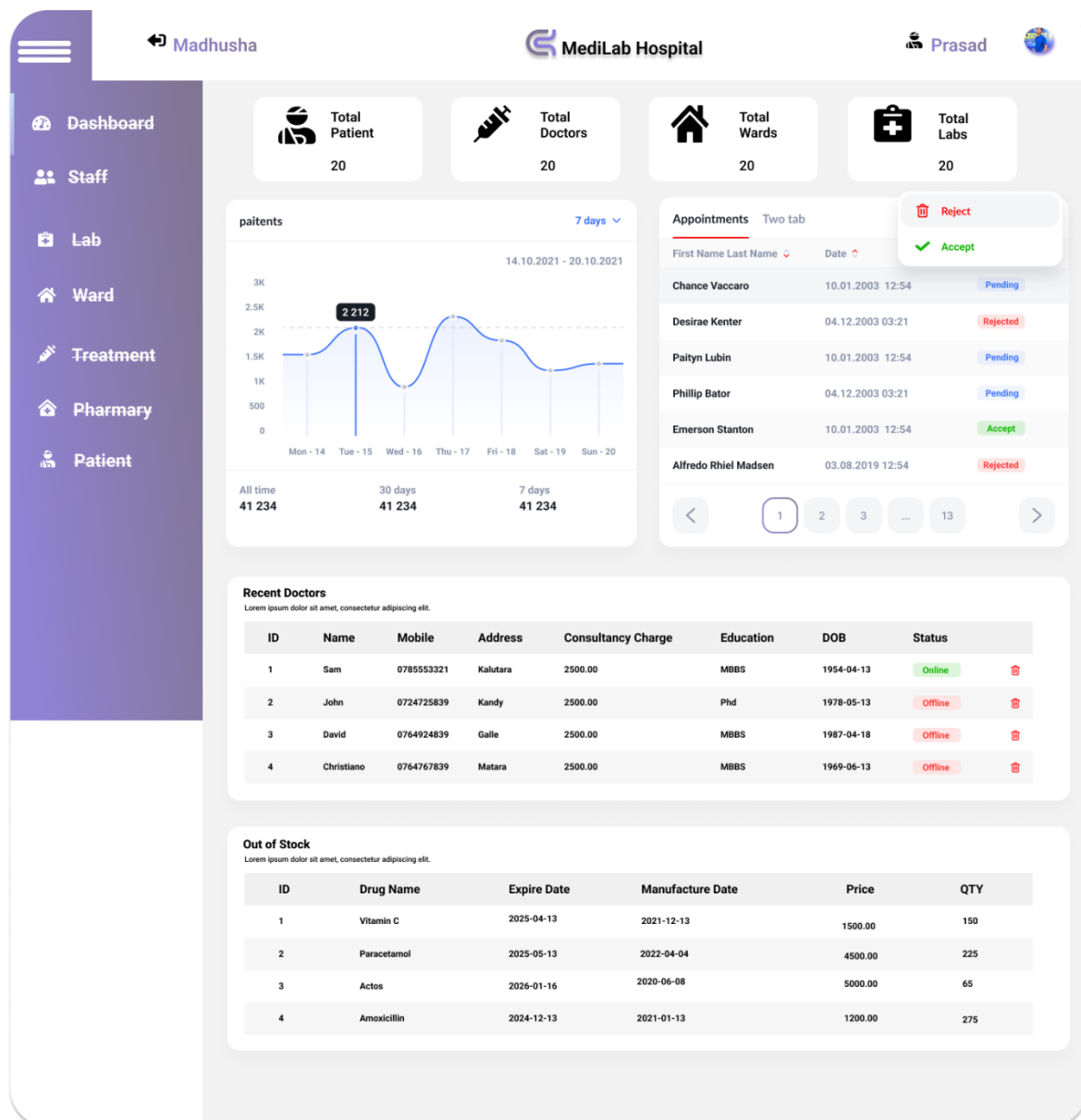


Figure 6.2.6: Dashboard

Madhusha

MediLab Hospital

Prasad

Dashboard

Staff

Lab

Ward

Treatment

Pharmacy

Patient

Patient Management

Generate Report

Patient ID

Search

First Name

Last Name

Email

Mobile Number

NIC

Date of Birth

Address

Gender

Password

Confirm Password

Add

Update

Delete

Recent patients

Patient ID

First Name

Last Name

NIC

Email

Mobile number

Date of birth

Gender

Address

1	Sam	Sapooth	61622626V	han@gmail	0774596005	2022-01-13	Male	Galle
2	Sam	Sapooth	61622626V	han@gmail	0774596005	2022-01-13	Male	Galle
3	Sam	Sapooth	61622626V	han@gmail	0774596005	2022-01-13	Male	Galle
4	Sam	Sapooth	61622626V	han@gmail	0774596005	2022-01-13	Male	Galle

Figure 6.2.7: Patient Management

Madhusha

MediLab Hospital

Prasad

Dashboard

Staff

Lab

Ward

Treatment

Pharmacy

Patient

Appointment Management

Generate Report

ID

Search

First Name

Last Name

Email

Mobile Number

NIC

Date of Birth

Gender

Appointment Date

Appointment Time

Department Name

Doctor Name

Address

Register

Update

Delete

Recent Appointment

ID

Name

Role

Gender

Email

Mobile Number

NIC

DOB

Status

1	Madhusha	Doctor	Male	Madhusha@gmail.com	078-66622616	86262626	1999-04-13	Online
2	Madhusha	Doctor	Male	Madhusha@gmail.com	078-66622616	16616161	1999-04-13	Online
3	Madhusha	Doctor	Male	Madhusha@gmail.com	078-66622616	11161616	1999-04-13	Online
4	Madhusha	Doctor	Male	Madhusha@gmail.com	078-66622616	16161616	1999-04-13	Online

Figure 6.2.8: Appointment Management

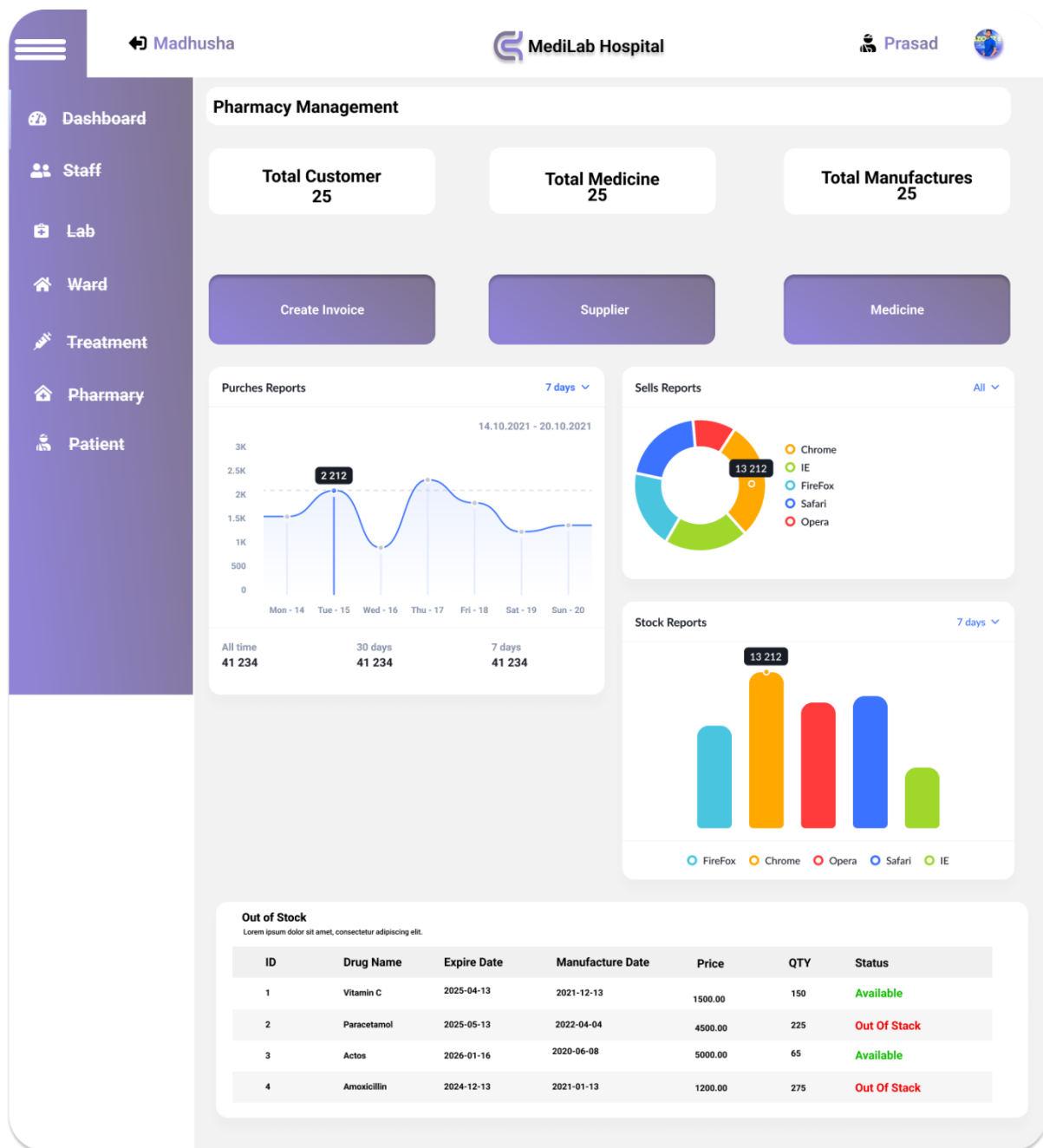


Figure 6.2.9: Pharmacy Management

Madhusa

MediLab Hospital

Prasad

Dashboard

Staff

Lab

Ward

Treatment

Pharmacy

Patient

Treatment Management

Generate Report

Treatment ID

Search

Treatment Name

Patient Name

Doctor Name

Number of nurses

Lab Name

RS: Total Ward charge

Add

Update

Delete

Recent Treatment

Treatment ID

Treatment name

Patient name

Doctor name

Number of nurses

Lab name

Total Ward charge

1

Dengue

David

Sam

3

Blood

1500.00

2

Dengue

David

Sam

3

Blood

1500.00

3

Dengue

David

Sam

3

Blood

1500.00

4

Dengue

David

Sam

3

Blood

1500.00

Figure 6.2.10: Treatment Management

Madhusa

MediLab Hospital

Prasad

Dashboard

Staff

Lab

Ward

Treatment

Pharmacy

Patient

Department Management

Generate Report

Department ID

Search

Department name

Location

Open Date

Open Time

Department contact number

Add

Update

Delete

Recent Department

Department ID

Department name

Location

Open date

Open time

Department contact number

1

Colombo medilab

Colombo

Mo

8.00 AM - 11.00 PM

041-23455985

2

Galle medilab

Galle

2022-05-13

8.00 AM - 11.00 PM

041-23455985

3

Matara medilab

Matara

2022-01-13

8.00 AM - 11.00 PM

041-23455985

4

Negambo medilab

Negambo

2022-01-13

8.00 AM - 11.00 PM

041-23455985

Figure 6.2.11: Department Management

Madhusha

MediLab Hospital

Prasad

Dashboard

Staff

Lab

Ward

Treatment

Pharmacy

Patient

Invoice Management

Generate Report

Invoice ID

Search

Patient Name

Doctor Name

Lab Name

Treatment

Ward Number

Total Amount : 15000

Generate Bill

Recent Invoice

ID

Patient Name

Lab Name

Ward Number

Doctor name

Treatment

Total Amount

1

Sapooth

Blood lab

1

Dr.Rajitha

Dengue

15000.00

2

Sapooth

Blood lab

1

Dr.Rajitha

Dengue

15000.00

3

Sapooth

Blood lab

1

Dr.Rajitha

Dengue

15000.00

4

Sapooth

Blood lab

1

Dr.Rajitha

Dengue

15000.00

Figure 6.2.12: Invoice Management

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CHAPTER 7: CONCLUSION

The Health Data Information & Management System (HDIMS) web application addresses critical challenges in the healthcare industry, focusing on the efficient management of patient health records, appointment scheduling, health monitoring, and communication between patients and healthcare providers. The application's architecture is designed to provide seamless integration with external healthcare services, including Electronic Health Records (EHRs), wearable devices, and lab results, ensuring that healthcare professionals and patients have access to comprehensive and up-to-date information.

By offering features such as secure patient health records management, real-time appointment booking, electronic prescriptions, health tracking through wearables, and doctor reviews, HDIMS aims to streamline healthcare delivery, reduce inefficiencies, and improve patient outcomes. The use of secure communication protocols (such as HTTPS) and cloud storage ensures that sensitive patient data is well-protected, and the application is designed to scale, supporting a large user base with high performance.

The development of the HDIMS platform is guided by clear functional, non-functional, and performance requirements to ensure the system is reliable, secure, and user-friendly. The project is poised to contribute significantly to the digital transformation of healthcare, offering a comprehensive, integrated, and innovative solution that enhances both the patient and healthcare provider experience.

CHAPTER 8: REFERENCE

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