A
Mini Project Report on

MEDITRACK

Submitted in partial fulfillment of the requirements
for the degree of
BACHELOR OF ENGINEERING
IN
Computer Science & Engineering
Artificial Intelligence & Machine Learning

by

Disha Yadav (23106011)
Samhita Vadlamudi (23106077)
Kalash Pandey (23106049)
Bhoomi Yadav (23106022)
Under the guidance of

Prof. Mahesh Pawaskar

Department of Computer Science & Engineering
(Artificial Intelligence & Machine Learning)
A. P. Shah Institute of Technology
G. B. Road, Kasarvadavali, Thane (W)-400615
University Of Mumbai
2024-2025

Parshvanath Charitable Trust's
A. P. SHAH INSTITUTE OF TECHNOLOGY
(Approved by AICTE New Delhi & Govt. of Maharashtra, Affiliated to University of Mumbai)
(Religious Jain Minority)

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
(ARTIFICIAL INTELLIGENCE & MACHINE LEARNING)

CERTIFICATE

This is to certify that the project entitled "**MEDITRACK"** is a bonafide work of Disha Yadav (23106011), Samhita Vadlamudi (23106077), Kalash Pandey (23106049), Bhoomi Yadav (23106022) submitted to the University of Mumbai in partial fulfillment of the requirement for the award of **Bachelor of Engineering** in **Computer Science & Engineering (Artificial Intelligence & Machine Learning).**

Prof. Mahesh Pawaskar	Dr. Jaya Gupta
Mini Project Guide	Head of Department

Parshvanath Charitable Trust's
A. P. SHAH INSTITUTE OF TECHNOLOGY
(Approved by AICTE New Delhi & Govt. of Maharashtra, Affiliated to University of Mumbai)
(Religious Jain Minority)

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
(ARTIFICIAL INTELLIGENCE & MACHINE LEARNING)

Project Report Approval

This Mini project report entitled "**MEDITRACK"** by **Disha Yadav, Samhita Vadlamudi, Kalash Pandey and Bhoomi Yadav** is approved for the degree of ***Bachelor of Engineering*** in ***Computer Science &Engineering***, (AI&ML) ***2024-25***.

External Examiner: _____

Internal Examiner: _____

Place: APSIT, Thane

Date:

Declaration

We declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

Disha Yadav	Samhita Vadlamudi	Kalash Pandey	Bhoomi Yadav
(23106011)	(23106077)	(23106049)	(23106022)

ABSTRACT

MediTrack is a web-based health monitoring system designed to assist users in tracking their symptoms, medications, and overall health progress. Many individuals, especially those managing chronic illnesses or recovering from medical procedures, struggle with maintaining structured health records. Traditional methods, such as paper logs or fragmented digital notes, often lead to inconsistencies, making it difficult for patients to monitor their health effectively. MediTrack addresses these challenges by offering a centralized and user-friendly platform that enables users to log daily health data, set medication reminders, and visualize health trends through interactive graphical reports.

The system is developed using HTML, CSS, and JavaScript for the frontend and Django with SQLite for the backend, ensuring a lightweight yet efficient solution for health data storage. SQLite is chosen for its ease of integration and reliability, allowing users to maintain accurate records without requiring complex database management. MediTrack offers features such as symptom tracking, appointment scheduling, automated health alerts, and secure data storage, ensuring a seamless user experience.

By bridging the gap between traditional healthcare systems and modern digital solutions, MediTrack empowers individuals to take proactive control of their well-being. The platform promotes treatment adherence, self-monitoring, and early detection of potential health issues, thereby enhancing communication between patients and healthcare providers. With its intuitive design and real-time tracking capabilities, MediTrack serves as a valuable tool for improving overall health management and promoting preventive care.

Index

CHAPTER 1

INTRODUCTION

1. INTRODUCTION

Healthcare management has significantly evolved with the rise of digital solutions that enhance patient engagement, self-care, and overall well-being. For individuals managing chronic conditions, recovering from medical treatments, or aiming for a healthier lifestyle, maintaining an accurate and consistent health record is essential. However, traditional healthcare systems primarily rely on periodic doctor visits, which may not provide real-time insights into a patient's health. Many individuals struggle with tracking symptoms, medications, and lifestyle habits, leading to missed doses, delayed medical attention, and ineffective treatment plans. Furthermore, the lack of structured self-monitoring tools makes it challenging for patients to communicate their health status accurately to healthcare providers.

To address these challenges, this project introduces a Personalized Medical Tracker, a virtual health logbook that allows individuals to systematically record and monitor their health data. Unlike physical tracking devices, this system functions as a digital self-monitoring tool, providing users with a structured platform to log medical history, track symptoms, set medication reminders, and monitor lifestyle habits such as diet, exercise, and sleep. With the increasing adoption of digital healthcare technologies, this project aims to empower individuals by offering a personalized, efficient, and accessible way to take charge of their health.
The primary objective of this project is to develop a comprehensive health tracking system that enhances self-awareness, promotes adherence to treatment plans, and improves communication between patients and healthcare providers. By integrating features such as medication and appointment reminders, graphical health reports, and trend analysis, the tracker helps users stay consistent with their healthcare routines. Additionally, a well-maintained digital log enables patients to share accurate health records with doctors, leading to better diagnoses, personalized treatment plans, and proactive healthcare interventions.

This project is particularly beneficial for patients with chronic conditions, elderly individuals, and general users seeking to improve their overall well-being. By providing a user-friendly, intuitive design, the tracker ensures accessibility for users of all age groups and varying levels of technological literacy. Ultimately, the Personalized Medical Tracker bridges the gap between traditional healthcare and modern digital solutions, encouraging better self-care, preventive healthcare, and improved health outcomes.

CHAPTER 2

LITERATURE SURVEY

2. LITERATURE SURVEY

1. Self-Tracking and Patient Engagement Research by "Self-Tracking, Social Media, and Personal Health Records for Patient Empowered Self-Care" (PubMed) explores how self-tracking and social media platforms support patient-centered healthcare. The study highlights the role of self-tracking tools in empowering patients to take control of their health and contribute to health informatics research.

Another study, "Self-Monitoring of Health Data by Patients with a Chronic Disease: Does Disease Controllability Matter?" (BMC Primary Care), investigates the willingness of patients to engage in self-monitoring. It suggests that individuals with a greater perception of control over their conditions are more likely to adopt self-tracking behaviors.

2. Personal Health Records and Their Impact: A scoping review of electronic personal health records (PHRs) (PMC) emphasizes the benefits of digital logbooks in patient-centered healthcare. These records provide accessibility to medical data and support self-management, enhancing communication between patients and healthcare providers.

Similarly, "Patient Engagement with Personal Electronic Health Records (PEHRs)" (PMC) discusses the barriers and facilitators influencing patient interactions with their health records. The study finds that ease of access and integration into clinical workflows are crucial for the adoption of PHRs.

3. Digital Health Tracking and Chronic Disease Management: The study "Personal Health Tracking: A Paradigm Shift in the Self-Care Models of Patients with Chronic Diseases" (JMIR Nursing) proposes a digitized self-care model that integrates self-tracking for better health outcomes in chronic disease management. It suggests that mHealth technologies have the potential to transform self-care approaches.

Another study, "Beyond Self-Tracking: Exploring and Unpacking Four Emerging Labels of Patient Data Work" (SAGE Journals), discusses evolving concepts in patient data management. It highlights the need to go beyond conventional self-tracking and examine new frameworks that encompass patient-generated health data.

4. Challenges and Considerations: A study on "Information Quality Challenges of Patient-Generated Data in Clinical Practice" (Frontiers in Public Health) addresses the concerns of healthcare providers regarding the accuracy and reliability of self-tracked data. The study suggests that integrating such data into clinical practice requires mechanisms to ensure data validity and meaningful interpretation.

Additionally, "Routine Self-Tracking of Health: Reasons, Facilitating Factors, and the Role of Health Literacy" (PMC) explores the factors influencing self-tracking habits. It finds that recent

hospital visits and health literacy levels significantly impact an individual's likelihood to engage in consistent self-tracking.

5. Conclusion and Future Directions: The reviewed literature underscores the potential of patient-maintained health logbooks in promoting self-care, improving communication with healthcare professionals, and enhancing patient engagement. However, challenges such as data accuracy, integration with healthcare systems, and user adoption remain critical areas of concern. Future research should focus on developing standardized frameworks for self-tracked data, improving interoperability with electronic health records (EHRs), and enhancing user-friendly interfaces to encourage broader adoption.

CHAPTER 3

Problem Statement

3. PROBLEM STATEMENT

Healthcare systems have traditionally relied on periodic doctor visits, but these provide only limited insights into a patient's daily health. This lack of continuous monitoring is particularly challenging for individuals managing chronic illnesses, recovering from medical procedures, or striving for better health. Without a structured way to track symptoms, medications, and lifestyle habits, many patients struggle with treatment adherence, leading to missed medication doses, delayed medical intervention, and poor health outcomes.

A major challenge is the absence of a centralized, user-friendly system for recording and monitoring health data. Traditional methods, such as paper logs or scattered digital notes, are inconsistent and unreliable, often leading to incomplete records. Many individuals rely on memory, resulting in inaccurate information that makes it difficult for healthcare providers to make informed decisions. While some digital health tools exist, they are often complex, fragmented, or inaccessible to those with limited technological literacy. Many focus on isolated aspects of health, such as fitness tracking or medication reminders, but fail to provide an integrated solution, leading to inefficiencies in health management.

As preventive healthcare gains importance, there is a growing need for a seamless, structured, and accessible self-monitoring tool. To address these challenges, this project introduces the Personalized Medical Tracker, a virtual health logbook designed to help individuals systematically record, track, and manage their health data. This platform offers structured documentation of symptoms, medications, and lifestyle habits while integrating features like medication and appointment reminders, graphical health reports, and trend analysis. By bridging the gap between traditional healthcare and modern digital solutions, the Personalized Medical Tracker empowers individuals to take control of their health, enhances communication with healthcare providers, and promotes better health outcomes.

CHAPTER 4

Experimental Setup

4. EXPERIMENTAL SETUP

4.1 Hardware Setup

- PC/Laptop with Windows 11 for development and testing.

4.2 Software Setup

- Frontend Development:
  - HTML, CSS, JavaScript: Used for designing and styling the user interface, ensuring a responsive and user-friendly experience.
- Backend Development:
  - Django: A Python-based web framework used for server-side logic, handling authentication, and managing health data.
  - Node.js: Used for specific backend functionalities and API handling.
- Database Management:
  - SQL: A relational database used to store and retrieve user health records securely.
- Development Tools:
  - Visual Studio Code: Used for coding and debugging front-end and back-end components.

CHAPTER 5

Proposed System & Implementation

5. PROPOSED SYSTEM AND IMPLEMENTATION

5.1 Block Diagram of Proposed System

The proposed system, "Personalized Medical Tracker," is a health-monitoring web application that allows users to log symptoms, track medications, set reminders, and visualize health trends. It integrates a frontend web interface with a Django backend and a MySQL database to store and manage user health records.

Block Diagram Components:

- User Interface (UI):
  - Symptom Tracker, Medication Log, Reminder System, Health Reports, Profile Management
  - Users enter and manage health data, receive medication alerts, and view progress
- Backend API (Django Server):
  - RESTful API endpoints for user authentication, data storage, and analytics
  - Handles frontend requests, processes data, and interacts with the database
- Database (MySQL):
  - Tables for user profiles, medication logs, symptom records, and reminders
  - Secure storage of health data for future retrieval and analysis
- Communication Flow:
  - Data exchange between frontend and backend through REST API

5.2 Description of Block Diagram

The block diagram outlines the key components and their interactions.

- User Interface (UI):
  - Built using HTML, CSS, and JavaScript
  - Includes symptom tracking, medication logging, reminders, health reports, and profile management

- Backend API (Django Server):
    - Developed using Django and Django REST Framework (DRF)
    - Provides secure authentication, health tracking, reminders, and analytics
- Database (SQLite):
    - Stores structured health data including user profiles, medications, symptoms, and reminders
- Communication Flow:
    - REST API ensures smooth data exchange between frontend and backend

5.3 Implementation

1. Implementation Details:
    - The development follows a structured approach using modern web technologies
2. Technologies Used:
    - Frontend: HTML, CSS, JavaScript
    - Backend: Django, Django REST Framework (DRF)
    - Database: SQLite
3. Development Process:
    - Frontend Development:
        - UI designed with HTML, CSS, and JavaScript
        - Forms for symptom and medication input
        - Graphical reports for health trends
    - Backend Development:
        - Django REST Framework provides secure API endpoints
        - Database transactions handled efficiently with Django ORM
    - Testing:
        - Manual Testing: UI responsiveness and user experience validation
        - Automated Testing: API functionality and performance evaluation

Sign-in page:

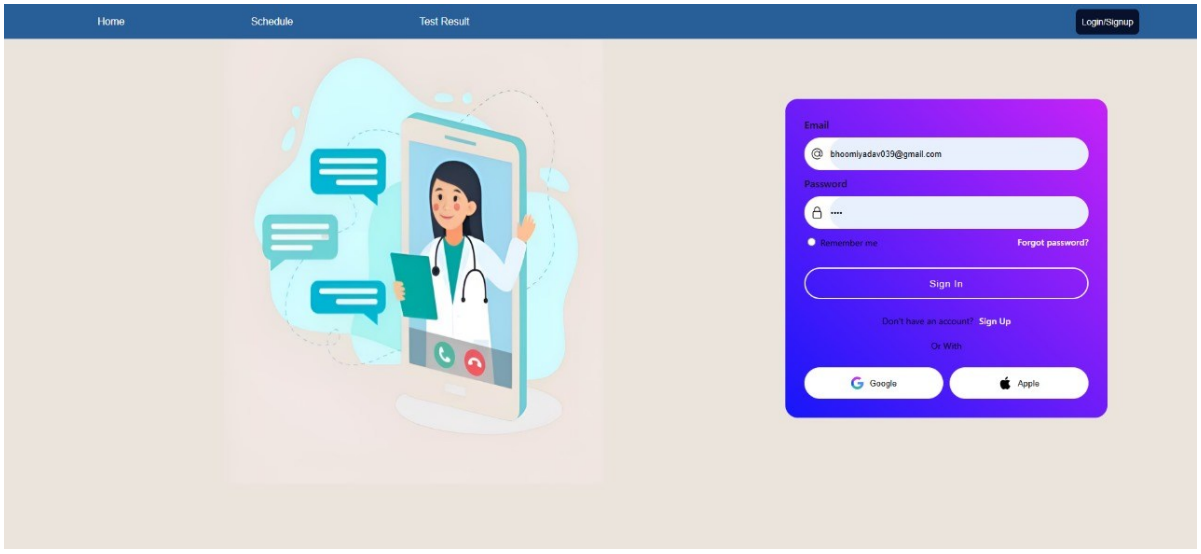

Fig 5.1: Screenshot of sign-in page

Homepage:

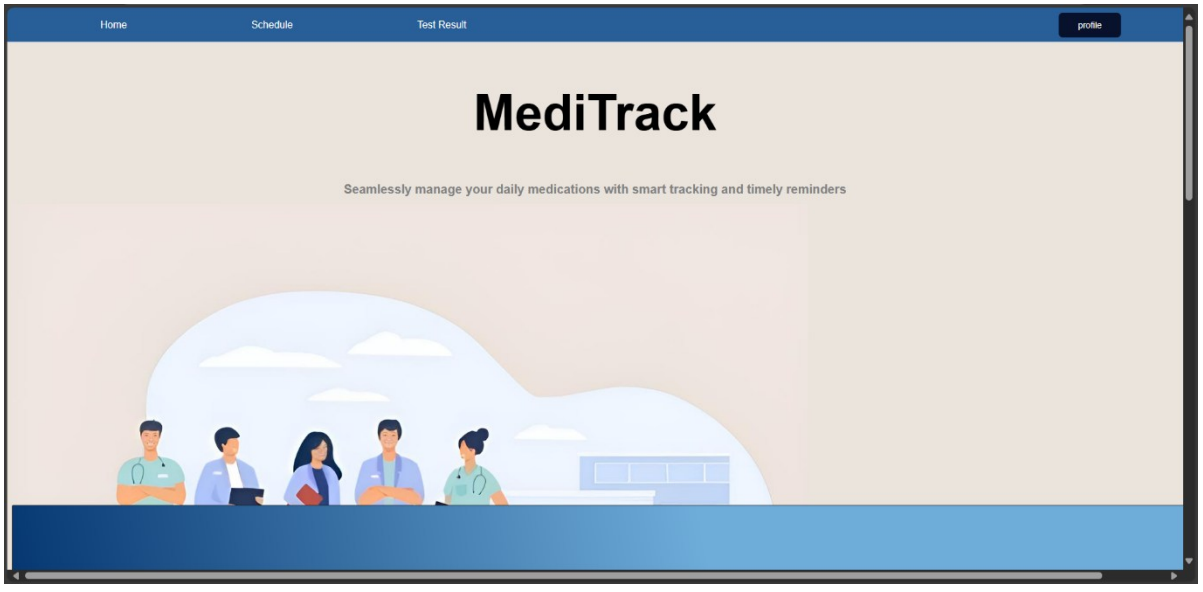

Fig 5.2: Screenshot of homepage

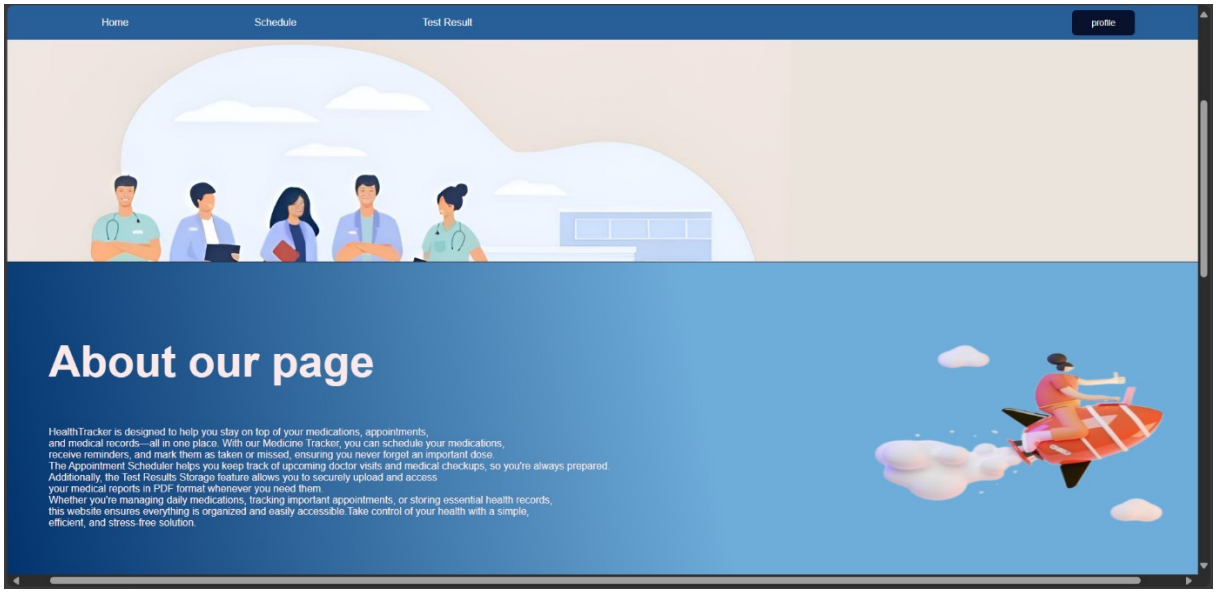

Fig 5.3: Screenshot of home page

Fig 5.4: Screenshot of home page

Schedule:

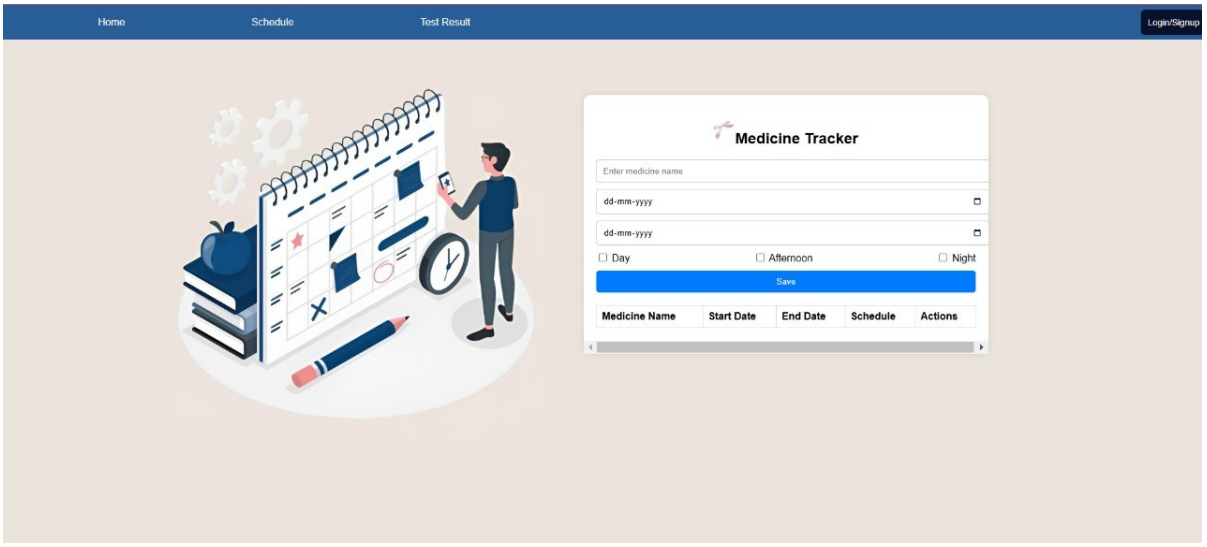

Fig 5.5: Screenshot of schedule

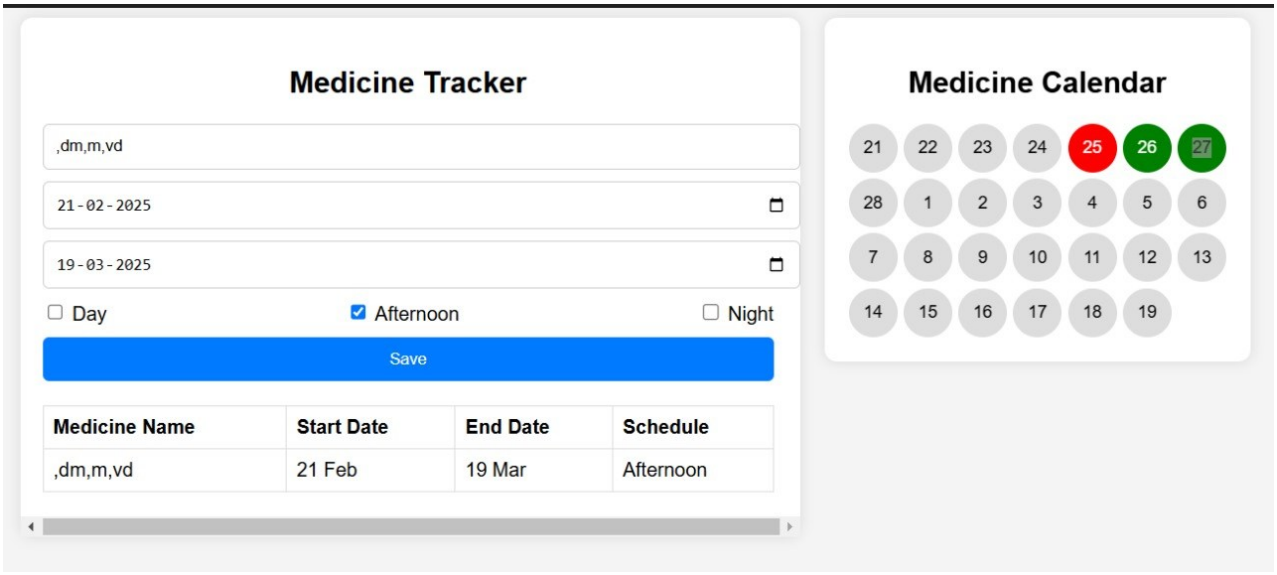

Fig 5.6: Screenshot of schedule

Test Result:

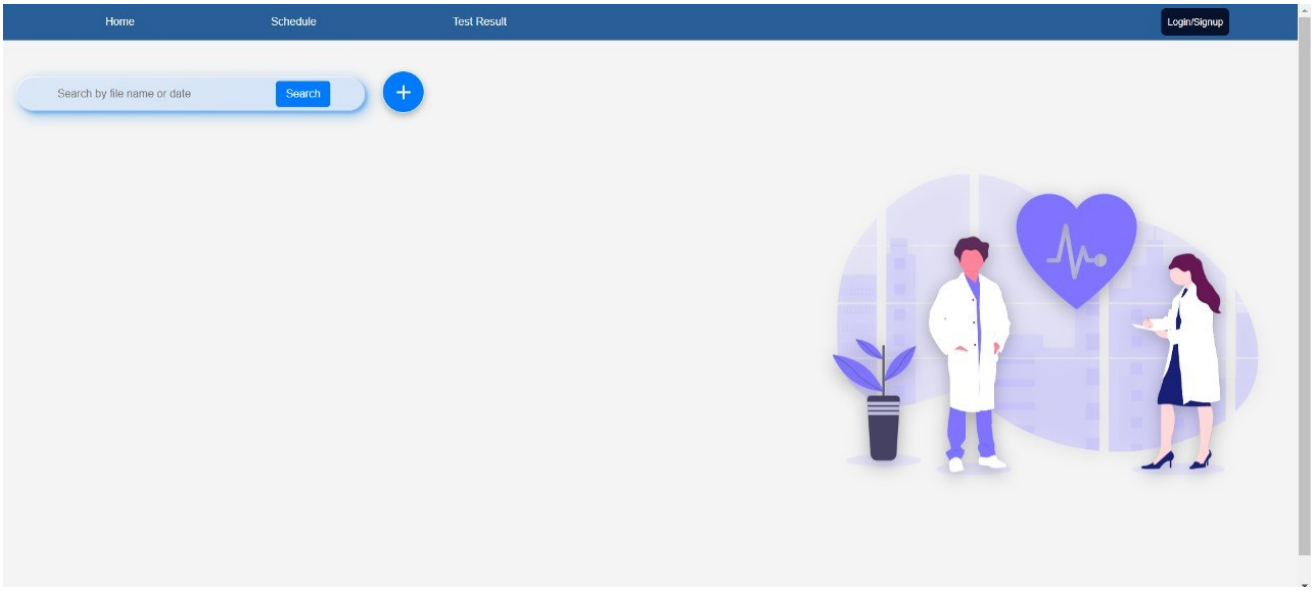

Fig 5.7: Screenshot of test result

Profile:

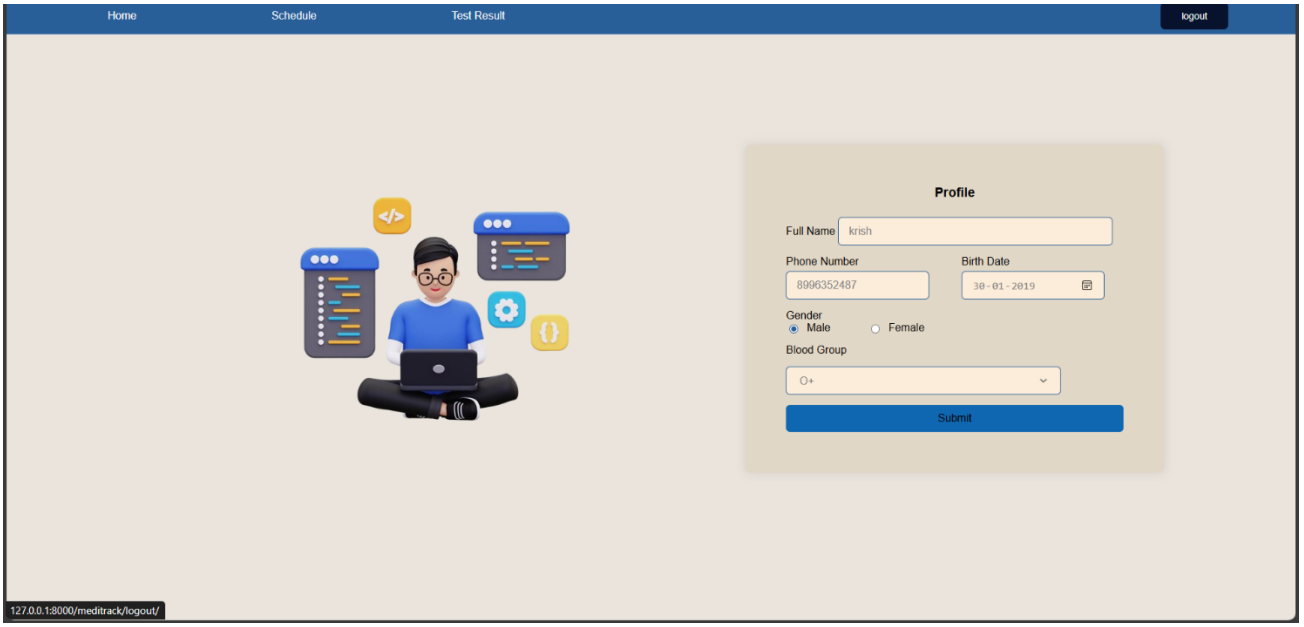

Fig 5.8: Screenshot of profile

CHAPTER 6

Conclusion

6. CONCLUSION

The Personalized Medical Tracker system provides a comprehensive and user-friendly solution for health monitoring, addressing the challenges of inconsistent health tracking and medication adherence. By allowing users to log symptoms, track medications, receive reminders, and visualize health trends, the system promotes a proactive approach to personal healthcare. The integration of Django for backend development ensures efficient data processing, while MySQL provides a secure and structured database for storing health records. The intuitive user interface enhances accessibility, making it easy for individuals to manage their health information effectively.

Additionally, the system's RESTful API ensures smooth communication between the frontend and backend, enabling real-time updates and data retrieval. The implementation of graphical health reports allows users to identify patterns in their symptoms and medication effectiveness, aiding in better decision-making. Through a combination of automation, structured data storage, and seamless interaction between system components, the Personalized Medical Tracker bridges the gap between traditional healthcare methods and digital solutions. This system empowers individuals to take greater control of their health while also providing healthcare professionals with accurate and structured data for improved medical guidance and timely intervention.

References

[1] Lupton, D. (2016). Self-tracking, health and medicine.
Health Sociology Review, 26(1), 1–5.

[2] Huygens, M. W. J., Swinkels, I. C. S., De Jong, J. D., Heijmans, M. J. W. M., Friele, R. D., Van Schayck, O. C. P., & De Witte, L. P. (2017). Self-monitoring of health data by patients with a chronic disease: does disease controllability matter? *BMC Family Practice*, *18*(1).