Software Design Specifications

MEDICURE

Version: 1.2

Project Code	MT-2025
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Co Supervisor	None
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Submission Date	

Document History

Version	Name of Person	Date	Description of change
1.0	Hassan Rizvi	03/08/2025	Document Made
1.1	Laiba Khan	04/08/2025	Further changes added
1.2	Abdul Qadir Tareen	05/08/2025	Fully formatted

Distribution List

Name	Role
Fizza Aqeel	Supervisor
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Document Sign-Off

Version	Sign-off Authority	Project Role	Signature	Sign-off Date

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Approver(s)	
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Definition of Terms, Acronyms and Abbreviations

Term	Description
ASP	Active Server Pages
DD	Design Specification

Definition of Terms, Acronyms, and Abbreviations

Term	Description
UI	User Interface
API	Application Programming Interface
DBMS	Database Management System
SDS	Software Design Specification
ER Diagram	Entity Relationship Diagram
React Native	Framework for mobile development
Firebase	Backend platform for building apps

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1. Introduction

1.1 Purpose of Document

The purpose of this document is to outline the design approach and architecture of the **Medication Tracker** mobile application. This app helps users manage and track their medications effectively. The document is intended for developers, supervisors, and testers involved in the design and implementation of the project.
We are using **Object-Oriented Design Methodology** with modular architecture and layered patterns.

1.2 Intended Audience

- Project supervisor and advisor
- Project team members
- QA team and testers
- Developers

1.3 Document Convention

This document uses **Times New Roman** font, size **12 pt** with bold headings and standard paragraph spacing.

1.4 Project Overview

The **Medication Tracker** app helps users keep track of their prescribed medications, dosages, schedules, and reminders. The app allows adding, updating, and deleting medications and generates push notifications for timely dosage reminders. The app is built using **React Native** with **Firebase** for real-time data and authentication services.

1.5 Scope

Will Do:

- Medication management (CRUD)
- Push notification reminders
- User login/signup (via Firebase)
- Schedule-based tracking

Will Not Do:

- Medical diagnosis
- Integration with wearable devices
- Doctor-patient communication

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2. Design Considerations

2.1 Assumptions and Dependencies

- User will have internet access
- Firebase will be used as a real-time backend
- App is used by individual patients for self-tracking
- Notifications depend on system-level permissions

2.2 Risks and Volatile Areas

- Firebase service outages could impact app usage
- Notification scheduling may vary across Android/iOS
- Future feature expansion like doctor dashboard could impact architecture
- React Native third-party library compatibility issues

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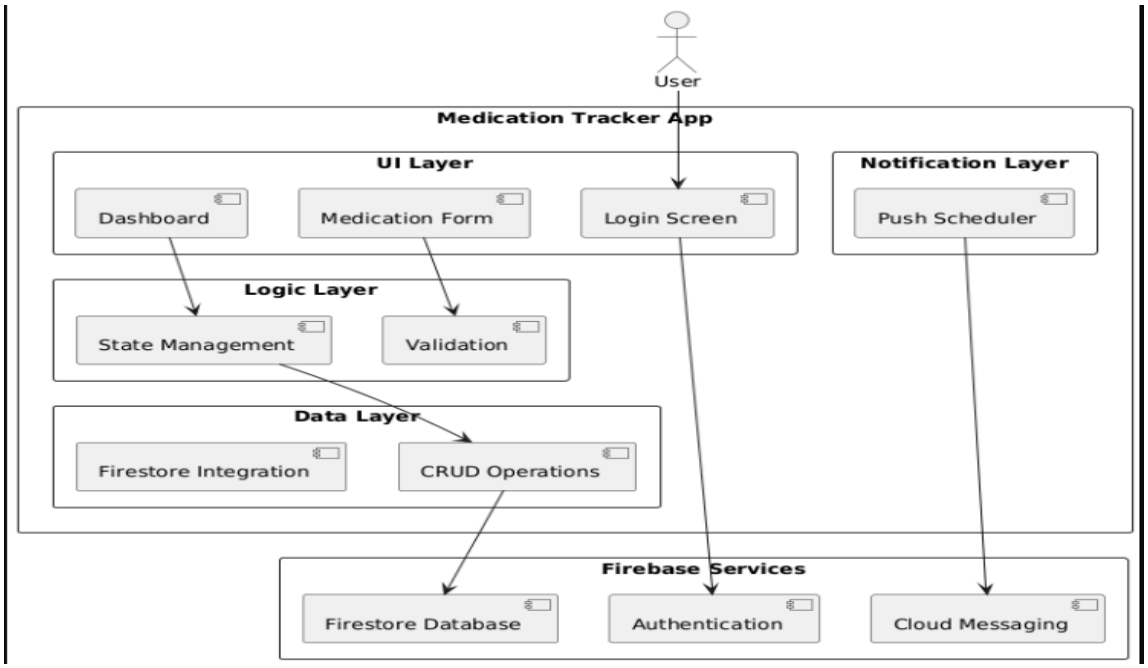
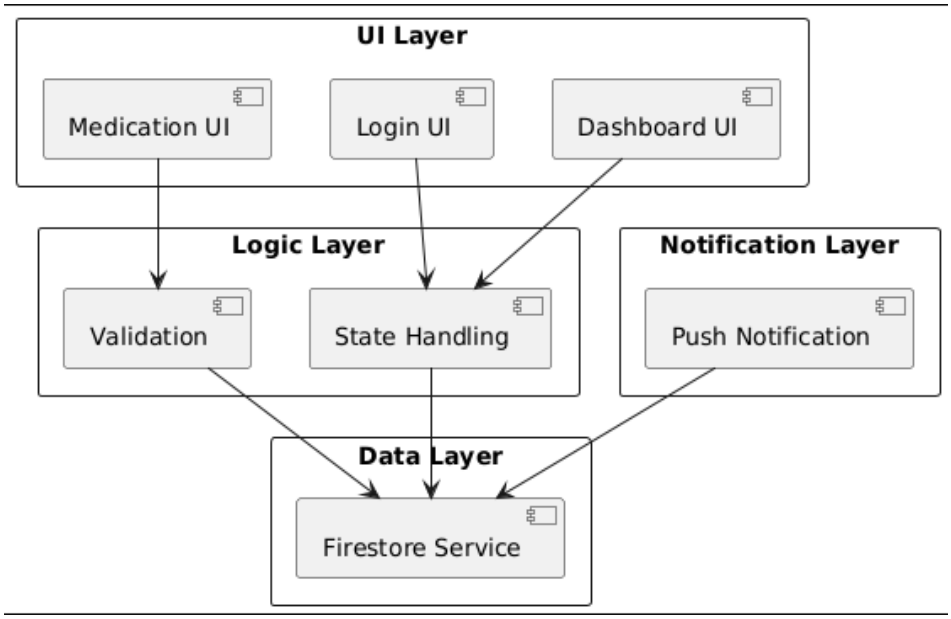
3. System Architecture

3.1 System Level Architecture



- The system is divided into frontend (mobile app) and backend (Firebase).
- Key components: Auth Module, Medication Module, Notification Service, Firestore DB.
- Firebase Cloud Messaging (FCM) is used for push notifications.

3.2 Software Architecture



- **UI Layer:** Screens for login, dashboard, medication details
- **Logic Layer:** State management using Context API
- **Data Layer:** Firebase Firestore interaction (CRUD)
- **Notification Layer:** Uses local scheduling with react-native-push-notification

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4. Design Strategy

- **Scalability:** Modular code for future feature extension like doctor dashboards
- **Reusability:** Reusable components for input, cards, buttons
- **Storage:** Firebase handles user and medication data
- **UI:** Modern mobile design with dark/light mode support
- **Notifications:** Local push notifications

- **Responsiveness:** Fully responsive design with accessibility features
- **Security:** Firebase Auth ensures secure login and user-specific data access

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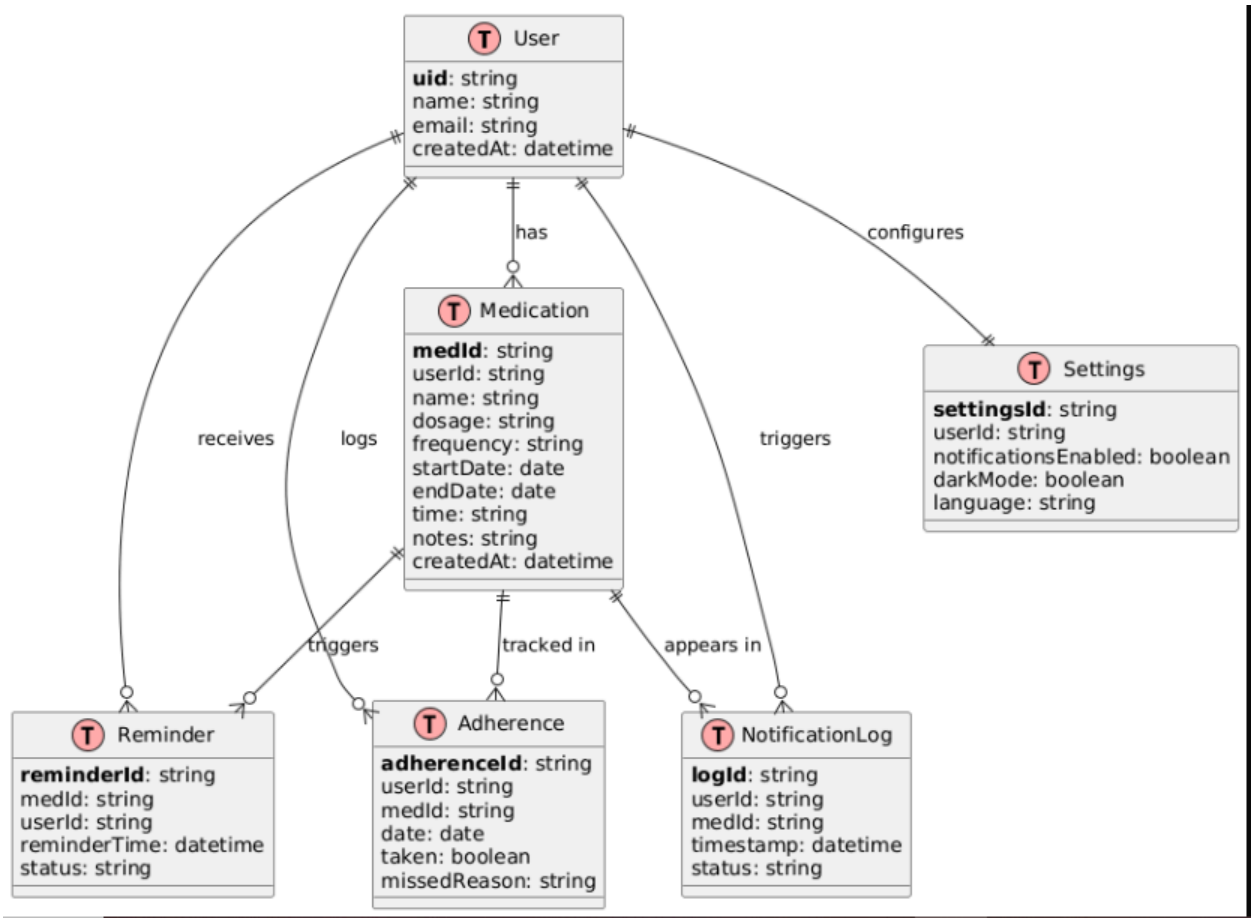
5. Detailed System Design

5.1 Database Design

5.1.1 ER Diagram



5.1.2 Data Dictionary

5.1.2.1 Users

Column Name	Description	Type	Length	Nullable	Default	Key Type
uid	User ID	String	50	No	-	PK
email	Email address	String	100	No	-	
name	Full name	String	100	Yes	-	

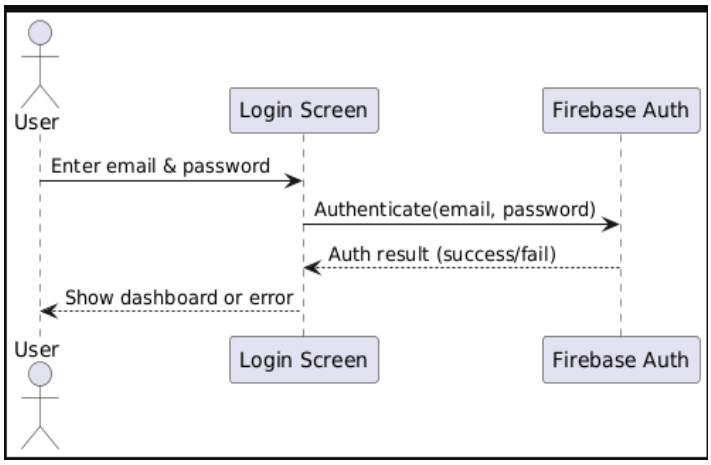
5.1.2.2 Medications

Column Name	Description	Type	Length	Nullable	Default	Key Type
medId	Medication ID	String	50	No	-	PK
uid	User ID	String	50	No	-	FK
name	Medication name	String	100	No	-	
dosage	Dosage	String	50	Yes	-	
time	Time to take	String	10	No	-	
frequency	How often	String	50	No	-	
startDate	Medication start date	Date	-	No	-	
endDate	Medication end date	Date	-	Yes	-	

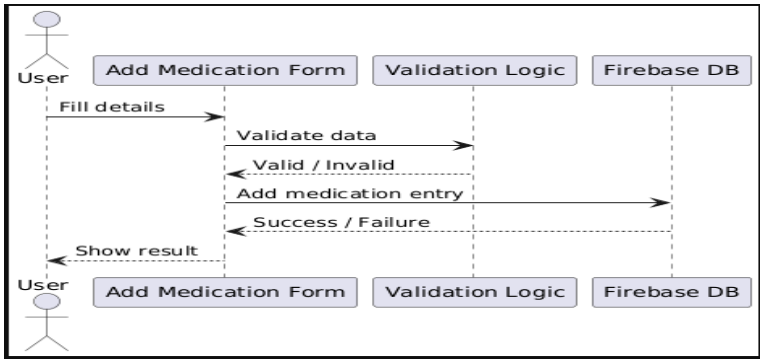
5.2 Application Design

5.2.1 Sequence Diagram

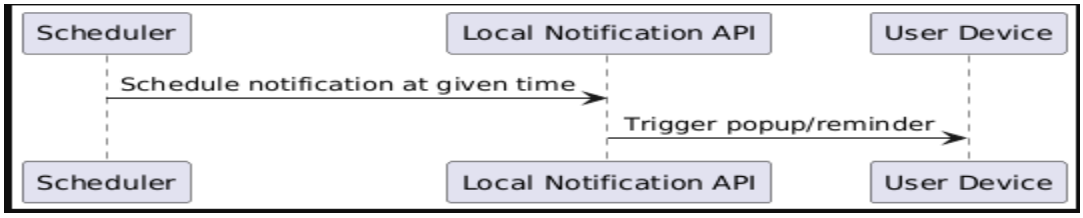
- **5.2.1.1 Login Sequence**



- **5.2.1.2 Add Medication**

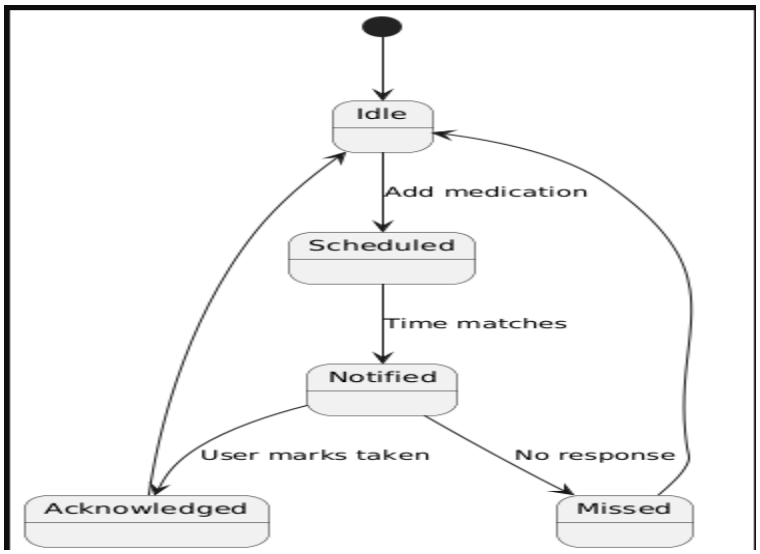


- **5.2.1.3 Reminder Notification Trigger**

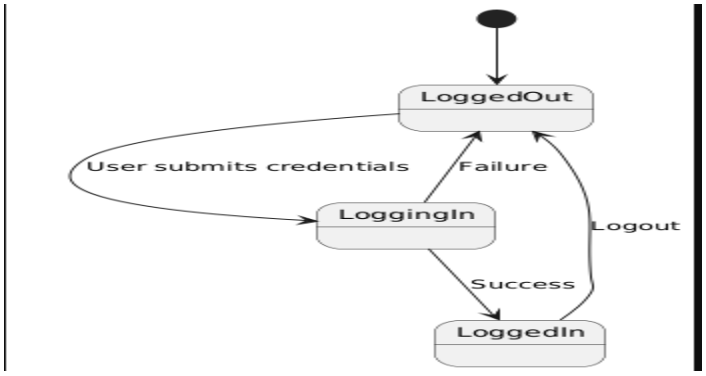


5.2.2 State Diagram

- **5.2.2.1 Medication Reminder Flow**



- **5.2.2.2 User Authentication Flow**



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6. References

- React Native Documentation
- Firebase Firestore and Authentication Docs
- React Native Push Notification Docs
- GitHub Repository: Medication Tracker GitHub

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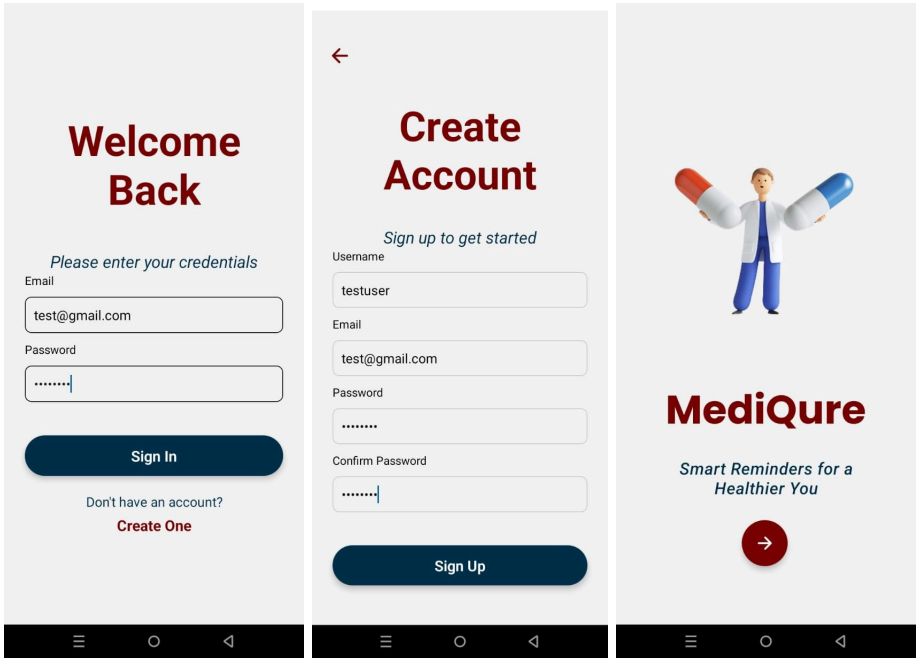
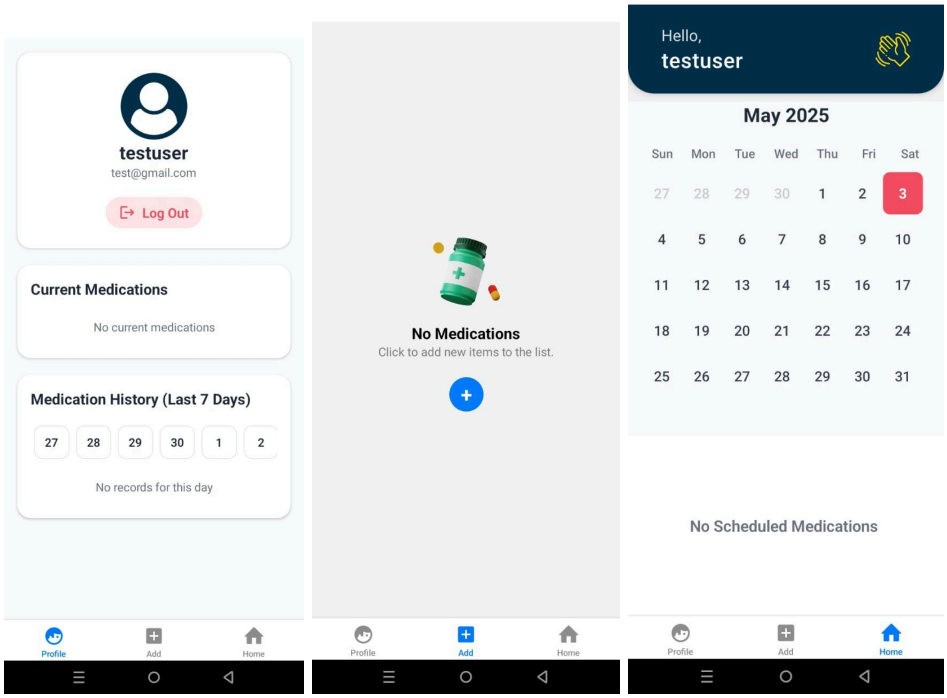
7. Appendices

- **Screenshots of app UI**





- Firebase schema snapshot