Health Companion App

Case Study

SOEN 357 Project

Charbel Tannous

40199224

Charbel Tannous

40199224

https://charbel30.github.io/soen357/

February 1, 2025

Summary

This research document presents a comprehensive analysis of existing healthcare applications, focusing on medication management and appointment scheduling features for individuals with chronic health conditions. The analysis includes market research, user feedback evaluation, and identification of industry best practices.

1 Research Methodology

This research focuses on analyzing existing healthcare applications that provide medication management and appointment scheduling features for individuals with chronic health conditions. My methodology involves:

- Comprehensive analysis of market-leading healthcare apps

- Evaluation of user reviews and feedback

- Assessment of industry best practices

- Identification of common features and pain points

2 Secondary Research Analysis

2.1 Key Applications Reviewed

2.1.1 Medication Management Focus

1. **Medisafe**

- Primary features: Medication reminders, drug interaction warnings

- Notable aspects: Medfriend caregiver notifications, prescription refill reminders

- User interface: Clean, accessible design with clear iconography

2. **Mango Health**

- Primary features: Gamified medication management

- Notable aspects: Reward points system for medication adherence

- User interface: Engaging, game-like experience

2.1.2 Chronic Care Management Focus

1. **Teladoc Health**

- Primary features: Virtual consultations, appointment scheduling

- Notable aspects: Integration with connected devices

- User interface: Streamlined appointment booking process

2. **Lark Health**

- Primary features: AI-driven health coaching, condition management

- Notable aspects: Real-time feedback and monitoring

- User interface: Conversational interface with chatbot interaction

3 Common Features Analysis

> **Key Features Overview**
>
> - **Medication Management**
>
>   - Customizable reminder schedules
>
>   - Medication inventory tracking
>
>   - Drug interaction alerts
>
>   - Prescription refill reminders
>
> - **Appointment Scheduling**
>
>   - Calendar integration
>
>   - Reminder notifications
>
>   - Provider contact information storage
>
> - **User Experience Elements**
>
>   - Simple onboarding process
>
>   - Clear navigation structure
>
>   - Mobile-first design approach

4 Best Practices Identified

1. **Security and Compliance**

   - HIPAA compliance implementation

   - Secure data storage and transmission

- Privacy-focused user settings

2. **User Engagement**

- Gamification and reward systems

- Progress tracking

- Educational content integration

3. **Technical Implementation**

- Offline functionality

- Cross-platform compatibility

- Smart device integration

5 Identified Gaps and Opportunities

- Limited integration between medication and appointment management

- Lack of comprehensive family caregiver support

- Insufficient customization for specific chronic conditions

- Limited emergency contact features

6 Recommendations for My Application

Strategic Recommendations

1. Implement a unified dashboard for medications and appointments

2. Develop robust caregiver features with shared access controls

3. Create condition-specific customization options

4. Include emergency protocols and quick contact features

5. Focus on intuitive navigation and clear visual hierarchy

7 User Personas

NAME

Evelyn, Retired Teacher

Skills or Scale

Tech Savviness

Low — High

Health Management

Low — High

Independence

Low — High

Demography

Female 68 years

New York, USA

Widowed

Retired teacher

Challenges

- Managing multiple medications and appointments.
- Understanding and using technology effectively.
- Staying informed about her health conditions.

Goals

- Manage her medications and doctor appointments effectively.
- Maintain her health and independence.
- Stay informed about her health conditions.

Quote

"I want to stay healthy and independent, but managing all these medications and appointments is overwhelming. I need something simple and reliable to help me keep track."

Background

Evelyn is a retired teacher who lives alone. She has diabetes and hypertension, which require her to take multiple medications and attend regular doctor appointments. She is tech-curious and owns a smartphone and a tablet, but she prefers simple interfaces with clear text and minimal clutter.

Motivations

- Staying healthy and independent.
- Learning new things and staying mentally active.
- Using technology to simplify her life.

Technology Use

- **Devices:** Smartphone and tablet
- **Proficiency:** Moderate
- **Preferred Platforms:** iOS and Android

Frustrations

- Complicated and cluttered interfaces.
- Remembering to take her medications and attend appointments.
- Feeling overwhelmed by her health conditions.

Figure 1: Primary User Persona - Evelyn

8 User Journey Mapping

A comprehensive user journey map visualizes how users interact with the health companion app across different stages. I've created detailed journey maps to highlight user experiences, emotions, and needs at each touchpoint.
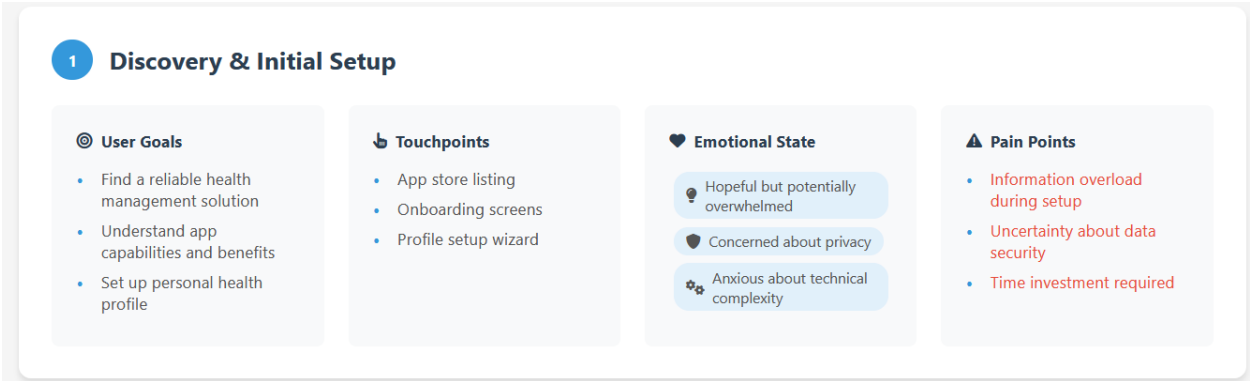

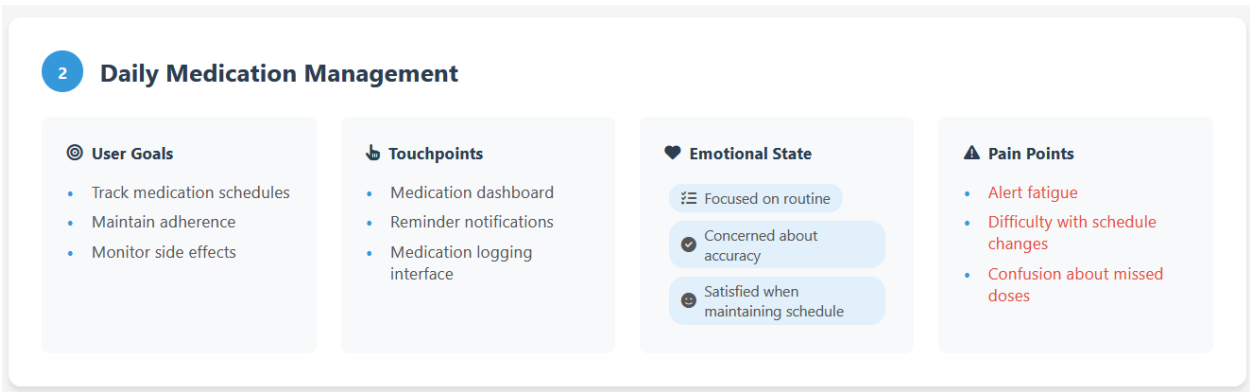Figure 2: Stage 1: Discovery & Initial Setup - User Journey Map

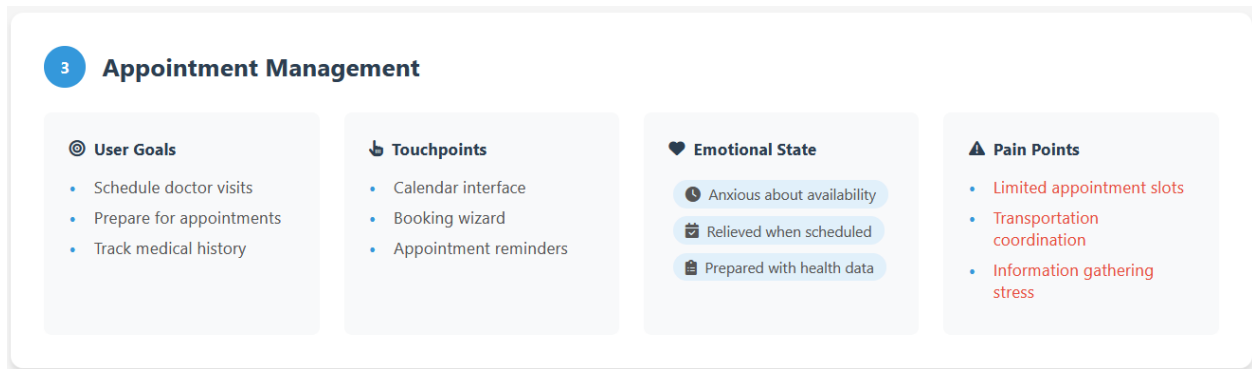Figure 3: Stage 2: Daily Medication Management - User Journey Map

Figure 4: Stage 3: Appointment Management - User Journey Map

8.1   Journey Overview

The user journey maps above illustrate the complete user experience from initial discovery through long-term engagement. Each map details:

- **User Goals** - What users aim to accomplish at each stage

- **Touchpoints** - Key interaction points with the application

- **Emotional State** - User feelings and mindset during interactions

- **Pain Points** - Challenges and frustrations users may encounter

These visual journey maps help identify opportunities for improvement and ensure the application addresses user needs effectively at every stage of their healthcare management journey.

9   Design System

9.1   Color Palette

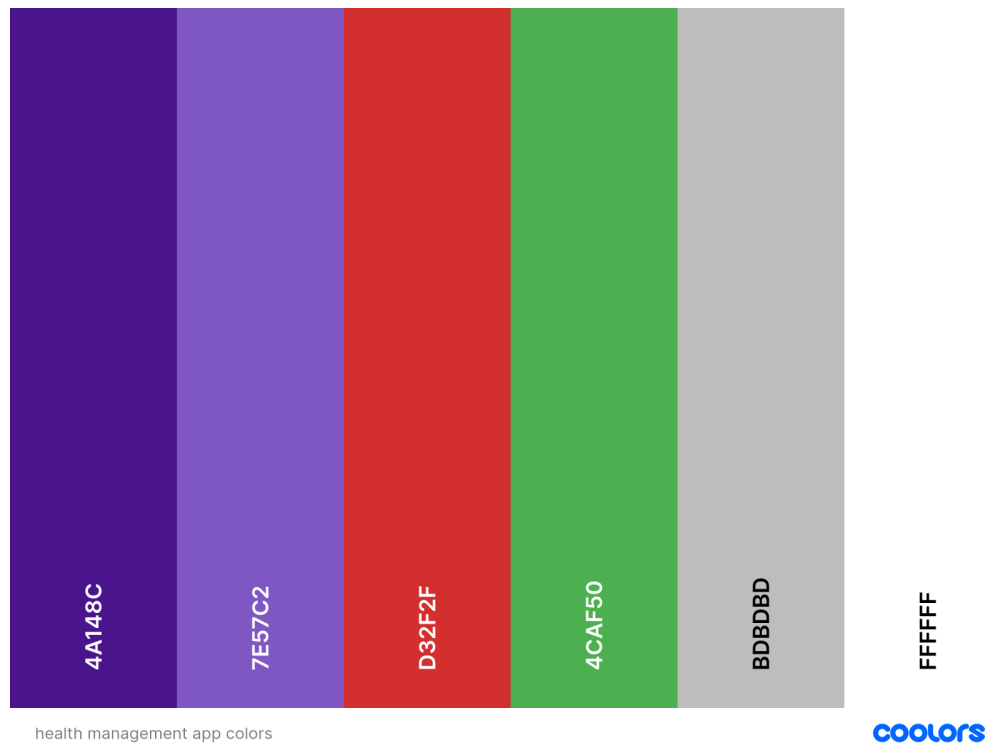Here are the main colors I picked for the app to make it look professional and easy to use:

Figure 5: Healthcare App Color Scheme

9.2 Typography

I used the Open Sans font family because it's easy to read and has a friendly feel. Here's how I used different font weights:

- **Headers** - Bold weight for clear visual hierarchy

- **Body Text** - Regular weight for optimal readability

- **Supporting Text** - Light weight for secondary information

9.3 Interface Elements

I made sure the app is easy to use and accessible by focusing on:

- **Clear Visual Hierarchy**

  - Consistent spacing and alignment

- Distinct section headers

- Color-coded categories for quick recognition

- **Accessibility Features**

  - High contrast ratios for better readability

  - Scalable text sizes

  - Touch targets optimized for all users

- **Navigation Elements**

  - Prominent action buttons

  - Clear iconography for common actions

  - Consistent back navigation

10 Wireframes

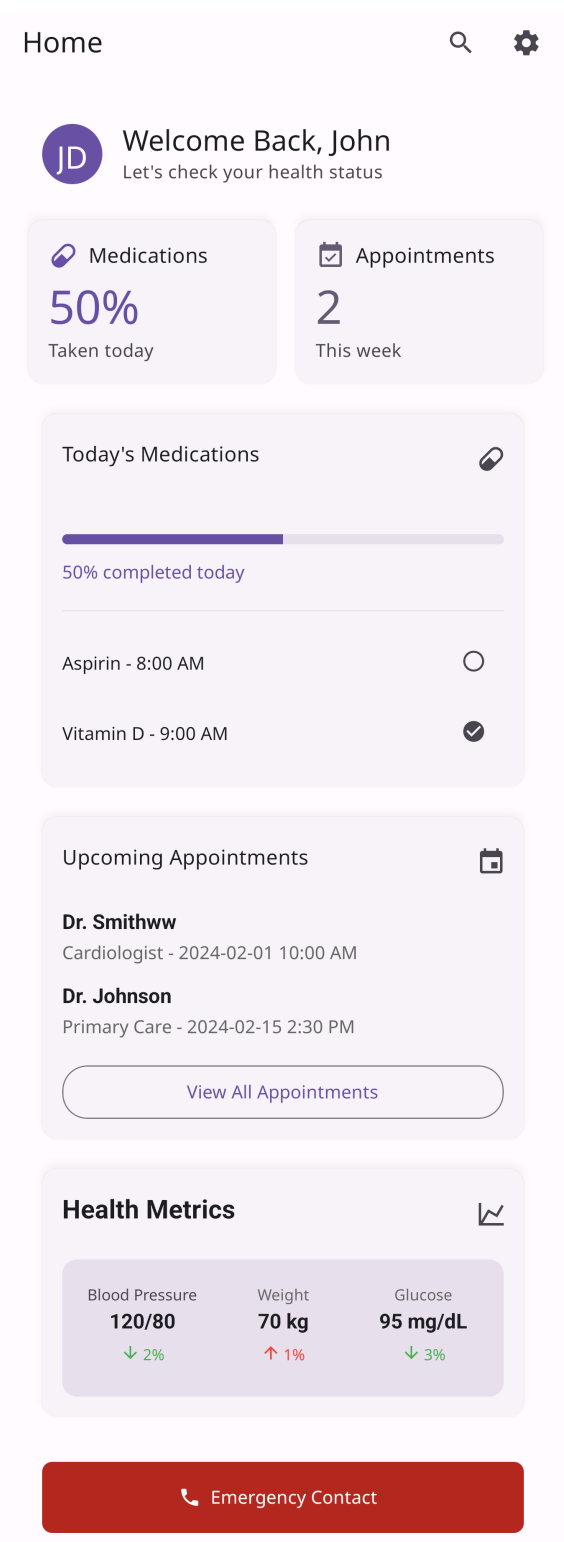Here is the link to access all the wireframes of the major pages:

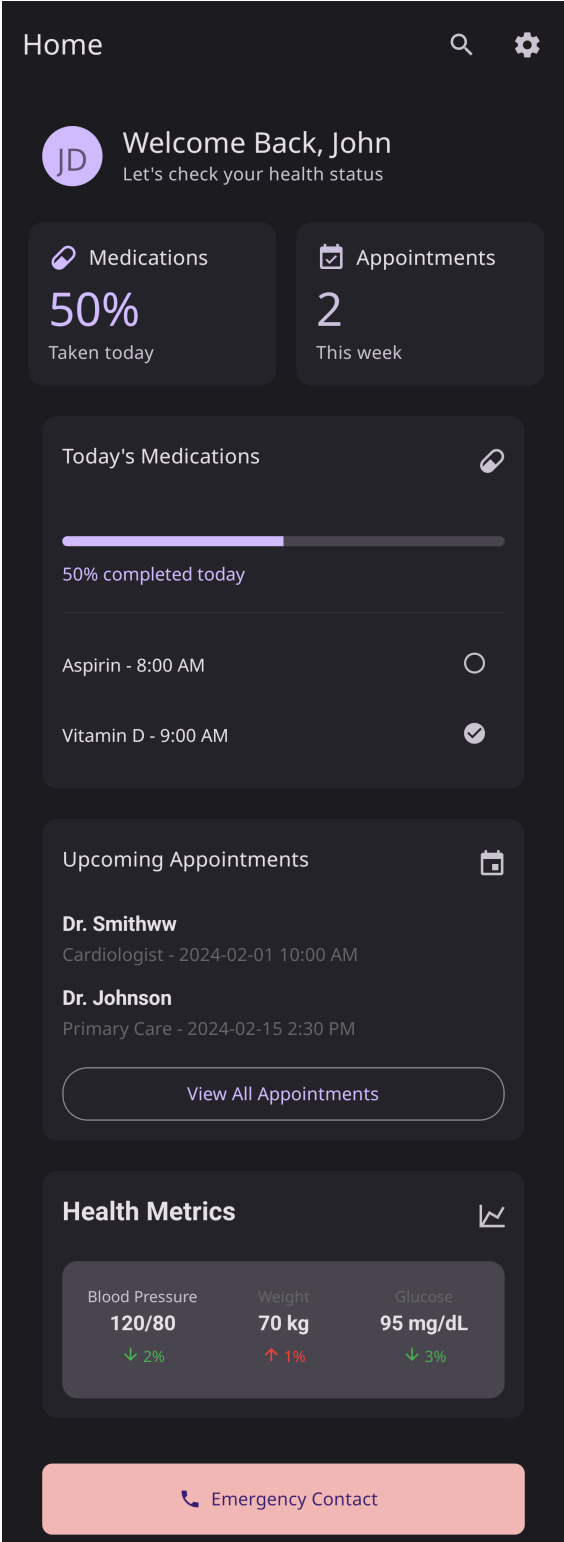Click here to view all wireframes

11 Prototype Interface

Here are the main screens I built for the health companion app, based on my research and understanding of how users would use it:

11.1 Core Features Implementation

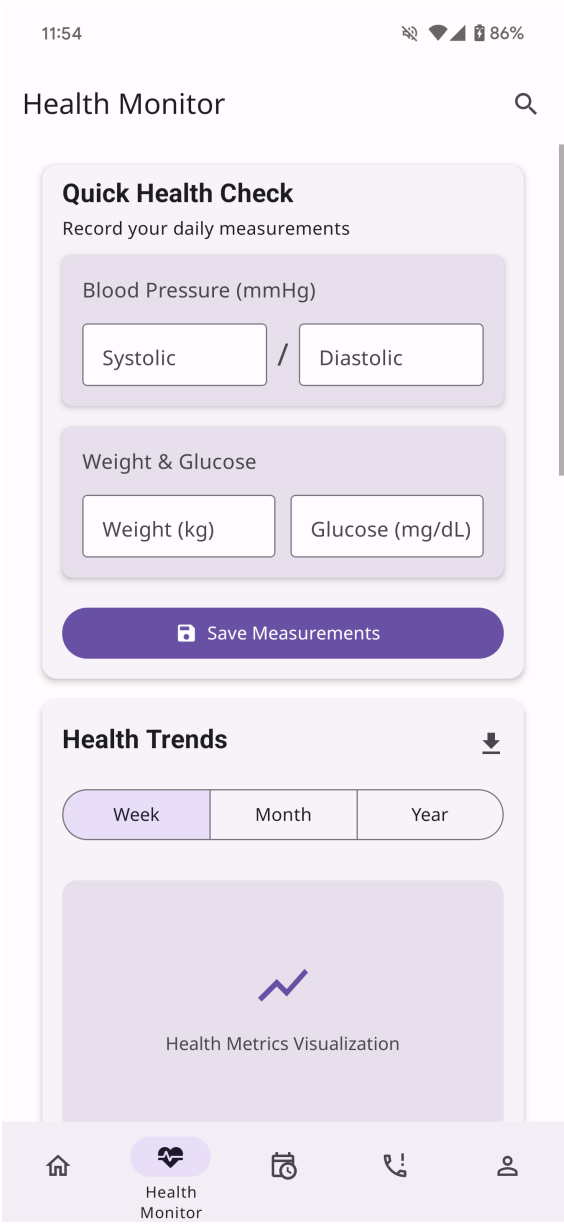Each interface is designed with specific user needs in mind:

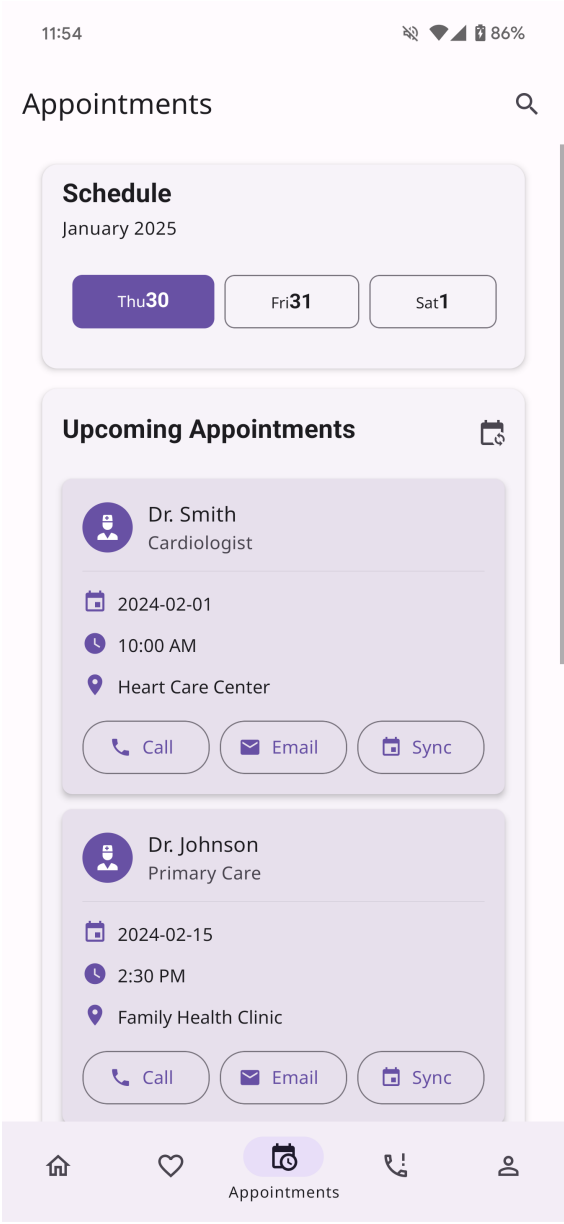(a) Home Page (Light Mode) - Main dashboard with quick access to essential features

(b) Home Page (Dark Mode) - Alternative theme for low-light conditions

Figure 6: Main Dashboard - Light and Dark Mode Interfaces
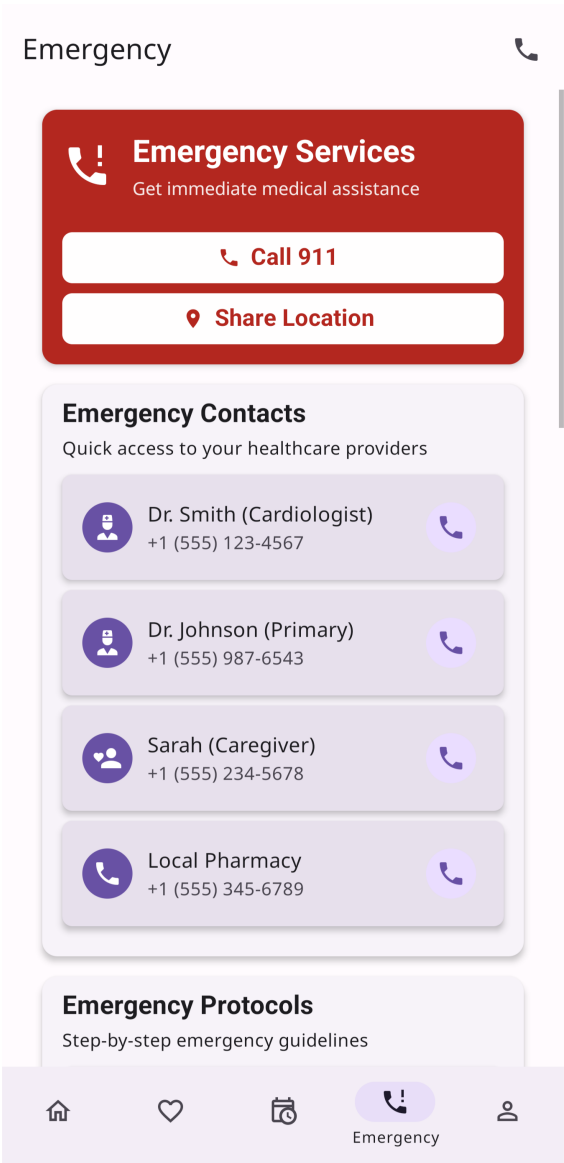
(a) Health Monitor - Comprehensive health metrics tracking
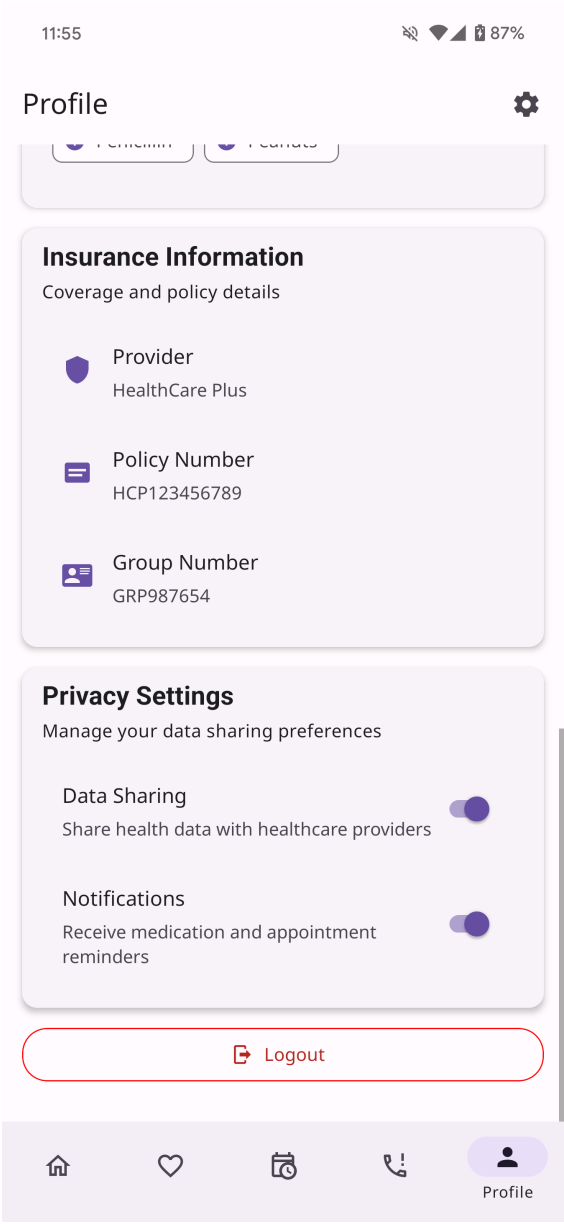

(b) Appointments Management - Calendar view

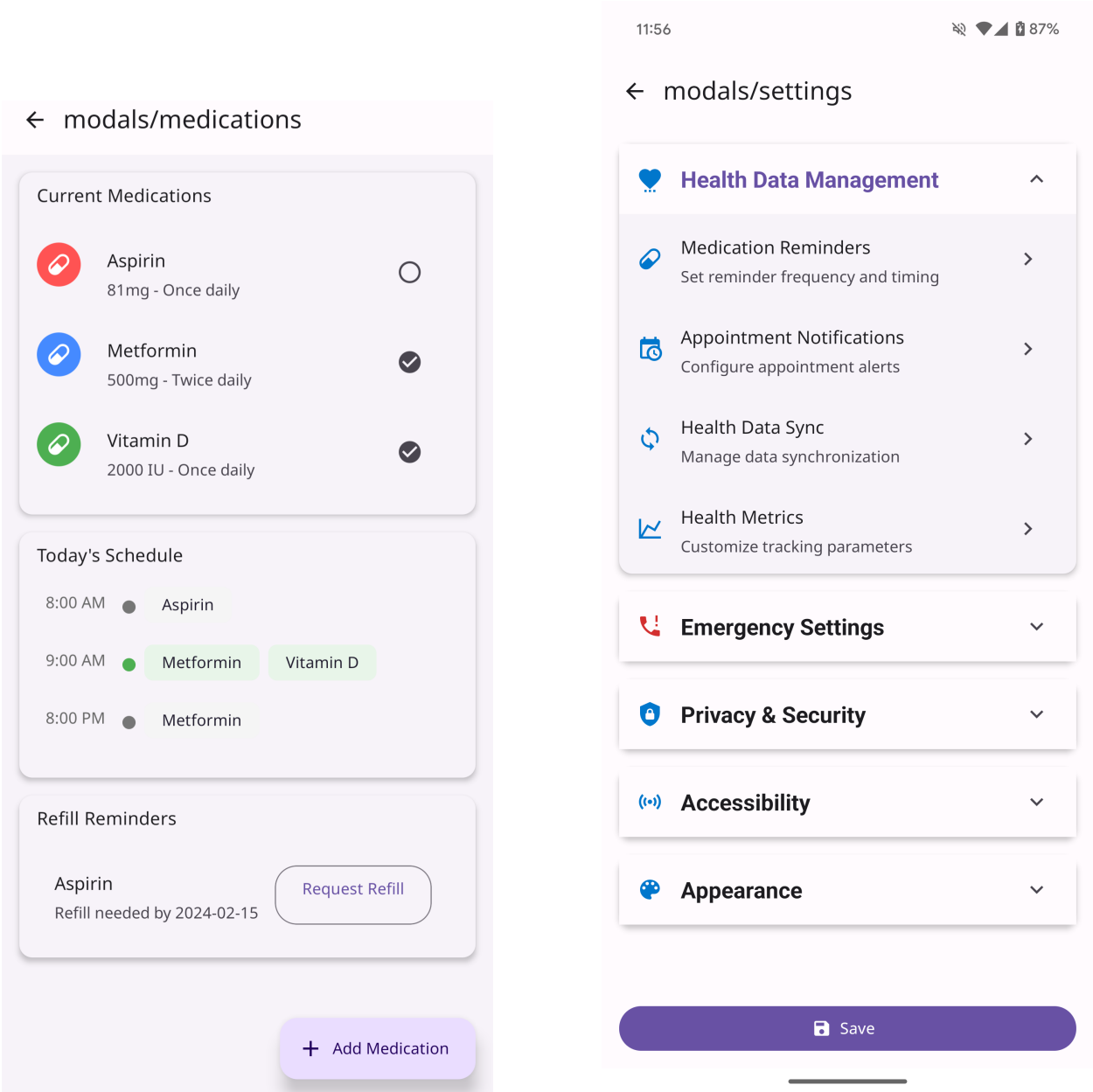Figure 7: Health Monitoring and Appointment Management

(a) Medication Management - Tracking and scheduling

(b) User Profile - Personal information management

Figure 8: Emergency and Profile Features

(a) Settings Modal - Application preferences

(b) Additional Medication Features - Detailed scheduling

Figure 9: modals Management Features

12 Usability Testing

12.1 Testing Methodology

For testing, I developed and distributed a functional Android app prototype to friends and family instead of using Figma. This approach allowed users to test the app on their actual devices, providing more authentic feedback. The testing group included individuals with varying levels of experience with health management applications.

12.2 Key Findings & Improvements

- **Navigation Feedback**

  - Some users had difficulty finding specific features

  - Menu items needed better visibility

  - Navigation structure was reorganized based on feedback

- **Interface Adjustments**

  - Enhanced element visibility and contrast

  - Added shortcuts to frequently used features

  - Improved overall element placement

13 Reflection & Future Directions

13.1 Development Approach

I started with Figma for the initial design work, but then switched to React Native to build the actual app. This change from design tools to development turned out to be really helpful for a few reasons:

- **Beyond Static Design**

  - React Native enabled me to create a fully interactive prototype

  - Real-time testing of user interactions and navigation flows

  - Immediate feedback on functionality and performance

- **Development Insights**

  - Gained practical understanding of technical constraints

  - Identified implementation challenges early in the process

  - Better appreciation of the development lifecycle

- **Design-to-Development Transition**

  - Smooth progression from initial Figma designs to functional implementation

  - Ability to refine UI/UX decisions during actual development

  - Direct validation of design decisions in a working environment

13.2 Future Development

Several promising areas for future enhancement have been identified:

Future Features

1. **Healthcare Provider Integration**

    - Direct appointment scheduling with healthcare systems

    - Real-time provider messaging

2. **Advanced Health Monitoring**

    - Integration with wearable devices

    - AI-powered health insights

13.3   Conclusion

Using React Native to build a working prototype helped me better understand both the design and development sides of healthcare apps. I was able to create something that actually works and could be properly tested, which taught me a lot about the challenges of building healthcare apps.