A

Mini Project Report on

MediManage with Medical Assistance

Submitted in partial fulfillment of the requirements for the degree

Second Year Engineering – Computer Science Engineering (Data Science)

by

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CERTIFICATE

This to certify that the Mini Project report on **MediManage with Medical Assistance** has been submitted by Ishan Rane (22107063), Rushikesh Naik (22107064), Sneha Raut (22107051) and Manish Khadtar (22107059) who are bonafide students of A. P. Shah Institute of Technology, Thane as a partial fulfillment of the requirement for the degree in **Computer Science Engineering (Data Science)**, during the academic year **2024-2025** in the satisfactory manner as per the curriculum laid down by University of Mumbai.

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Chapter 1

Introduction

MediManage is a comprehensive Medical Assistance Platform developed with the objective of transforming how individuals access and manage healthcare services. In today's fast- paced and digitally driven world, where convenience and efficiency are paramount, there is a growing demand for smart healthcare solutions that offer accessibility, reliability, and seamless user experience. MediManage addresses this demand by providing a centralized, user-centric digital system tailored for patients, caregivers, and healthcare professionals.

At its core, MediManage enhances patient engagement and healthcare coordination by digitizing essential processes that are traditionally manual, fragmented, or time- consuming. The platform integrates a wide range of critical features including appointment scheduling, teleconsultation with licensed professionals, secure storage and retrieval of medical records, medication reminders, emergency contact access, and AI-driven health tips—all delivered through a unified and intuitive mobile interface. These modules are designed with real-world healthcare needs in mind, ensuring both functionality and user- friendliness.

A key strength of MediManage lies in its emphasis on data security and trust. Only verified users can access sensitive features, and advanced encryption protocols ensure that health data remains confidential and protected. This structured and secure access promotes accountability and helps build a trusted ecosystem for both patients and practitioners.

The platform is developed using Flutter for cross-platform compatibility, supported by a robust backend combining Firebase for real-time updates and MySQL for structured data management. This technology stack provides the scalability, performance, and security necessary to support a growing user base while maintaining reliable access to services and records.

MediManage is more than just an app—it is a digital healthcare companion that embodies values of empowerment, transparency, and proactive wellness. From managing appointments and consultations to tracking health records and receiving real-time health insights, users can take charge of their well-being with just a few taps. By minimizing dependency on physical visits and improving communication, MediManage ultimately solves the issue.

In essence, MediManage bridges the gap between traditional healthcare systems and the evolving demands of digital living. It fosters inclusive, scalable, and future-ready medical access—reshaping how healthcare is experienced in urban and rural communities alike.

1. Purpose:

The purpose of MediManage is to provide an accessible and efficient platform for managing personal healthcare. This system enables individuals to schedule appointments, consult doctors remotely, access medical records securely, and receive personalized health insights

—all from a single, user-friendly mobile application.

By leveraging Flutter for cross-platform support and integrating Firebase with MySQL for real-time and structured data handling, MediManage enhances healthcare delivery through features like teleconsultation, health reminders, digital prescriptions, and emergency contact access. The goal is to simplify healthcare access, improve patient engagement, and promote proactive health management, especially in underserved or remote regions.

With a focus on convenience, security, and inclusivity, MediManage strives to ensure high-quality healthcare services are available to everyone, fostering a healthier and more connected society..

2. Problem Statement:

Patients often face significant hurdles in accessing essential medications, particularly those with chronic conditions, disabilities, or residing in remote areas. These challenges result in delayed treatment, increased health risks, and a stressful procurement process.

MediManage addresses this by offering a centralized medicine delivery and management system that eliminates geographical and mobility barriers. Through features like prescription uploads, doorstep delivery, refill reminders, and real-time order tracking, it ensures timely and convenient access to medication. This streamlined approach reduces dependency on physical visits, enhances patient well-being, and brings efficiency to everyday healthcare needs.

3. Objectives :

To provide a digital healthcare platform that enables convenient access to essential medicines through online browsing and ordering.

To improve accessibility to hospitals and clinics by offering a location-based search feature tailored to user needs.

To streamline diagnostic services by allowing users to schedule lab tests quickly and efficiently through the platform.

To personalize the healthcare experience using maps and filters that align with individual preferences and proximity.

To ensure transparency in medical decision-making by offering detailed information on medicines, doctors, hospitals, and lab services.

To bridge the gap between patients and healthcare providers by delivering a seamless, user-centric, and inclusive healthcare access solution.

4. Scope:

Online Medicine Ordering – Users can browse and order essential medications through a user-friendly interface, reducing the need for physical visits to pharmacies.

Hospital Locator – A location-based search tool helps users find nearby hospitals and clinics based on preferences and medical needs.

Lab Test Scheduling – Users can book diagnostic tests and appointments online, streamlining access to essential lab services.

Personalized Search Filters – Integrated maps and filters offer tailored results for hospitals and healthcare providers based on individual needs and location.

Comprehensive Healthcare Information – The platform provides up-to-date details on medicines, doctors, hospitals, and lab tests to support informed decision-making.

Unified Healthcare Access – A centralized system bridges patients with healthcare providers, ensuring a seamless, efficient, and accessible healthcare experience across devices.

Chapter 2

Proposed System

In many healthcare systems today, accessing essential medications and managing healthcare needs remains a fragmented and inefficient process. For instance, patients with chr onic conditions or those in remote areas often struggle to find reliable sources for timely medication, resulting in delays in treatment and adverse health outcomes. These issues are compounded by the lack of a centralized platform to order medications, track prescriptions, or schedule consultations. Without a systematic way to connect with healthcare providers and pharmacies, patients frequently experience frustration, miscommunication, and poor healthcare management.

The core issue lies in the disconnected nature of healthcare access. Communication between patients and providers often occurs through multiple channels, including phone calls, emails, and in-person visits, leading to confusion and inefficiency. Medication management is often handled manually, and critical healthcare information is scattered across various systems, making it hard for patients to stay informed or make timely decisions. This lack of transparency, accessibility, and security in managing healthcare needs can ultimately result in negative health outcomes.

To address these challenges, we propose MediManage: a centralized, digital healthcare platform that brings all key functionalities under one system. MediManage aims to simplify medication management, improve accessibility, and ensure that patients and healthcare providers are connected in a seamless, efficient manner.

The system will be built using Flutter for cross-platform support, enabling accessibility across mobile devices, and Firebase for real-time data synchronization. With MediManage, patients can order medications, consult with healthcare professionals remotely, schedule lab tests, and access important health information—all within a single platform.

To ensure the security and integrity of patient data, MediManage will implement a secure user verification system, allowing access only to verified users. The platform will also incorporate role-based access controls, with patients having access to personalized health info.

In conclusion, MediManage is designed to address the inefficiencies in traditional healthcare access by adopting a digital-first approach. By providing a centralized solution for medication ordering, doctor consultations, and lab test scheduling, MediManage enhances healthcare accessibility, fosters better communication, and improves the overall patient experience. Through the use of modern technology, MediManage promises to transform healthcare delivery and empower patients to take control of their health journey.

1. Features and Functionality:

The MediManage: Medication, Made Simple is a health-focused mobile platform designed to support individuals in managing their medications safely and independently. The app prioritizes accessibility, safety, and user empowerment—streamlining the journey from prescription to daily adherence while simplifying complex medical information for all users.

• Inclusive Accessibility for All: Features such as text-to-speech, adjustable font sizes, and motor-friendly navigation ensure the app is usable by individuals with visual, cognitive, or motor impairments—making healthcare truly barrier-free.

• Empowered Health Decisions: Users gain access to reliable, easy-to-understand information on medications, side effects, interactions, and treatment alternatives. Tools like dosage calculators and interaction checkers foster safe and informed choices.

• Medication Safety & Alerts: Automated reminders, dosage alerts, and refill notifications help users follow prescribed regimens. Integrated safety checks prevent harmful drug interactions or contraindications based on personal medical profiles.

• Seamless, Personalized Experience: A clean interface and intuitive navigation ensure effortless usage. Features like one-tap prescription refills, virtual consults, and integration with wearables enhance user convenience and care personalization..

Chapter 3

Project Outcome

The successful implementation of the MediAssist platform is expected to revolutionize the way individuals manage their medications and interact with healthcare services on a daily basis. By digitizing and simplifying medication management, the app will significantly reduce the confusion, missed doses, and safety risks often associated with complex medical regimens. From personalized reminders to real-time safety alerts, users will experience a higher level of autonomy and control over their health. This streamlining not only saves time but also promotes better treatment adherence and health outcomes.

Beyond core medication functions, MediAssist aims to foster a more empowered and informed patient experience. Through accessible medical information, interactive tools, and easy-to-use features, users can make confident decisions about their health. The platform also ensures inclusivity through a design that accommodates users of all ages and abilities. Ultimately, MediAssist envisions a digitally enabled, patient-centric health ecosystem that promotes safety, accessibility, and continuous care..

1. Improved Health Engagement & Accessibility

- Users benefit from features like adjustable font sizes, text-to-speech functionality, and intuitive design for ease of access across diverse user groups.
- The platform ensures that users with visual, cognitive, or motor impairments can manage medications independently.

3.2 Informed Decision-Making Tools

- Access to comprehensive details on medications, including usage, side effects, and alternatives.
- Tools like dosage calculators and interaction checkers support safe and informed health decisions.

3.3 Smart Medication & Refill Management

- Users receive reminders, refill alerts, and dosage notifications to stay on track with prescriptions.
- Alerts for potential drug interactions enhance medication safety and prevent harmful errors.

3.4 Integrated Health Tracking

- Sync with wearables and health apps to track vitals, medication response, and overall wellness.
- Personalized dashboards help users and caregivers monitor progress and adjust care routines.

3.5 Seamless Virtual Healthcare Access

- Offers features like virtual consultations, e-prescriptions, and pharmacy integrations.
- Ensures that users receive continuous care without visiting clinics for every health concern.

3.6 Centralized Medical Records Repository

- Stores prescriptions, reports, and medication history in one secure digital space.
- Makes it easier for users and healthcare providers to access records during emergencies or follow-ups.

3.7 User-Friendly & Inclusive Interface

- Clean, responsive UI with role-based dashboards for individuals and caregivers.
- Supports multilingual content for better regional inclusivity.

3.8 Secure & Structured Onboarding

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• New users register with health history, allergies, and medication schedules for personalized care.

• Profiles can be verified by linked healthcare professionals for added reliability.

3.9 Scalable & Maintainable Tech Stack

• Built using a robust, scalable architecture with python and streamlit frontend and Excel backend.

• Integrated with excel for efficient and secure health data management.

Chapter 4

Software Requirements

The architecture of Medi Assist is designed with a focus on robustness, scalability, and user- centric functionality, leveraging a modern and modular technology stack. Every component is chosen to ensure seamless integration, efficient performance, and ease of use for both end- users and system administrators.

At its core, the system adopts a service-oriented approach, enabling independent deployment and management of features without disrupting overall operations. This modularity not only enhances maintainability but also accelerates development cycles, allowing rapid adaptation to user needs and market demands.

1. Interface: Streamlit, Gemeni Flash 1.55 & Python

The frontend is crafted to be responsive, intuitive, and accessible, ensuring an optimal user experience across devices. Python and Streamlit provide the structural and visual design, while Flash 1.55 brings interactivity to the interface.

Python & Streamlit: For structured layouts and visually consistent styling Flash 1.55 : For interactive elements and dynamic content updates.

1. Database Layer: Excel :

FrontendTo handle structured data such as user records, medical logs, prescriptions, appointments, and payment history, Excel is employed as the relational database management system. It provides high performance, data integrity, and secure query processing—making it ideal for a healthcare-related application like Medi Assistant

2. Development Tools & Environment:

The development workflow is streamlined using industry-standard tools that enhance productivity and code quality.

Visual Studio Code: Primary IDE for backend and frontend development PyCharm: Optional advanced IDE for Python with intelligent code assistance

XAMPP / MySQL Workbench: For local database hosting, testing, and administration.

4. Platform Independence & Compatibility:

Medi Assist is designed to be cross-platform and can be developed and deployed on all major operating systems without compatibility issues.

Supported OS: Windows, macOS, Linux.

Deployment Modes: Local, Cloud-based, or Hybrid depending on scale and usage.

Chapter 5

Project Design

The project design phase of MediManage sets the stage for its innovative approach at the intersection of healthcare and technology. Inspired by successful platforms like Apollo Medicine, Medi Manage envisions offering groundbreaking medical assistance by seamlessly integrating advanced features and user-centric design. With a core commitment to providing effortless access to medical services and information, MediManage addresses the evolving needs of patients and healthcare providers alike. By transcending geographical barriers and overcoming mobility limitations, the platform redefines essential aspects of healthcare management, from medication procurement to appointment scheduling. This chapter delves into the intricacies of MediManage' project design, offering insights into its system architecture, user interface, and underlying methodologies. Through meticulous planning and strategic development, MediManage emerges as a promising solution poised to revolutionize healthcare delivery and enhance patient experiences across diverse demographics.

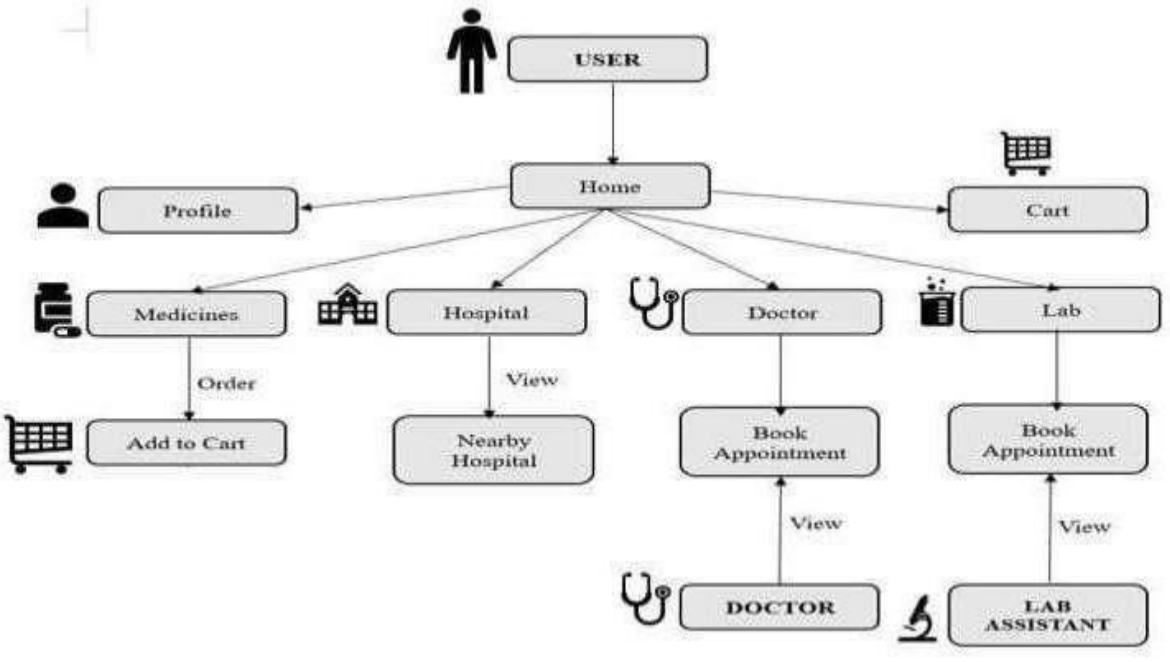

Fig 5.1: System Design

Fig 5.1 provides a detailed overview of the Commune system workflow, highlighting the processes followed by both Admin and Resident users after login or signup. Admins begin by creating a community through inputting society details, which then generates a unique referral code. Their responsibilities include approving or rejecting resident join requests, managing and resolving complaints, publishing notices, overseeing community activities, and creating polls through the voting system. Residents, on the other hand, join a community using the referral code and their residency details. Once onboarded, they gain access to a dashboard where they can participate in event management, lodge and track complaints, engage in discussions and view notices, manage visitor entries, and vote in polls. The central SQL database supports all data-driven interactions, ensuring smooth coordination and secure storage of information throughout the system

5.1 System Architecture:

The system architecture for the MediManage project is designed to cater to the distinct needs of various user types, including regular users, doctors, lab assistants, and administrators. Regular users, or customers, have a range of features at their disposal, such as browsing and ordering medications online, accessing comprehensive information on medications and medical conditions, scheduling appointments for doctors and laboratory tests, and managing personal health records securely. Doctors can access patient appointment schedules and medical records, conduct virtual consultations, prescribe medications, and update patient records. Lab assistants are equipped with features to manage laboratory test schedules, conduct tests, generate reports, and access patient medical records.

activities, generate performance reports, manage inventory and suppliers, resolve user issues, and ensure regulatory compliance. This structured approach ensures that each user type can effectively utilize the MediManage platform, fostering seamless interactions while upholding data security, privacy, and regulatory standards.

5.2 Implementation:

The implementation phase of the MediManage project marks the transition from conceptualization to actualization, where the envisioned features and functionalities are brought to life through software development. The figures provided offer a glimpse into the user interface design and key functionalities of the MediManage application. From the login page serving as the gateway for different user types to features like hospital search, lab test booking, and appointment scheduling, each element is meticulously designed to enhance user experience and streamline access to essential healthcare services. This section delves into the technical aspects of how these features were implemented, detailing the technologies, frameworks, and methodologies utilized to
MediManage platform to fruition.

Chapter 6

Project Scheduling

Project scheduling is a critical aspect of effective project management, ensuring that tasks are organized, coordinated, and completed within a defined timeframe. The Gantt chart and scheduling table presented here outline the timeline and tasks undertaken by a group consisting of Ishan Rane, Manish Khadtar, Sneha Raut , and Rushikesh Naik for their mini project, MediManage . Beginning with group formation and topic selection in January, the team progressed through various stages, including paper prototyping, GUI development, database creation, and integration. Each task was carefully scheduled to ensure timely completion, culminating in the final presentation by mid- April. This structured approach to project scheduling provided a clear roadmap for the team, facilitating efficient progress and successful project delivery.A Gantt chart is a visual project management tool used to plan and schedule tasks and activities over a specific period of time. It provides a graphical representation of a project's timeline, showing when each task or activity is scheduled to start and finish.Following is the detail of the gantt chart– In the third week of January Manish Khadtar, Ishan Rane , Rushikesh Naik and Sneha Raut formed a group for their mini project. They discussed and finalized the project's topic, scope, and objectives during this meeting. In the following weeks, Ishan, Manish and Sneha used a paper prototype to explore and refine project ideas, completing this phase by the 2nd week of February.In late February Sneha Raut executed the design and integration of the graphical user interface (GUI). Afterward, on 15th March, the first project review took place, and the faculty suggested some changes to the GUI, which were subsequently approved. Following this, Rushikesh and Sneha collaborated to create a structured database system, facilitating the systematic storage of information.This, in turn, made it easier for Rushikesh and Ishan to connect the database to the project. This database work was completed by end of March. Finally, the team integrated all modules and completed the report writing, resulting in their final presentation on 10th April, which was approved by the faculty..

Fig 6.1: Gantt Chart

The Gantt Chart provides a structured overview of the group's timeline, starting in January with the initial phase of group formation and topic selection. During this early phase, they also completed the creation of a paper prototype within the first week. February marked the beginning of the more technical work, with the team discussing the core features of the application they were developing. They also began conducting a comprehensive literature review to ensure their project was grounded in existing research. At the same time, they started designing the graphical user interface (GUI) using PyCharm, which served as the foundation for their application's user-facing aspects. This phase involved defining the layout and user experience, which is critical for ensuring that the application is both intuitive and functional.

As the project progressed into March, the focus shifted to refining and expanding the GUI, ensuring that all individual pages of the interface were properly connected. This was a crucial task, as it provided the seamless navigation experience users would expect from the application. The integration of the GUI continued throughout March, as the team worked to fine-tune the design and improve usability. In late March and through April, the group focused heavily on linking the GUI pages with an Excel database, which would serve as the backend to store and retrieve data. This final phase likely involved significant coding efforts to ensure that data was properly displayed and interacted with through the user interface. Additionally, this period may have included testing and debugging to ensure smooth functionality across the application. Moving forward, the group could further enhance the application by integrating advanced features such as data visualization, security measures for database access, and user feedback mechanisms to refine the interface.

Chapter 7

Results

The MediManage Online Pharmacy project successfully delivers a functional prototype of an online medicine ordering system. Key results include implemented user authentication with dummy data for login and registration, a browsable and filterable medicine catalog with search functionality, and a shopping cart system enabling users to add, view, update, and remove medicines, with dynamic price calculation. Furthermore, the project features a simulated checkout process, collecting shipping address and payment method, and handling prescription uploads for required medicines. Users can also view their past orders, and a Gemini- powered chatbot provides general medical information. The system boasts a responsive and user-friendly interface built with Streamlit, characterized by a clean layout and intuitive navigation. Key achievements of the project are rapid prototyping using Streamlit, the integration of Gemini for AI- powered assistance, and the implementation of core e-commerce functionalities.However, the project has limitations, including the use of dummy data and simplified logic, such as the absence of real payment processing and basic order management.There is also no real database integration, and the system has security vulnerabilitie such as storing passwords in plain text. Despite these limitations, the project demonstrates the feasibility of building an online pharmacy platform and has the potential to be extended into a full-fledged application with further development.

Fig 5.2 Login Page

In Fig 5.2 the login page serves as the gateway for various types of users, including customer users,doctors, admin, and lab assistants. Each user type will have a specific set of credentials and permissions: doctors, admin, and lab assistants. Each user type will have a specific set of credentials and permissions:

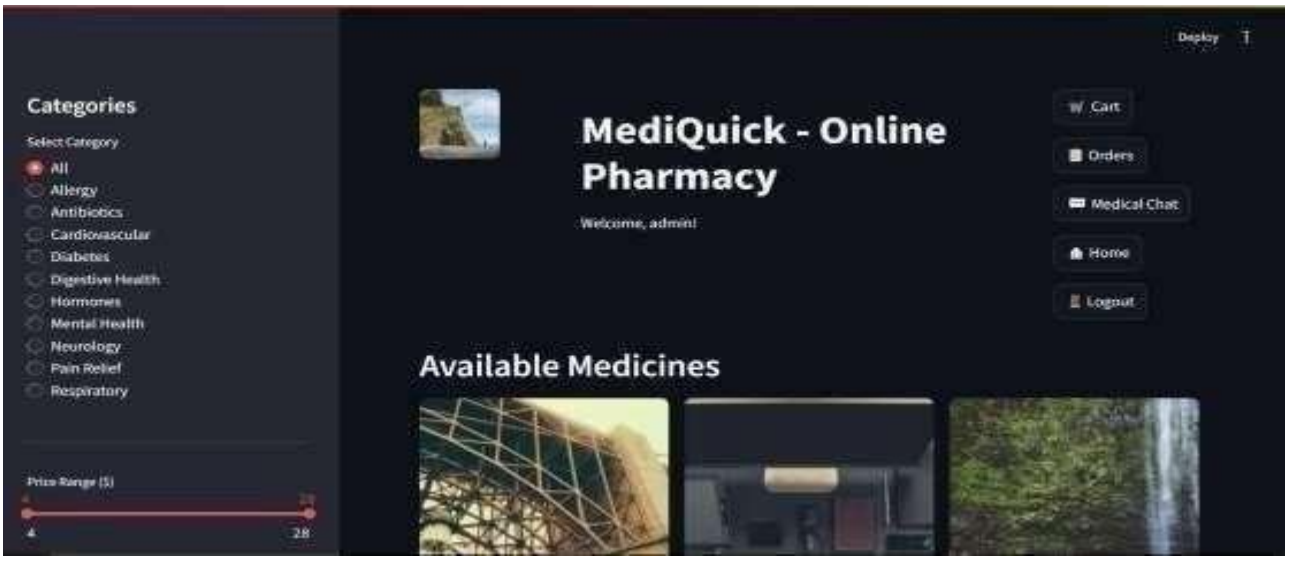

Fig 5.3 Home Page

In Fig 5.3 the GUI dashboard features four distinct buttons: "Medicine," "Doctor," "Lab," and "Hospital," providing streamlined access to different functionalities within the system. This intuitive design enhances user experience and facilitates efficient navigation for administrators, users, Doctors, and Lab assistants.

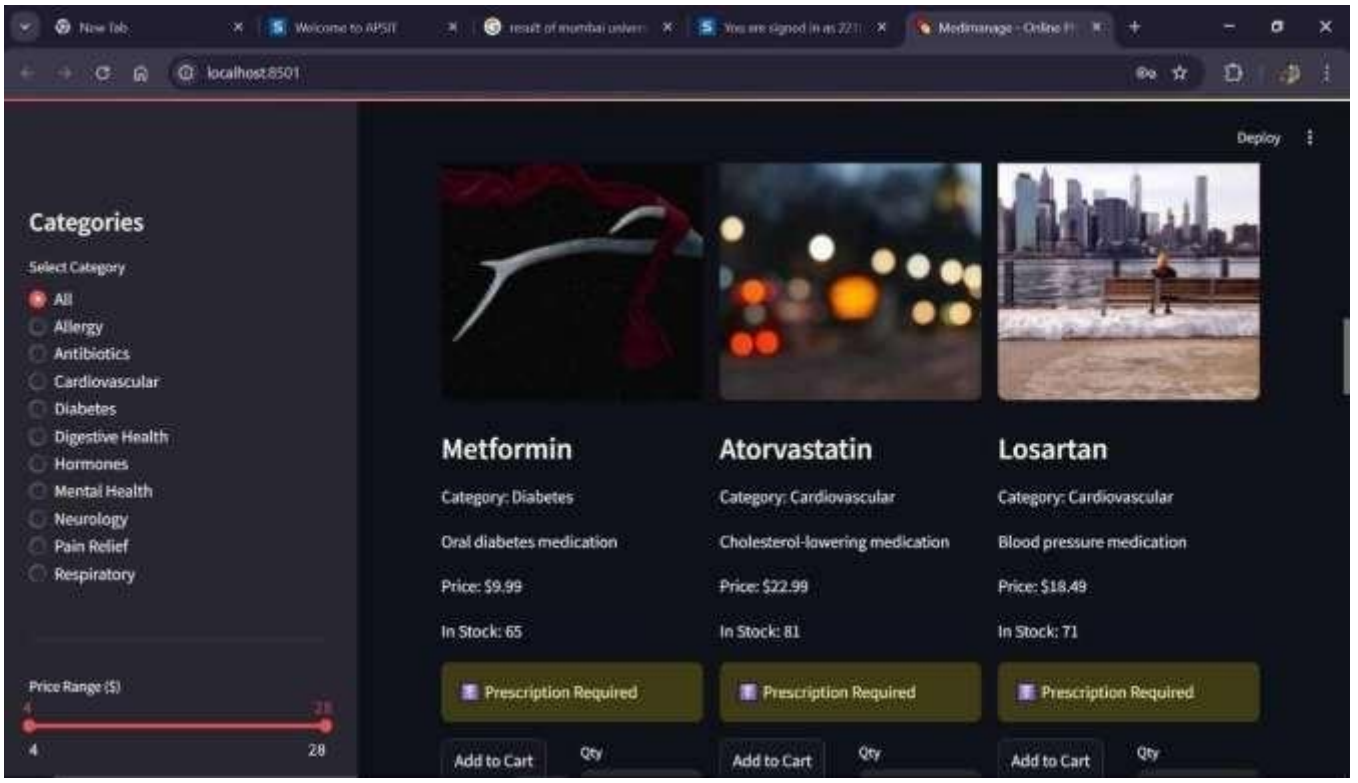

Fig 5.4 Products Page

In Figure 5.4 The Product Page it serves as the core browsing interface for users to explore available medicines. It features category filters, price range sliders, and essential product information like name, category, price, stock availability, and prescription requirements. Users can easily add medications totheir cart and prepare for checkout, making the shopping experience smooth and efficient.

Fig 5.5 Cart Page

In Figure 5.5 The Cart Page displays all the items a user has selected for purchase. It provides a summary of each product including name, quantity, and price, along with options to update quantities or remove items. The total cost is calculated dynamically, and users can proceed to checkout from here. This page ensures users can review their order before finalizing the purch

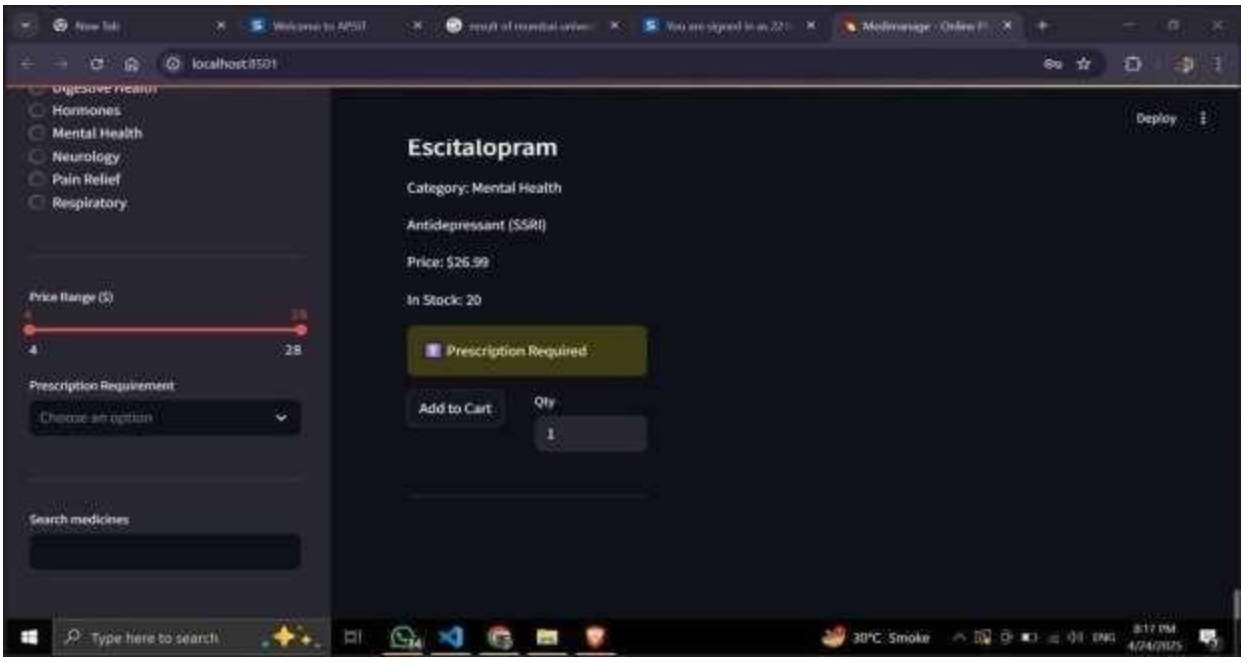

Fig 5.6 Doctors

In Fig 5.6 doctors can access comprehensive patient details and appointment information from their dashboard. This feature streamlines patient care by providing doctors with a centralized platform to view medical history, treatment plans, and upcoming appointments, ensuring efficient healthcare deliver

Chapter 8

Conclusion

MediManage addresses challenges in accessing essential medications by offering an innovative online platform that revolutionizes the way people procure their medications. By leveraging technology, MediManage overcomes geographical barriers and mobility limitations, providing a solution that is accessible to users regardless of their location or physical abilities. This streamlined approach not only simplifies the medication procurement process but also significantly reduces waiting times, ensuring that patients receive the medications they need promptly.

However, MediManage goes beyond mere convenience; it offers comprehensive medical assistance features that promote medication adherence and empower users to better manage their health. By providing access to medical assistance services such as doctor consultations, appointment scheduling, and lab test bookings, MediManage contributes to improved health outcomes and increased patient satisfaction. Moreover, the platform's efficiency and effectiveness also benefit the broader healthcare system by reducing the burden on traditional healthcare facilities and resources. With its potential for further innovation and expansion, MediManage is poised to continue meeting evolving patient needs and driving positive change in healthcare delivery for years to come.

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