

MEDICINE REMAINDER AND NEARBY PHARMACY FINDER APP

A PROJECT REPORT

Submitted by

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in partial fulfilment for the award of the course

AMC1361- MOBILE APPLICATION DEVELOPMENT

IN

DEPARTMENT OF

COMPUTER SCIENCE AND ENGINEERING

(ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)



**K. RAMAKRISHNAN COLLEGE OF ENGINEERING
(AUTONOMOUS)
SAMAYAPURAM, TRICHY**



**ANNA UNIVERSITY
CHENNAI 600 025**

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**MEDICINE REMAINDER AND NEARBY
PHARMACY FINDER APP
PROJECT FINAL DOCUMENT**

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AMC1362- MOBILE APPLICATION DEVELOPMENT

**DEPARTMENT OF
COMPUTER SCIENCE AND ENGINEERING
(ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)**

Under the Guidance of

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(AUTONOMOUS)**



ANNA UNIVERSITY, CHENNAI

BONAFIDE CERTIFICATE

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DECLARATION BY THE CANDIDATES

We declare that to the best of our knowledge the work reported here in has been composed solely by myself and that it has not been in whole or in part in any previous application for a degree.

Submitted for the project Viva-Voice held at K. Ramakrishnan College of Engineering on _____

SIGNATURE OF THE CANDIDATES

Place: Samayapuram
Date:

ACKNOWLEDGEMENT

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DEPARTMENT OF CSE

(ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)

VISION

To become a renowned hub for AIML technologies to producing highly talented globally recognizable technocrats to meet industrial needs and societal expectation.

MISSION

Mission of the Department

- M1** To impart advanced education in AI and Machine Learning, built upon a foundation in Computer Science and Engineering.
- M2** To foster Experiential learning equips students with engineering skills to tackle real-world problems.
- M3** To promote collaborative innovation in AI, machine learning, and related research and development with industries.
- M4** To provide an enjoyable environment for pursuing excellence while upholding strong personal and professional values and ethics.

PROGRAM EDUCATIONAL OBJECTIVES (PEO's)

- PEO1** Excel in technical abilities to build intelligent systems in the fields of AI & ML in order to find new opportunities.
- PEO2** Embrace new technology to solve real-world problems, whether alone or as a team, while prioritizing ethics and societal benefits.
- PEO3** Accept lifelong learning to expand future opportunities in research and product development.

PROGRAM SPECIFIC OUTCOMES (PSO's)

- PSO1** Expertise in tailoring ML algorithms and models to excel in designated applications and fields.
- PSO2** Ability to conduct research, contributing to machine learning advancements and innovations that tackle emerging societal challenges.

PROGRAM OUTCOMES(POS)

Engineering students will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

ABSTRACT

The **Medicine Remainder and Nearby Pharmacy Finder App** is a mobile application designed to assist users in managing their medication schedules effectively while providing real-time access to nearby pharmacies. Many patients forget to take their medicines on time or struggle to track multiple prescriptions, leading to poor health outcomes. This project aims to solve these challenges through automated reminders, medicine tracking, and location-based pharmacy search features. The application allows users to add their medications along with dosage, frequency, and duration. It then generates timely alerts to ensure medicines are taken correctly and consistently. Additionally, using GPS and map-based services, the app identifies nearby pharmacies, displays their distance, contact details, and working hours, and provides navigation support. The system uses a user-friendly interface, a secure database for storing medicine schedules, and location-based APIs for pharmacy detection. The app enhances medication adherence, supports elderly and chronic patients, and improves healthcare accessibility. Overall, the project contributes to better health management by combining reminder automation with location intelligence.

ABSTRACT WITH POs AND PSOs MAPPING

CO : 5 BUILD A DATABASE FOR REAL – TIME PROBLEMS

ABSTRACT	POs MAPPED	PSOs MAPPED
<p>The Medicine Remainder and Nearby Pharmacy Finder App is a mobile application designed to assist users in managing their medication schedules effectively while providing real-time access to nearby pharmacies. Many patients forget to take their medicines on time or struggle to track multiple prescriptions, leading to poor health outcomes. This project aims to solve these challenges through automated reminders, medicine tracking, and location-based pharmacy search features. The application allows users to add their medications along with dosage, frequency, and duration. It then generates timely alerts to ensure medicines are taken correctly and consistently. Additionally, using GPS and map-based services, the app identifies nearby pharmacies, displays their distance, contact details, and working hours, and provides navigation support.</p>	<p>PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO9 PO11</p>	<p>PSO1 PSO2 PSO3</p>

Note: 1- Low, 2-Medium, 3- High

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LIST OF ABBREVIATIONS

S.NO	ACRONYM	ABBREVIATION
1	GPS	Global Positioning System
2	LBS	Location-Based Services
3	API	Application Programming Interface
4	DB	Database
5	UI	User Interface
6	UX	User Experience
7	OTP	One Time Password
8	SMS	Short Message Service
9	FCM	Firebase Cloud Messaging
10	EHR	Electronic Health Records

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

Medication adherence is essential for effective healthcare management. Many patients, especially the elderly or those with chronic diseases, often struggle to keep track of multiple medications. Missed doses, double doses, or irregular medication intake can lead to severe health complications. With the growth of smartphone usage, health-related mobile applications have become an effective tool for assisting patients in their daily medical routines.

The “Medicine Reminder and Nearby Pharmacy Finder App” is an Android-based health application that functions as a personal medication and pharmacy assistant. It is designed to automate medication reminders and help users locate pharmacies using real-time location services.

1.2 OBJECTIVES

The primary objective of the Medicine Remainder and Nearby Pharmacy Finder App is to create a reliable digital tool that helps users follow their medication schedules consistently while ensuring easy access to pharmacies when needed. The application aims to simplify the process of medication management by allowing users to record their prescriptions, set personalized reminders, and receive timely notifications for each dose throughout the day. By doing so, it seeks to reduce missed or delayed medication intake, thereby improving treatment effectiveness and supporting overall health.

Another major objective of the project is to integrate location-based services that enable users to quickly identify nearby pharmacies, especially during emergencies or when medicines run out unexpectedly.

Overall, the app aims to deliver a user-friendly, accessible, and efficient healthcare solution that enhances medication adherence, reduces health risks associated with irregular medicine intake, and provides an added layer of convenience by connecting users with nearby pharmacies. The overarching goal is to improve the quality of life for patients, caregivers, and anyone who relies on timely medication and quick access to pharmaceutical services.

1.3 PURPOSE AND IMPORTANCE

The purpose of the Medicine Reminder and Nearby Pharmacy Finder App is to provide a dependable digital healthcare companion that assists users in managing their medication routines with accuracy and ease. Many individuals, especially elderly patients, chronic illness sufferers, and busy working professionals, often forget to take medicines at the correct time, which can lead to poor treatment outcomes and health complications. This application is designed to address that challenge by offering a smart reminder system that ensures users receive timely notifications for each prescribed dose. By keeping track of medication schedules, dosage details, and refill dates, the app aims to reduce the chances of missed medications and help users maintain consistent adherence to their treatment plans.

The app is also created with the intention of giving users quick access to essential pharmaceutical services whenever the need arises. Integrating GPS-based location tracking, the system allows users to instantly identify nearby pharmacies, view directions, check availability, and contact stores directly. This becomes especially important in urgent situations, late-night requirements, or for users who are unfamiliar with the local area. The combination of reminder functionality and location support enhances the overall utility of the app, making it a complete solution for medication management.

1.4 DATA SOURCE DESCRIPTION

The data used in the Medicine Reminder and Nearby Pharmacy Finder App originates from a combination of user-generated information and external service providers that supply real-time location and mapping details. The primary source of data is the information manually entered by users, which includes medication names, dosage instructions, frequency, start and end dates, and any specific notes provided by doctors. This user-input data forms the foundation for the reminder system, enabling the app to schedule alerts, track dosage timings, and maintain a detailed medication history. The accuracy and reliability of the application depend largely on the completeness of the data provided by the user, as it directly influences reminder notifications and medication adherence tracking.

1.5 PROJECT SUMMARIZATION

The Medicine Reminder and Nearby Pharmacy Finder App is a comprehensive mobile-based healthcare solution designed to assist users in managing their daily medication routines while offering quick access to pharmacies within their locality. The project integrates reminder scheduling, real-time notifications, and location-based services into a single platform, making it an effective tool for individuals who struggle to remember their medicine timings or often face difficulty locating nearby pharmacies during emergencies. The system enables users to input their medication details, set recurring or one-time reminders, and receive timely alerts that help them remain consistent with their treatment plans.

CHAPTER 2

LITERATURE SURVEY

2.1 TRADITIONAL MEDICATION MANAGEMENT

Traditional medication management practices have largely depended on simple, manual methods that rely heavily on an individual's memory and discipline. For decades, people have used handwritten notes, calendars, pillboxes, and verbal instructions from healthcare professionals to keep track of their medication schedules. In many households, family members also play a major supportive role by reminding elderly or chronically ill individuals to take their medicines on time. Although these methods have served their purpose in the past, they have significant limitations in today's fast-paced lifestyle. With people managing multiple responsibilities, it has become increasingly common to forget medicine timings, skip doses, or even take an incorrect dosage. In addition, patients with chronic illnesses such as diabetes, hypertension, or heart disease often receive multiple prescriptions, making it even more challenging to follow a complex medication regimen using traditional methods. These manual systems also lack an effective monitoring mechanism, meaning that neither patients nor healthcare providers can track adherence patterns accurately. As a result, the risk of treatment failure, relapse, or health complications increases, highlighting the need for a digital alternative that provides structure, reminders, and real-time tracking.

2.2 EXISTING MOBILE HEALTH SOLUTIONS

With the growth of smartphones and digital healthcare, several mobile health (mHealth) applications have been developed to help users manage their medicines more efficiently. Many of these apps focus on basic features such as setting reminders, scheduling alarms, or storing simple medication data. However, their usefulness is often limited because they do not offer a comprehensive solution for real-world healthcare needs.

While some apps provide timely notifications, they do not integrate pharmacy locators or allow users to connect with nearby medical stores in case of urgent requirements. Very few applications include intelligent features such as refill prediction, dosage tracking, missed-dose alerts, or medication history analysis. As a result, users often need to rely on multiple apps to manage different aspects of their healthcare routine.

2.3 LOCATION-BASED SERVICES (LBS)

Location-Based Services (LBS) have gained considerable prominence in healthcare systems due to their ability to provide location-aware information in real time. LBS technologies are widely used in applications that help users identify nearby hospitals, clinics, emergency facilities, blood banks, and ambulances. These systems play an essential role in improving access to healthcare, particularly in urgent situations where timely guidance can save lives. In recent years, LBS has also been utilized in telemedicine platforms to locate service providers or direct patients to the nearest healthcare centers.

CHAPTER 3

PROJECT METHODOLOGY

3.1 PROPOSED WORKFLOW

The proposed workflow of the Medicine Reminder and Nearby Pharmacy Finder App begins with user registration and secure authentication, allowing individuals to create personal profiles. Once logged in, users enter detailed medication information including the name, dosage, frequency, and duration of each prescribed medicine. The system processes this information to generate timely reminders, track adherence, and maintain a comprehensive medication history. The reminder engine ensures that notifications are sent at the correct time, while follow-up alerts can notify users of any missed doses, thereby supporting consistent medication intake.

In addition to reminders, the workflow integrates a pharmacy locator feature that uses real-time GPS data and mapping services. When a user requires medicine, the system identifies nearby pharmacies, displaying distance, directions, and contact details for convenient access. All user data, including medication schedules, reminder logs, and pharmacy searches, is securely stored in a cloud or local database, ensuring seamless retrieval and synchronization across sessions. This workflow combines medication management with location-based assistance, providing a user-friendly and efficient solution for timely healthcare management.

3.2 ARCHITECTURE DIAGRAM

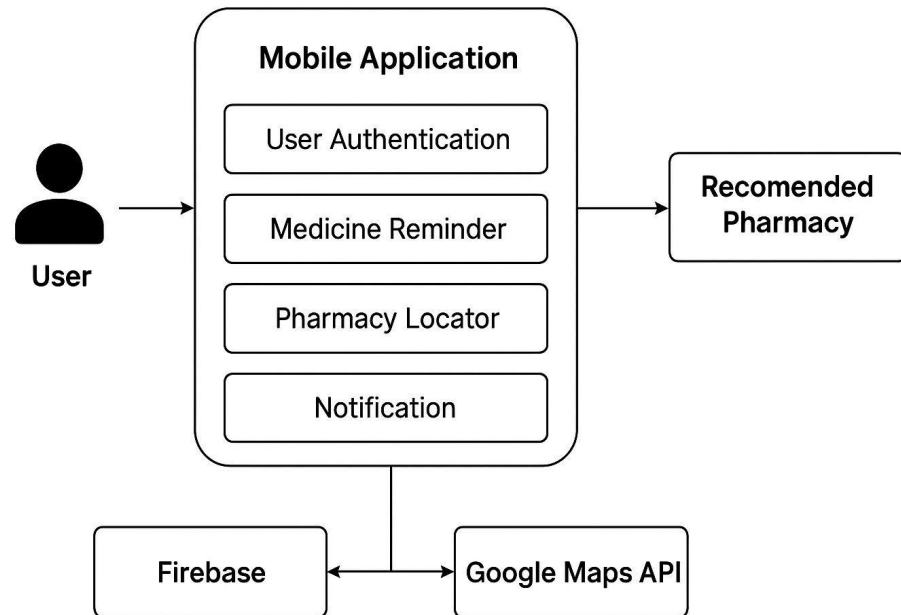


Figure 3.2.1 Architecture Diagram

CHAPTER 4

RELEVANCE OF THE PROJECT

4.1 ADDRESSING USER NEEDS

The Medicine Reminder and Nearby Pharmacy Finder App effectively addresses common challenges faced by users in managing their medications. Many individuals, particularly the elderly and those with chronic illnesses, struggle with forgetfulness and often miss doses, which can compromise treatment outcomes. The system also helps users manage complex dosage schedules by providing clear and timely reminders, reducing confusion associated with multiple medications. In urgent situations where medicines are required immediately, the integrated pharmacy locator ensures that users can quickly find nearby stores, overcoming difficulties in accessing medical supplies and improving overall healthcare reliability.

4.2 ENHANCEMENT TO MEDICATION MANAGEMENT

The application significantly enhances medication management by ensuring that users take their medicines on time, thereby improving adherence to prescribed treatments. It provides refill notifications and keeps users aware of their stock levels, preventing disruptions in treatment. The app also maintains an organized record of medicine history and schedules, allowing users to track their medication over time. By combining timely reminders with easy access to nearby pharmacies, the system promotes independence among users, enabling them to manage their health without constant supervision or assistance from caregivers.

4.3 BENEFITS AND LIMITATIONS

The app offers several key benefits, including a user-friendly interface that can be easily navigated by people of all age groups, secure cloud-based storage of sensitive health data, and real-time location tracking that supports immediate access to pharmacies. By automating reminders and providing structured medication management, it reduces the risk of missed doses and associated health complications. However, the system does have certain limitations. Accessing the pharmacy locator requires an active internet connection, and the accuracy of GPS-based suggestions may vary depending on device and network conditions. Additionally, the effectiveness of reminders depends on timely notification permissions being enabled on the user's device, which may occasionally .

CHAPTER 5

MODULE DESCRIPTION

5.1 USER AUTHENTICATION MODULE

The User Authentication Module is responsible for providing secure and reliable access to the application. It allows users to log in using their email address or OTP-based verification, ensuring that only authorized individuals can access personal medical data. The module manages user sessions by storing encrypted authentication tokens, preventing unauthorized use or tampering. It also handles registration, password recovery, and user validation processes, creating a safe environment for storing sensitive health information. By ensuring strong authentication practices, the module protects the privacy and confidentiality of user data throughout the system.

5.2 MEDICINE MANAGEMENT MODULE

The Medicine Management Module forms the core functionality of the application by allowing users to add, edit, and delete their medication details with ease. Through an intuitive interface, users can input medicine names, dosage levels, consumption frequency, and duration as prescribed by their healthcare provider. The system automatically organizes this data and uses it to schedule reminders throughout the treatment period. Additionally, the module tracks medicine stock levels based on user input and triggers refill alerts whenever the quantity becomes low. This module ensures that all medication-related information is accurately maintained and readily available, reducing confusion and improving user adherence to treatment plans.

5.3 REMINDER & NOTIFICATION MODULE

The Reminder and Notification Module ensures that users receive timely alerts for every scheduled dose. It utilizes the device's alarm manager to trigger reminders even when the application is running in the background. The module integrates with Firebase Cloud Messaging (FCM) to deliver reliable push notifications that reach the user instantly. Each reminder includes sound alerts, on-screen popups, and optional vibration patterns to effectively capture the user's attention. This module also records missed doses and sends follow-up notifications if necessary, ensuring consistent medication intake. By automating the reminder process, the system reduces dependency on memory and enhances overall treatment adherence.

5.4 PHARMACY LOCATOR MODULE

The Pharmacy Locator Module enhances the application by offering real-time access to nearby pharmacies whenever the user needs to purchase medicines. It uses the device's GPS system to identify the user's current location with high accuracy. Once the location is captured, the module connects to Google Places API or a similar service to fetch a list of nearby pharmacies, complete with details such as distance, ratings, contact information, and operational status. Users can view these pharmacies on an interactive map and get step-by-step navigation through integrated map services. This module is particularly useful in emergency situations, ensuring that users can find essential medicines without delay.

CHAPTER 6

RESULTS AND DISCUSSION

6.1 RESULT

The Medicine Reminder and Nearby Pharmacy Finder App was successfully developed and tested to evaluate its performance, usability, and effectiveness in supporting daily medication management. The system performed well across all core functionalities, including user authentication, medicine scheduling, reminder generation, and pharmacy location services. Users were able to create accounts securely and manage their medication data without any technical difficulties. The medicine management feature allowed the addition, editing, and deletion of medicines, while the reminder system triggered alerts accurately at the scheduled times. Notifications worked consistently through both in-app and background operations, demonstrating the reliability of the reminder engine.

6.2 DISCUSSION

The results of the project show that the Medicine Reminder and Nearby Pharmacy Finder App successfully improves daily medication management by providing timely alerts and an organized way to track medicines. Users were able to follow their schedules more consistently, reducing the chances of missed or incorrect doses. The pharmacy locator feature also worked effectively, helping users quickly find nearby medical stores during urgent situations. Although the system depends on internet connectivity and GPS accuracy, it still offers a practical and convenient solution for everyday healthcare needs. Overall, the app demonstrates how combining reminders with location-based services can greatly enhance medication adherence and accessibility.

CHAPTER 7

CONCLUSION AND FUTURE SCOPE

7.1 CONCLUSION

The Medicine Reminder and Nearby Pharmacy Finder App successfully provides a simple, effective, and reliable solution for managing daily medication routines. By combining timely reminders with real-time access to nearby pharmacies, the system helps users maintain consistent adherence to their prescribed treatments while ensuring quick availability of medicines when needed. The app proves that digital health tools can significantly reduce forgetfulness, improve personal health management, and support users in handling multiple medications with ease. Overall, the project achieves its objective of enhancing medication adherence and accessibility, offering a convenient and valuable tool for everyday healthcare support.

7.2 FUTURE SCOPES

The Medicine Reminder and Nearby Pharmacy Finder App has the potential to be expanded with several advanced features to further enhance user experience and healthcare support. Future enhancements may include integrating AI-based medicine suggestion systems, automatic detection of drug interactions, and voice-assisted reminders for visually impaired users. The app can also be linked with electronic health records to allow doctors to monitor patient adherence remotely. Additional features such as online medicine ordering, pharmacy delivery tracking, and wearable device integration could make the system even more comprehensive. With continuous development, the app can evolve into a complete digital health companion that offers personalized and intelligent medication management for users of all age groups.

APPENDICES

APPENDIX A

SOURCE CODE

```
import os
import json
import logging
from datetime import datetime, time as dtime
from typing import Optional, List
from uuid import uuid4

import requests
from fastapi import FastAPI, HTTPException,
BackgroundTasks, Query
from pydantic import BaseModel, Field
from apscheduler.schedulers.background import
BackgroundScheduler
from apscheduler.triggers.cron import CronTrigger

# Optional desktop notification
try:
    from plyer import notification
    PLYER_OK = True
except Exception:
    PLYER_OK = False

# Logging
logging.basicConfig(level=logging.INFO,
format="%%(asctime)s
[%%(levelname)s] %(message)s")
logger = logging.getLogger("med-reminder")

# Config
DATA_FILE = "medicines.json"
GOOGLE_API_KEY =
os.environ.get("GOOGLE_MAPS_API_KEY",
"") # set this env var for Places API
```

```
app = FastAPI(title="Medicine Reminder +  
Pharmacy Finder")
```

```
# Scheduler  
scheduler = BackgroundScheduler()  
scheduler.start()
```

```
# In-memory store (load from disk)  
medicines = {} # id -> dict
```

```
# Models  
class MedicineIn(BaseModel):  
    name: str = Field(..., example="Paracetamol")  
    time: str = Field(..., example="08:00") #  
    HH:MM 24-hour  
    note: Optional[str] = Field(None,  
    example="After food")  
    days: Optional[List[int]] = Field(None,  
    example=[1,2,3,4,5,6,7]) # 1=Mon ... 7=Sun. If  
    None => everyday
```

```
class MedicineOut(MedicineIn):  
    id: str
```

```
class NotificationPayload(BaseModel):  
    title: str  
    message: str
```

```
# Persistence helpers  
def load_data():  
    global medicines  
    if os.path.exists(DATA_FILE):  
        try:  
            with open(DATA_FILE, "r") as f:  
                data = json.load(f)  
                medicines = {k: v for k, v in data.items()}  
            logger.info(f"Loaded {len(medicines)}")
```

```

medicines from {DATA_FILE}")
    except Exception as e:
        logger.error("Failed to load data file: %s",
e)
        medicines = {}
    else:
        medicines = {}

```

```

def save_data():
    try:
        with open(DATA_FILE, "w") as f:
            json.dump(medicines, f, indent=2)
            logger.debug("Saved medicines to disk")
    except Exception as e:
        logger.error("Failed to save data file: %s", e)

```

Notification function

```

def send_notification(title: str, message: str):
    logger.info("Notification -> %s: %s", title,
message)
    if PLYER_OK:
        try:
            notification.notify(title=title,
message=message, timeout=10)
        except Exception as e:
            logger.warning("plyer          notification
failed: %s", e)

```

Job runner when reminder fires

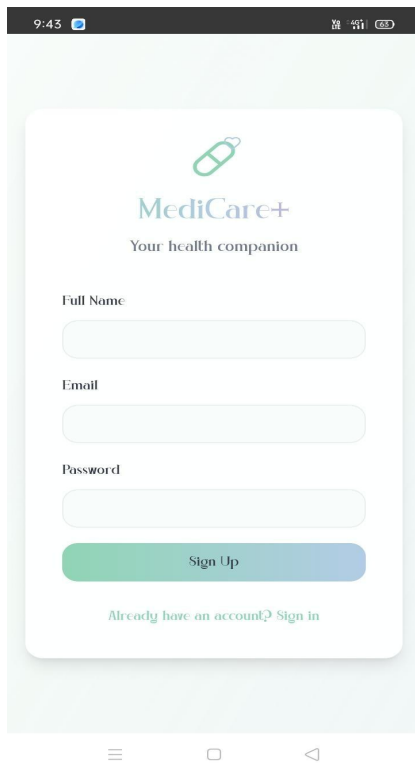
```

def reminder_job(med_id: str):
    item = medicines.get(med_id)
    if not item:
        logger.warning("Reminder      fired      but
medicine not found: %s", med_id)
        return
    title = "Medicine Reminder"
    msg = f'{item["name"]} - {item.get("note", "")}'
    send_notification(title, msg)

```

APPENDIX B

SCREENSHOTS



9:43

MediCare+
Your health companion

Full Name

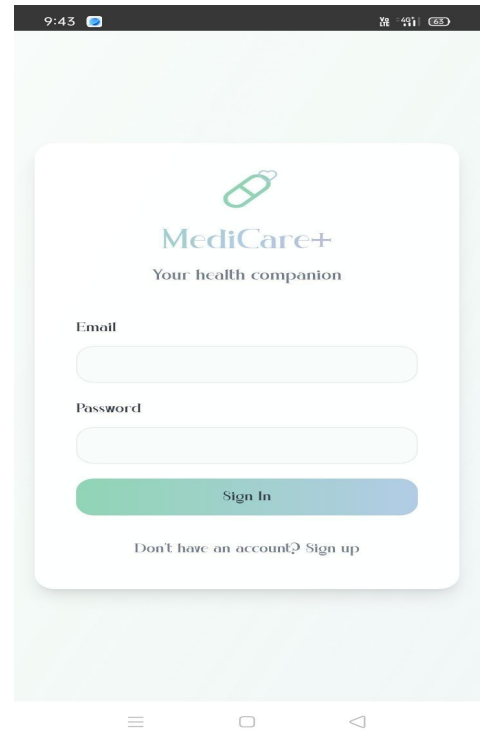
Email

Password

Sign Up

Already have an account? Sign in

Fig.B.1.1 Sign Up page



9:43

MediCare+
Your health companion

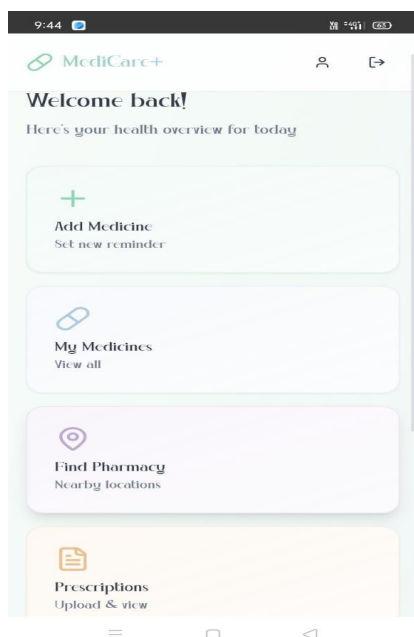
Email

Password

Sign In

Don't have an account? Sign up

Fig.B.1.2 Sign In Page



9:44

MediCare+

Welcome back!
Here's your health overview for today

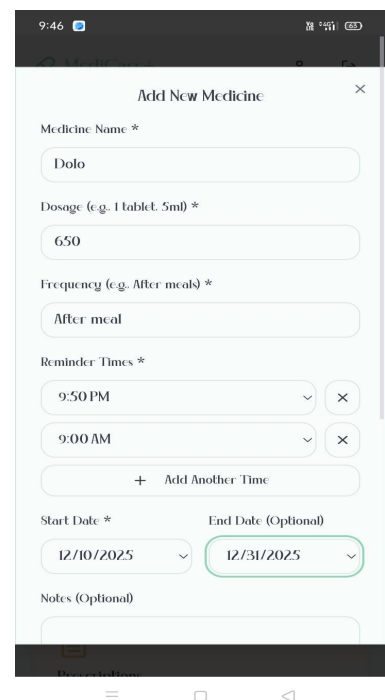
+ Add Medicine
Set new reminder

My Medicines
View all

Find Pharmacy
Nearby locations

Prescriptions
Upload & view

Fig.B.1.3 Home page



9:46

Add New Medicine

Medicine Name *

Dolo

Dosage (e.g. 1 tablet, 5ml) *

650

Frequency (e.g. After meals) *

After meal

Reminder Times *

9:50 PM

9:00 AM

+ Add Another Time

Start Date *

12/10/2025

End Date (Optional)

12/31/2025

Notes (Optional)

Fig.B.1.4 Add Medicine

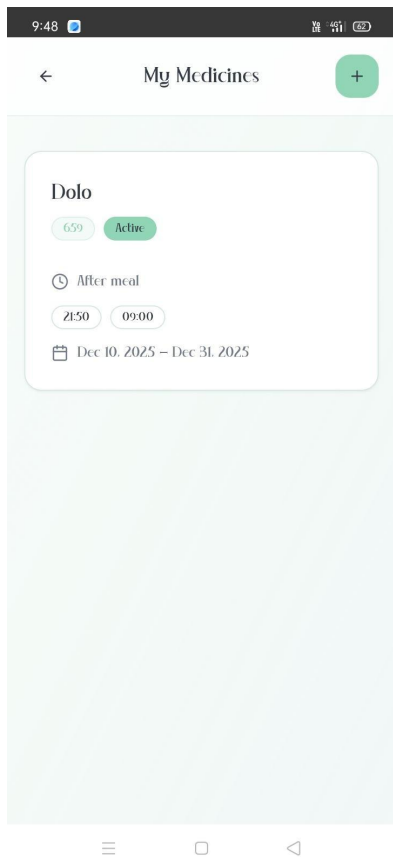


Fig.B.1.5 My Medicines

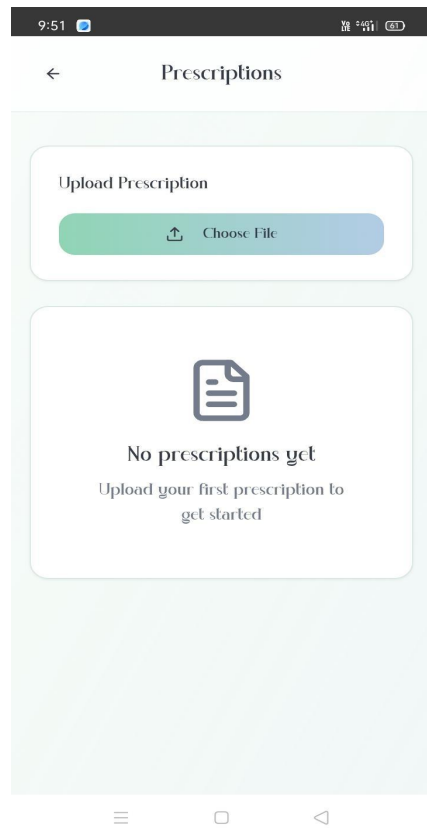


Fig.B.1.6 Upload Prescription

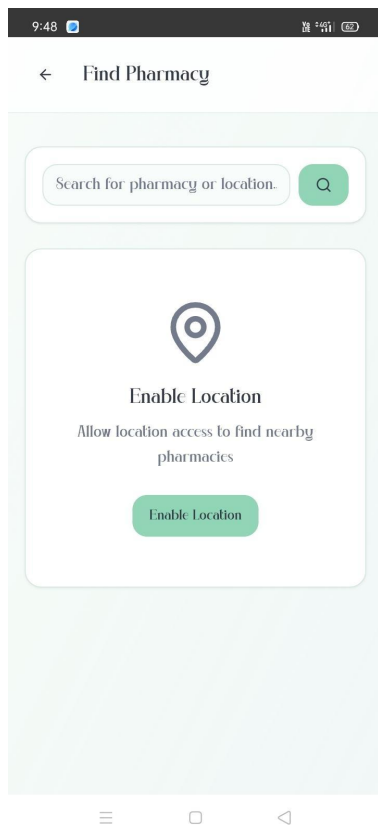


Fig.B.1.7 Find Pharmacy

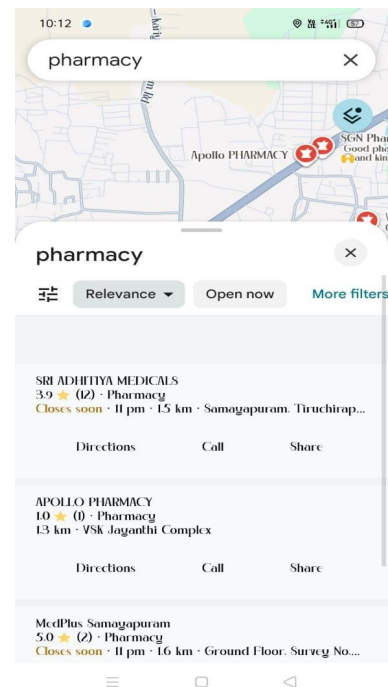


Fig.B.1.8 Nearby Pharmacy

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