The University of Winnipeg

ACS - 2816: Health Information Systems
Mid Project Review (MPR)
MyMediPal
Group 5

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Victor Balogun
March 7, 2024

Project Information

- **Project Title:** MyMediPal

- **Project Owner:** Allen Villarin

- **Scrum Master:** Jashan Sharma

- **UI/UX Designer:** Oyinkonsola Akinboye

- **Quality Assurance:** Manas Sharma

- **Development Team:** Allen Villarin, Jashan Sharma, Oyinkonsola Akinboye, Manas Sharma

Introduction

- **1.1 Background**

  Medical is envisioned as a pivotal solution in the realm of health technology, designed to address the critical issue of medication management. By offering an intuitive platform for tracking medication schedules, dosages, and refill times, MyMedipal seeks to mitigate the risks associated with non-adherence to prescribed treatments. Its development is driven by the goal of simplifying the daily routines of individuals requiring medication, thereby promoting better health outcomes and enhancing the quality of life for its users.

- **1.2 Objectives**

  For the Medipal app, the objectives focus on improving medication adherence and patient health outcomes through a user-friendly platform. The primary goal is to ensure users reliably follow their medication schedules with timely reminders and easy management. Additionally, enhancing communication between patients and healthcare providers and simplifying the pharmacy refill process are key aims to support comprehensive medication management.

- **1.3 Scope**

  The scope of MediPal is to revolutionize medication management through a mobile app that seamlessly blends user-centric design with advanced technology. It aims to support users, caregivers, and healthcare providers with intuitive

features for tracking medication schedules, reminders, and adherence, fostering a connected healthcare experience that prioritizes patient well-being and simplifies the medication management process.
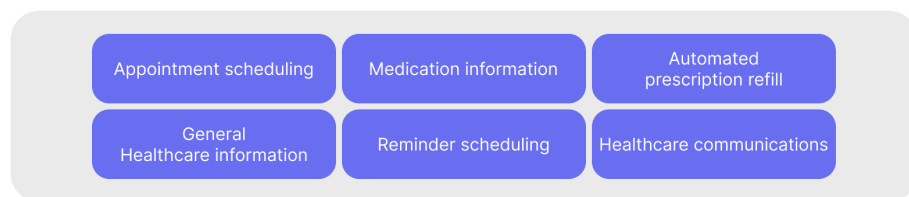
System Architecture

- **2.1 Overview**

    The architecture of MediPal is designed to be modular and scalable, supporting the app's core functionalities while ensuring user data security and privacy. The architecture will facilitate seamless interaction between users, healthcare providers, and pharmacies, promoting efficient medication management.
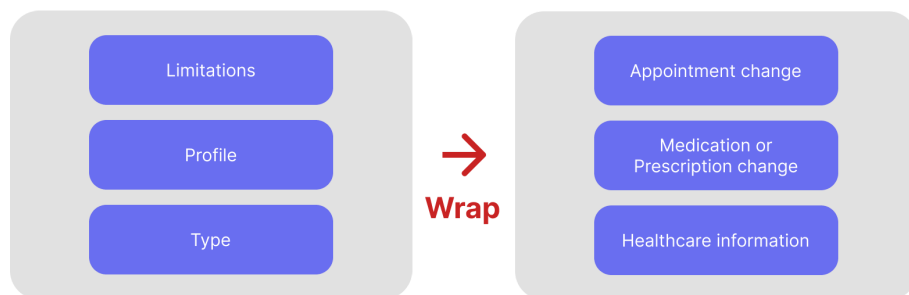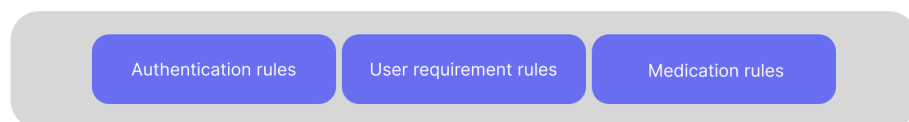
- **2.2 Architecture Diagram**

Scenario

Appointment scheduling	Medication information	Automated prescription refill
General Healthcare information	Reminder scheduling	Healthcare communications

↑ **Support**   **MyMediPal core**   ↑ **Support**

User core

Limitations
Profile
Type

→ **Wrap**

Appointment change
Medication or Prescription change
Healthcare information

Rule engine

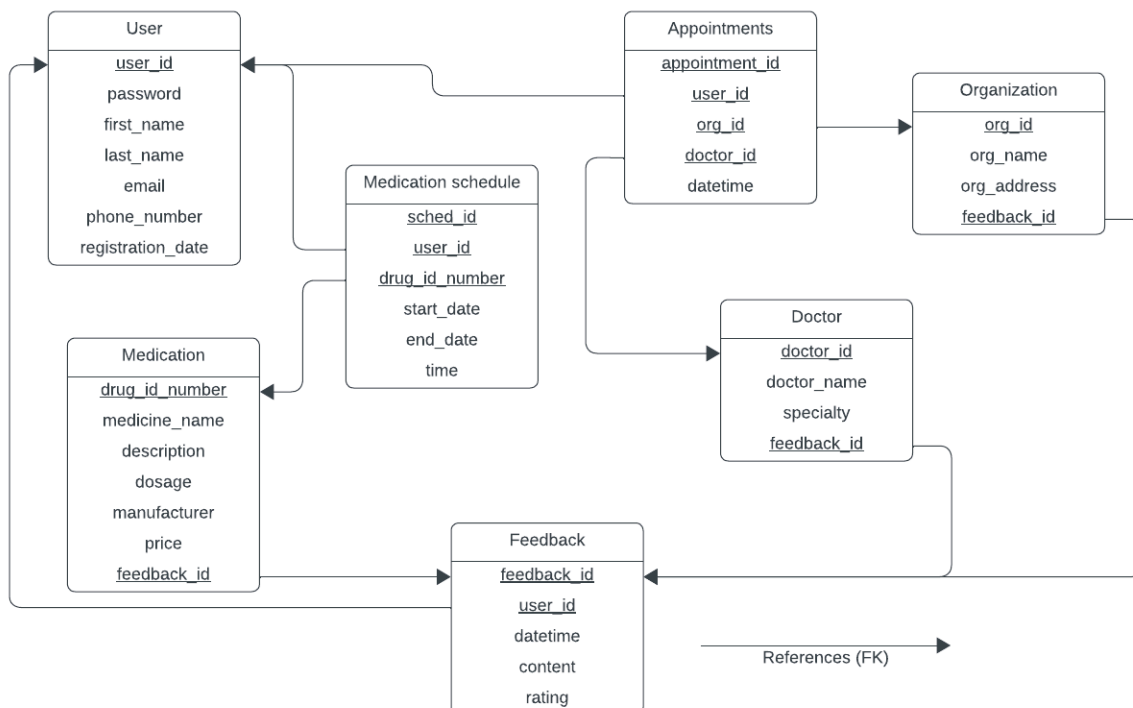| Authentication rules	User requirement rules	Medication rules

- **2.3 Components and Modules**

MediPal's architecture is built around a client-server model, with a mobile application as the client and a backend server that handles data processing, storage, and communication with external systems like healthcare provider systems and pharmacy systems.
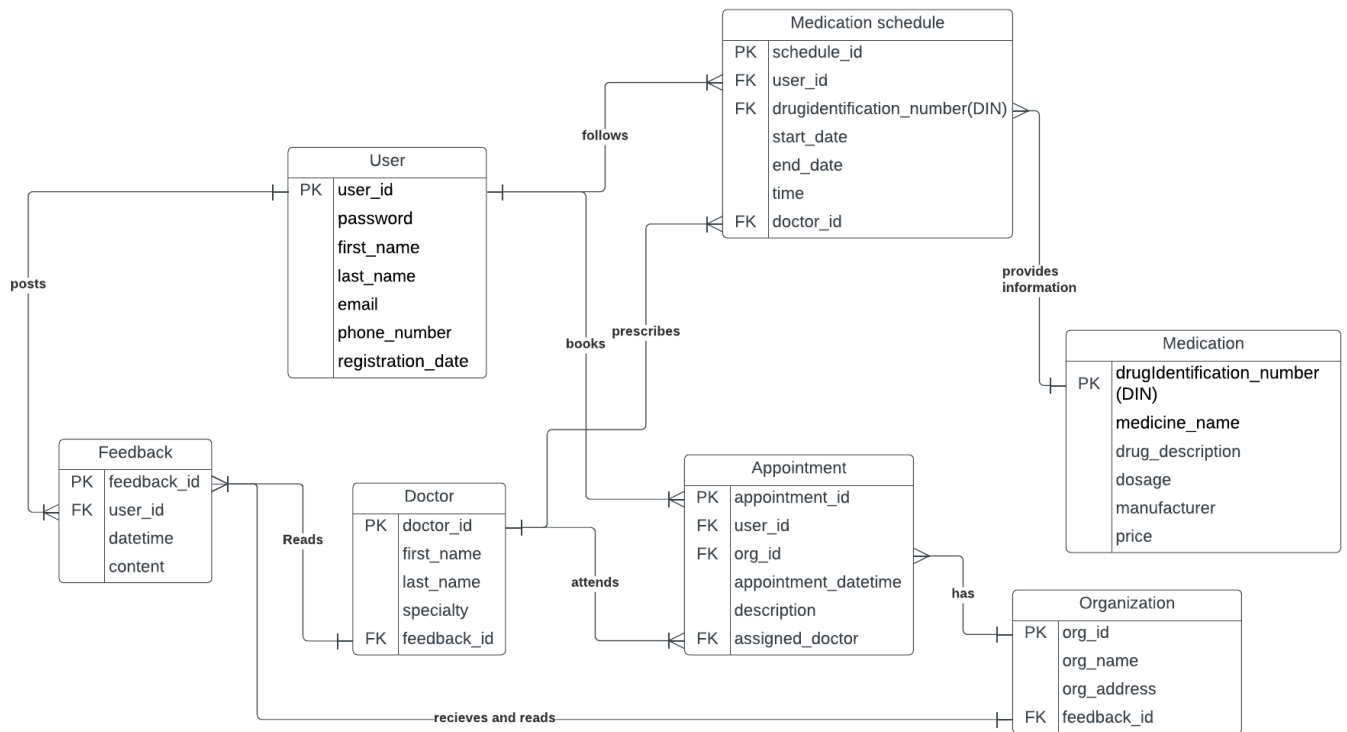
- **Client Application**: The mobile app, accessible by users, caregivers, and potentially healthcare providers, offers features like medication tracking, reminders, and communication tools.
- **Backend Server**: Responsible for processing requests from the app, managing user data, and medication schedules, and integrating with external APIs for pharmacy services and healthcare systems.
- **Database**: A secure database that stores user profiles, medication schedules, and historical adherence data, ensuring data integrity and privacy.
- **External APIs**: Integration with healthcare systems for accessing prescriptions and pharmacy systems for managing refills and notifications.
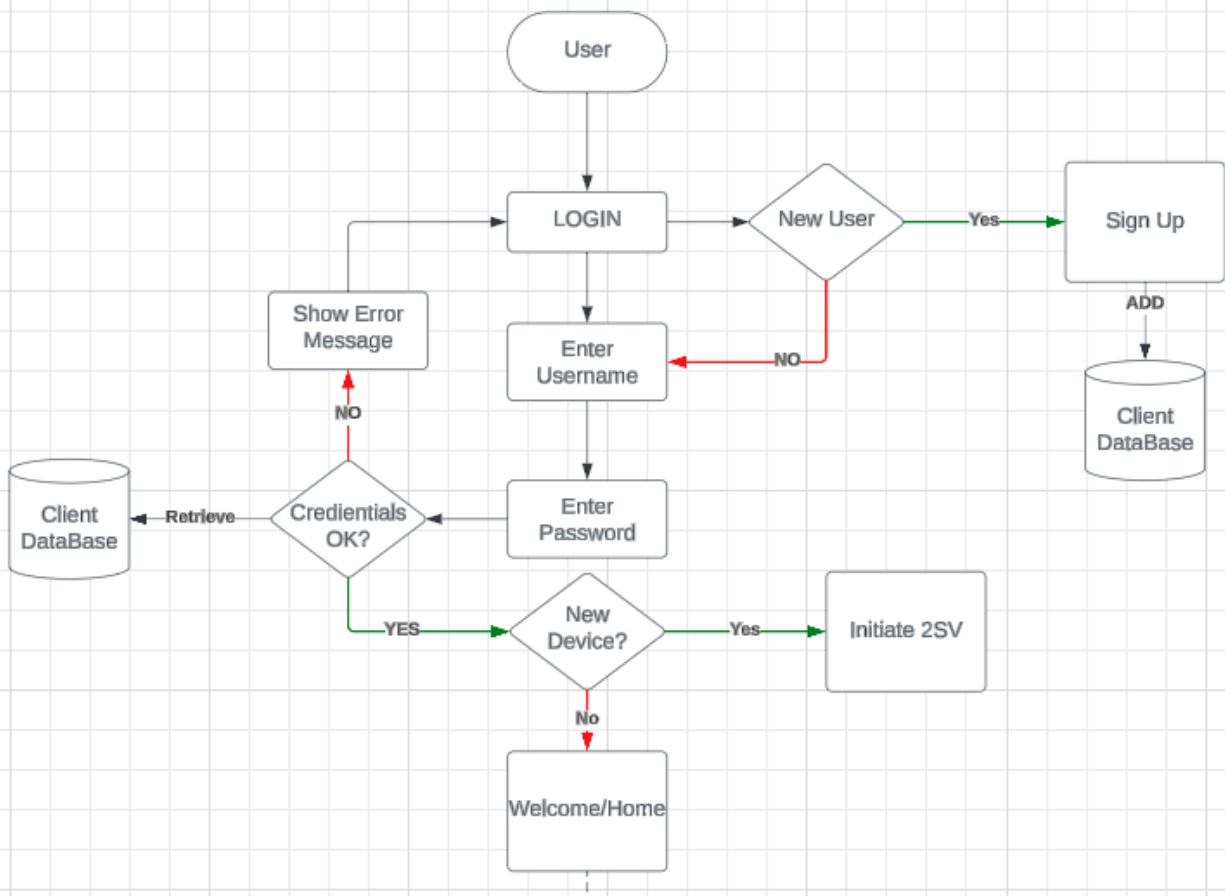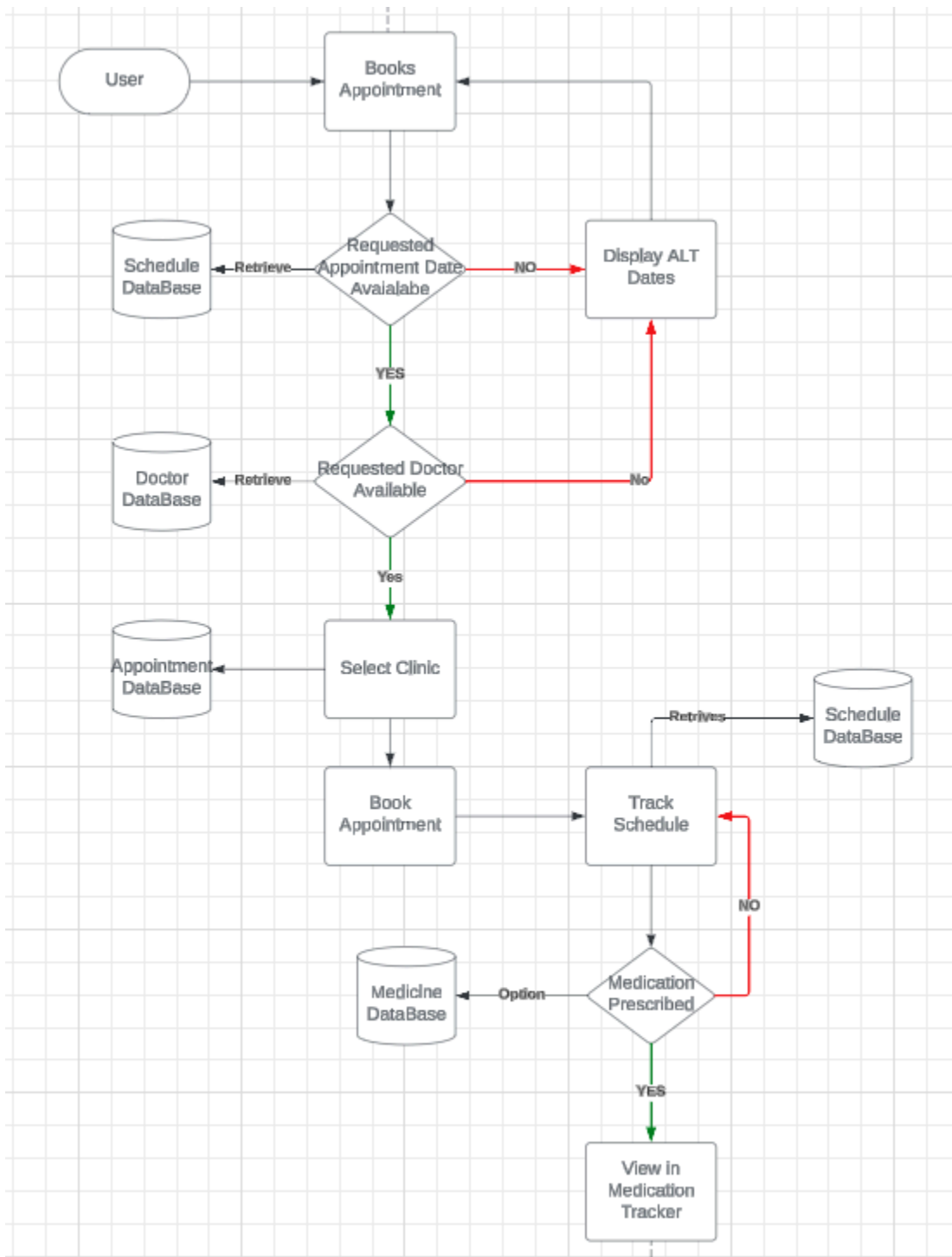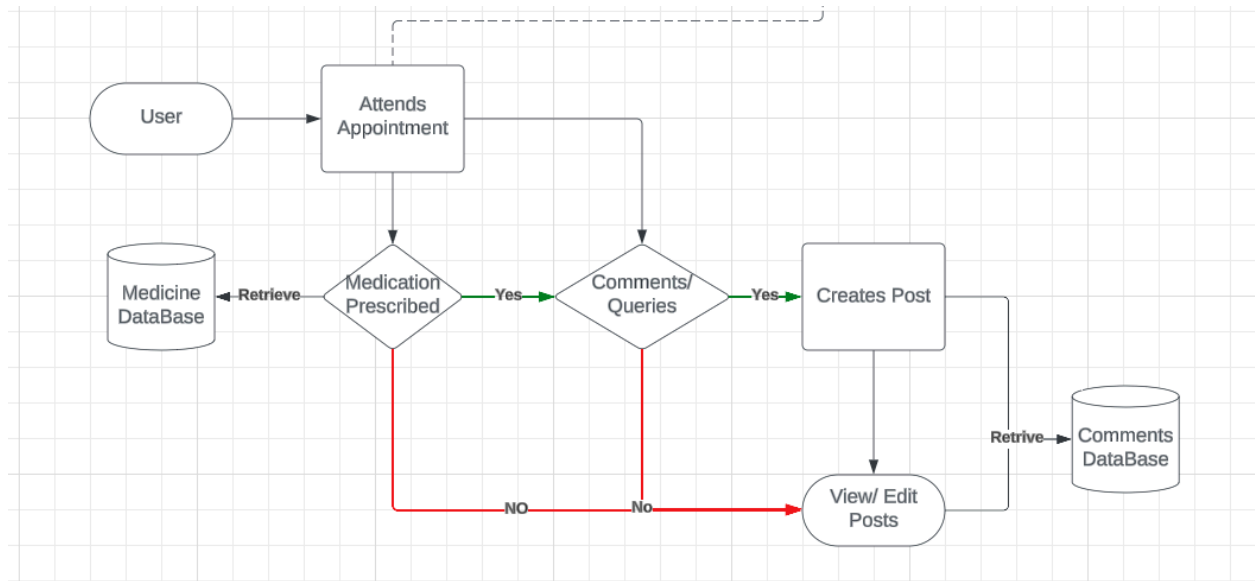
Database Design

- **3.1 Database Schema**

- **3.2 Entity Relationship Diagram**

Medication schedule

PK	schedule_id
FK	user_id
FK	drugidentification_number(DIN)
	start_date
	end_date
	time
FK	doctor_id

User

PK	user_id
	password
	first_name
	last_name
	email
	phone_number
	registration_date

follows

posts

provides information

Medication

PK	drugIdentification_number (DIN)
	medicine_name
	drug_description
	dosage
	manufacturer
	price

prescribes

books

Feedback

PK	feedback_id
FK	user_id
	datetime
	content

Reads

Doctor

PK	doctor_id
	first_name
	last_name
	specialty
FK	feedback_id

attends

Appointment

PK	appointment_id
FK	user_id
FK	org_id
	appointment_datetime
	description
FK	assigned_doctor

has

Organization

PK	org_id
	org_name
	org_address
FK	feedback_id

recieves and reads

- **3.3 Data Flow Diagrams**

```
                                          ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
                                          │                           │

   ┌──────────┐        ┌──────────────┐
   │   User   │───────▶│   Attends    │──────────────┐
   │          │        │ Appointment  │              │
   └──────────┘        └──────┬───────┘              │
                              │                      ▼
   ┌──────────┐         ┌─────▼──────┐         ┌───────────┐        ┌───────────┐
   │ Medicine │◀Retrieve│ Medication │──Yes──▶ │ Comments/ │──Yes──▶│  Creates  │
   │ DataBase │         │ Prescribed │         │  Queries  │        │   Post    │
   └──────────┘         └─────┬──────┘         └─────┬─────┘        └─────┬─────┘
                             │                       │                    │
                             │                       │                    │
                             │                       │                    │
                             │      NO         No    ▼              ┌─────▼─────┐     ┌───────────┐
                             └────────────────────▶ │ View/ Edit │─Retrieve─▶│ Comments  │
                                                    │   Posts    │           │ DataBase  │
                                                    └────────────┘           └───────────┘
```

User Interface Design

- **4.1, 4.2 Wireframes and Mockups**
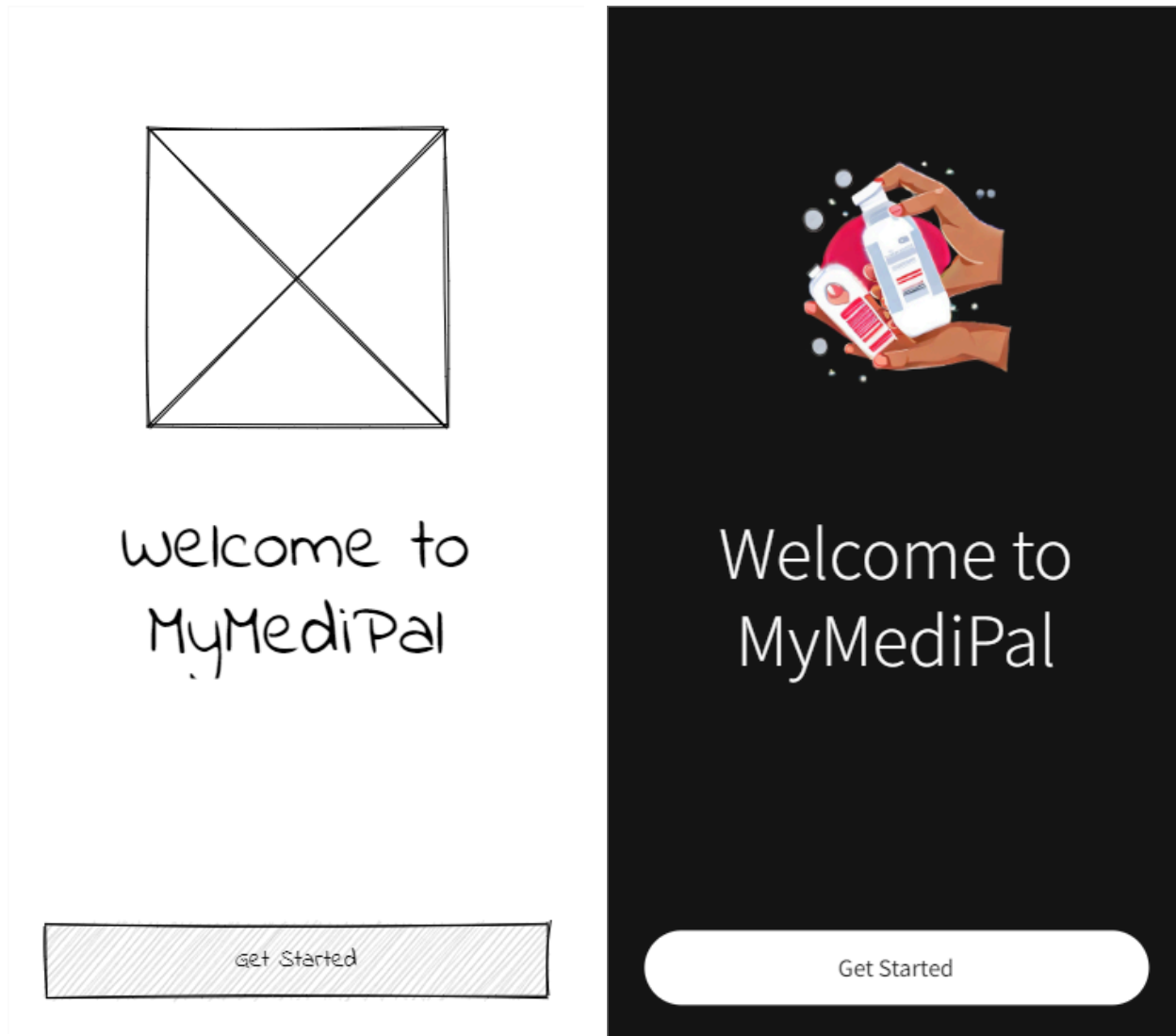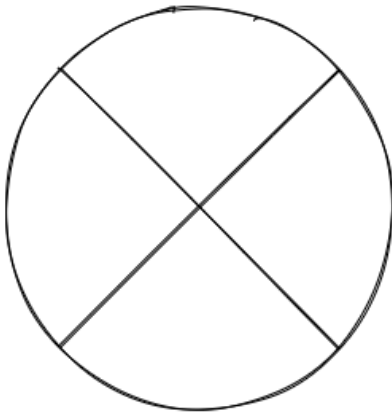
Welcome to
MyMediPal

Get Started

Welcome to
MyMediPal

Get Started

MyMediPal
Track and optimize your medication routine

Email

Password

Forgot your password?

Sign In

OR

Facebook   Google

Don't have an account?   Sign Up

MyMediPal
Track and optimize your medication routine

Email

Password

Forgot your password?
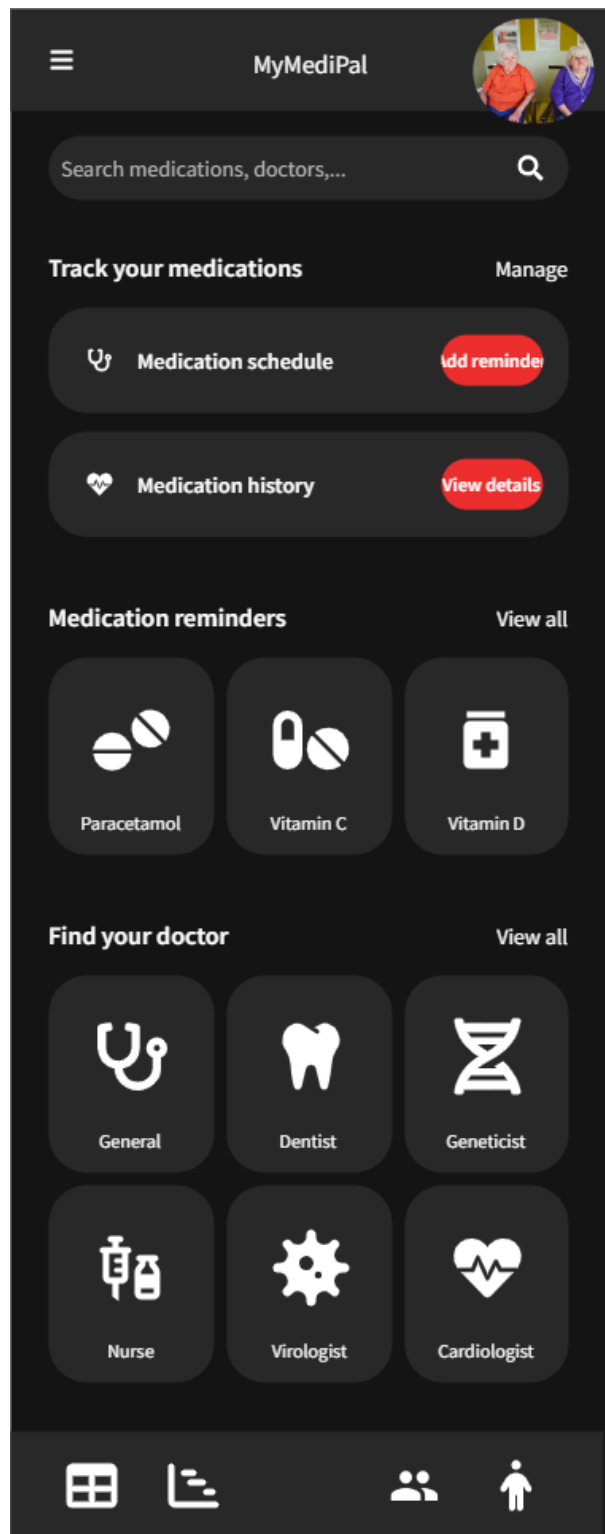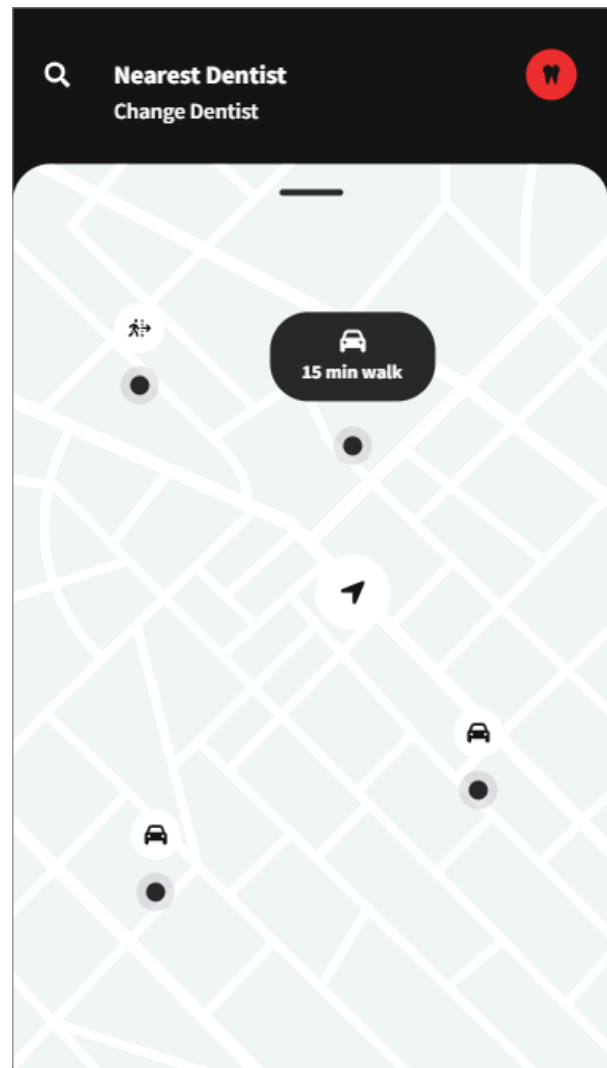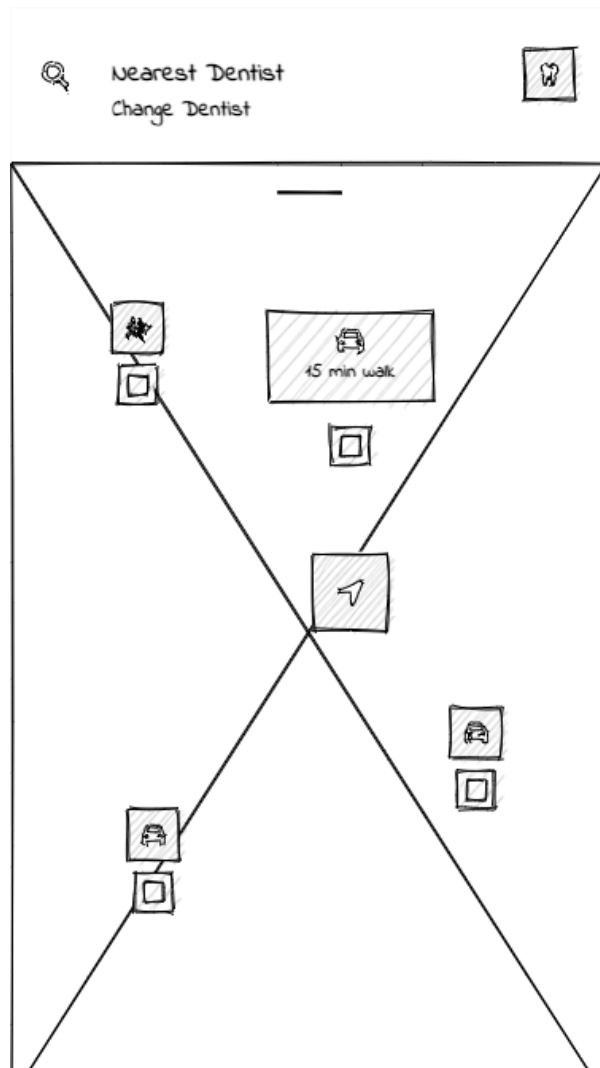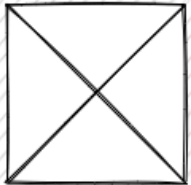
Sign In

OR

Facebook   Google

Don't have an account?   Sign Up

MyMediPal

Search medications, doctors,...

Track your medications Manage

Medication schedule Add reminder

Medication history View details

Medication reminders View all

Paracetamol Vitamin C Vitamin D

Find your doctor View all

General Dentist Geneticist

Nurse Virologist Cardiologist

MyMediPal

Search medications, doctors,...

Track your medications Manage

Medication schedule Add reminder

Medication history View details

Medication reminders View all

Paracetamol Vitamin C Vitamin D

Find your doctor View all

General Dentist Geneticist

Nurse Virologist Cardiologist

Nearest Dentist
Change Dentist

15 min walk

Nearest Dentist
Change Dentist

15 min walk

Wireframe (left)

Current medication
Ibuprofen

Refill

Additional information

Side effects

Dosage instructions

Drug interactions

Storage recommendations

Overdose symptoms

Allergies

Mockup (right)

Current medication:
Ibuprofen

Refill

Additional information

Side effects

Dosage instructions

Drug interactions

Storage recommendations

Overdose symptoms

Allergies

<

Medication Community

[Manage] [Track] [Share]

// Share Your Story

Join our community to share your experiences with medication. Whether it's about a specific medication, a pharmacy, or a pharmacist, your insights can help others make informed decisions.

ABOUT OUR COMMUNITY

Our medication community provides a platform for users to manage and track their medications. With personalized profiles, statistics, and mood tracking, you can easily keep track of your medication journey. Join us and connect with others who are on a similar path.

ABOUT OUR LOGO

Our logo represents the values and purpose of our medication community. It symbolizes health, unity, and support. It is designed to resonate with our target audience and convey a sense of trust and reliability.

VIDEO TESTIMONIALS

// Join the Conversation

YOUR NAME *

YOUR EMAIL *

SHARE YOUR EXPERIENCE ˅

WRITE YOUR STORY...

[SUBMIT]

My Medication Experience

info@medcommunity.com

(+123) 000 111 222

Connect with us!
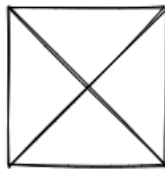
Medication History

[View] [Filter]

Prescribed By
Do(

Dosage
50 mg

Frequency
Once a

Side Effects
None reported

Pharmacy

| 1 | Pharmac |
| 2 | Doctor |

[Edit Details]

Medication History

[View] [Filter]

Prescribed By
Do(

Dosage
50

Frequency
Once a

Side Effects
None reported

Pharmacy

| 1 | Pharmac |
| 2 | Doctor |

[Edit Details]

Profile

John Doe

New York, NY

Age	2	Emergenc
Medical History	Family Doctor	Preferred

Connect with Healthcare Professionals

✓ Specific Instructions — Save

Personalized Advice — Chat

Medication Management — Track

Profile

John Doe

New York, NY

Age	2	Emergenc
Medical	Family Doctor	Preferred

Connect with Healthcare Professionals

✓ Specific Instructions — Save

Personalized Advice — Chat

Medication Management — Track

Scan your medication

Effortlessly track your medication by scanning its barcode. Stay organized and never miss a dose. Connect with healthcare professionals for personalized advice and guidance.

⏱ <2 minutes

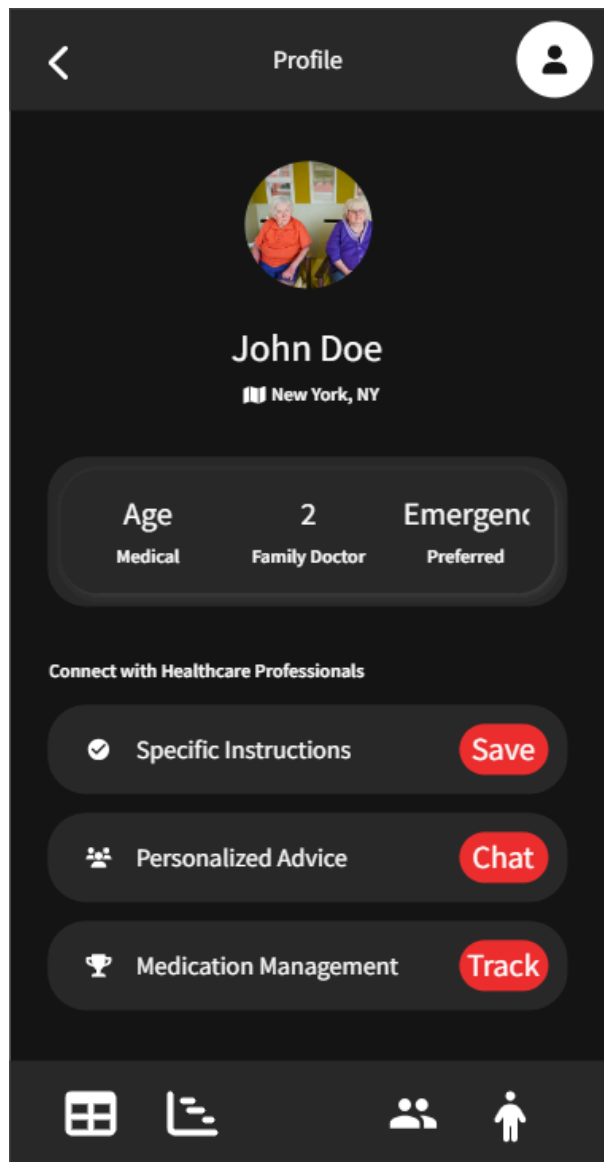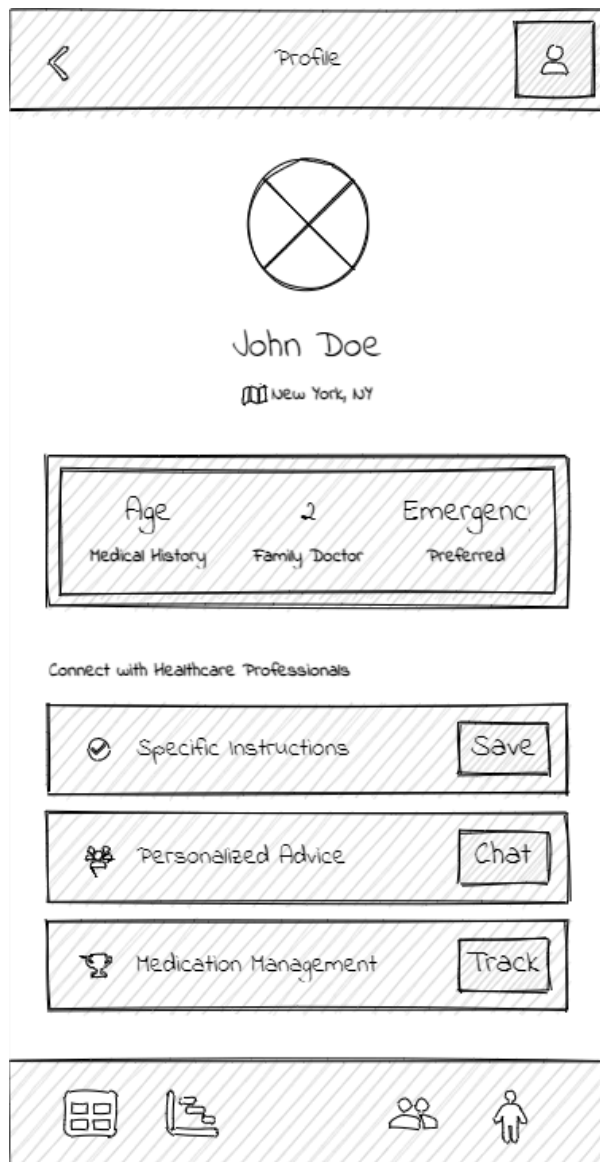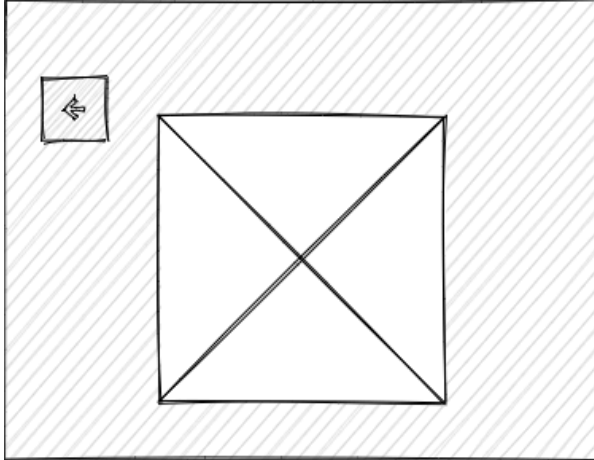Start scanning

Scan your medication

Effortlessly track your medication by scanning its barcode. Stay organized and never miss a dose. Connect with healthcare professionals for personalized advice and guidance.

⏱ <2 minutes

Start scanning
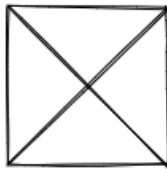
Dr. Medicus

Pharmacist, Medication Management

★ 4.9/5   100+ users

About

Dr. Medicus specializes in medication management and has been helping patients optimize their medication routines since 2010. With attention to detail and a deep understanding of medications, Dr. Medicus ensures the highest level of expertise in this field.

Schedule
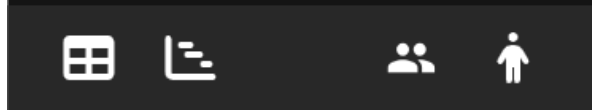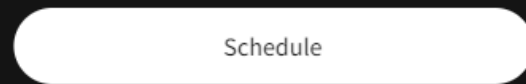
Search

Search for medications or information

Find medications by mood

Calm   Curious   Anxious

Energetic   Bored   Busy

Duration

1 minute   35 minutes   60

Search

Left (sketch wireframe)

← 14 February ＋

| Morning | Afternoon | Evening |

Mon	Tue	Wed	Thu	Fri	Sat	Sun
14	15	16	17	18	19	20

09:00 AM — Take medication A

10:00 AM — Consult with pharmacist

11:00 AM

12:00 PM

Refill prescription

04:00 PM

Right (dark theme)

← 14 February ＋

| Morning | Afternoon | Evening |

Mon	Tue	Wed	Thu	Fri	Sat	Sun
14	15	16	17	18	19	20

09:00 AM — Take medication A

10:00 AM — Consult with pharmacist

11:00 AM

12:00 PM

Refill prescription

01:00 PM

- **4.2 User Flow Diagrams**

Medication schedule User flow diagram

Medication history

Find your doctor

Sign up → Enter Personal Information → Verify Email → **Is Email Verified?**

- No → (back to Verify Email)
- Yes → Create Username → Choose Password → Confirm Password → **Are Passwords Matched?**
  - No → (back)
  - Yes → Complete Sign Up → Home page

Get started → Login page → Enter Email → Enter Password → **Does Email E...**

- NO → (back to Sign up)
- Yes → **Are Credentials Valid?**
  - No → (back to Enter Password)
  - Yes → Successful Login → Home page

Home page → Click the type of doctor you want to see → select the nearest/preferred doctor on the map → Schedule → End

User profile

Sign up → Enter Personal Information → Verify Email → **Is Email Verified?**

- No → (back to Verify Email)
- Yes → Create Username → Choose Password → Confirm Password → **Are Passwords Matched?**
  - No → (back)
  - Yes → Complete Sign Up → Home page

Get started → Login page → Enter Email → Enter Password → **Does Email Exist?**

- NO → (back to Sign up)
- Yes → **Are Credentials Valid?**
  - No → (back to Enter Password)
  - Yes → Successful Login → Home page

Home page → click user icon → Update information → Save → End

Community page

```
Community page
```

Sign up → Enter Personal Information → Verify Email → **Is Email Verified?**
- No → (back)
- Yes → Create Username → Choose Password → Confirm Password → **Are Passwords Matched?**
  - No → (back)
  - Yes → Complete Sign Up

Get started → Login page → Enter Email → Enter Password → **Does Email Exist?**
- NO → (back to start)
- Yes → **Are Credentials Valid?**
  - No → (back)
  - Yes → Successful Login

Successful Login → Home page → Click the community icon → Join the conversation → Enter Name → Enter Email → Select experience from previous ones → Write your story → End

Scanner

```
Scanner
```

Sign up → Enter Personal Information → Verify Email → **Is Email Verified?**
- No → (back)
- Yes → Create Username → Choose Password → Confirm Password → **Are Passwords Matched?**
  - No → (back)
  - Yes → Complete Sign Up

Get started → Login page → Enter Email → Enter Password → **Does Email Exist?**
- NO → (back to start)
- Yes → **Are Credentials Valid?**
  - No → (back)
  - Yes → Successful Login

Successful Login → Home page → Click "scanner" icon → Start scanning medication → End

Prototype

https://www.figma.com/file/ekpUu13esRUtP5SK5tIJtt/Medipal?type=design&mode=design&t=WjOgN6icMdBGSTtH-1

Product backlog

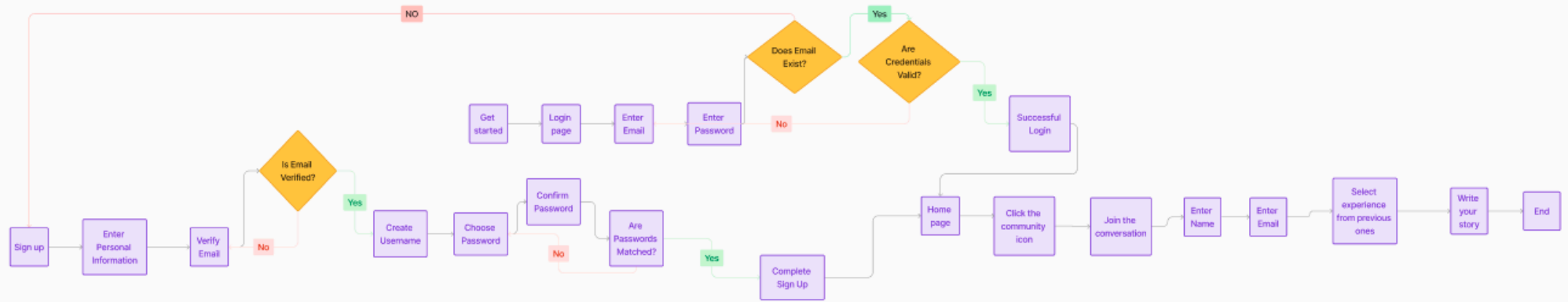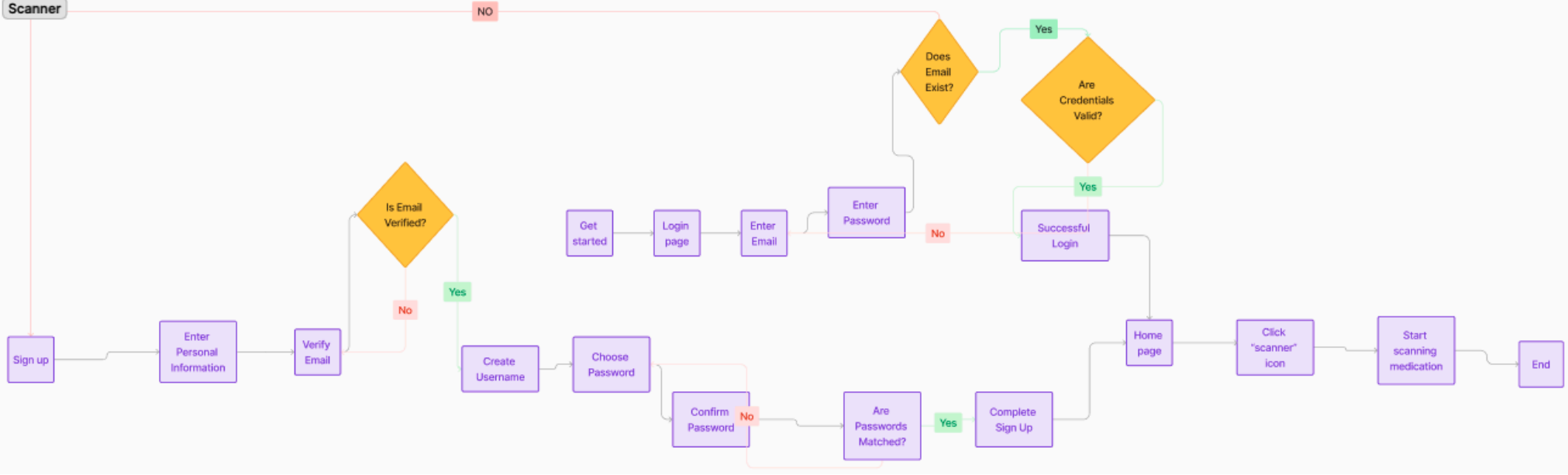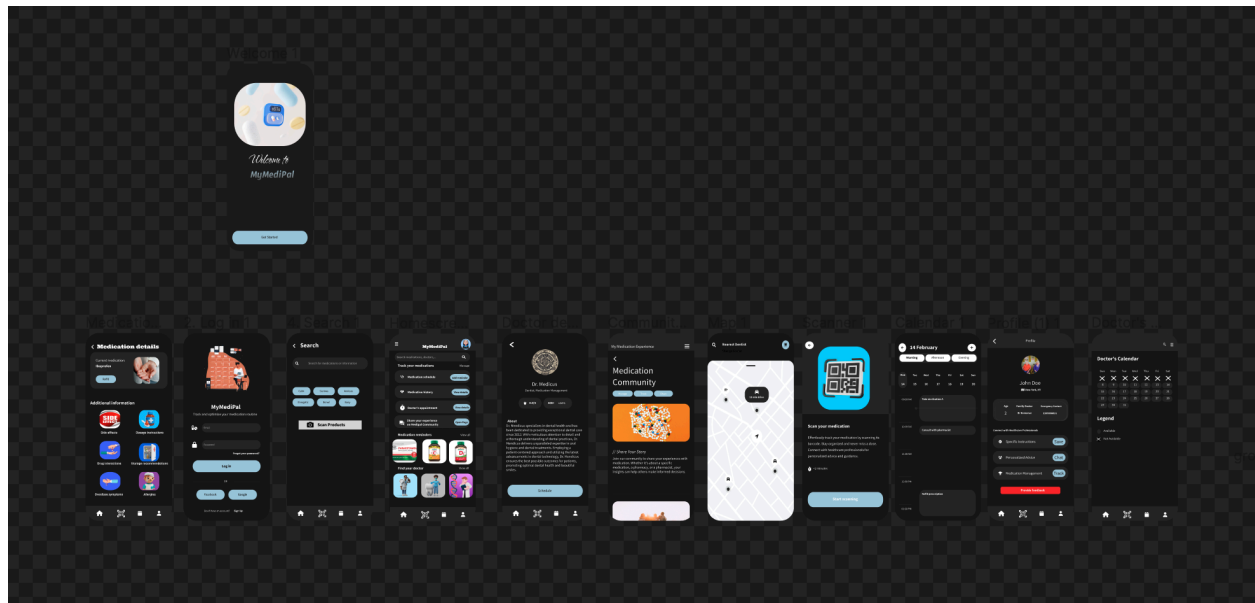|			**PRODUCT BACKLOG**			
ID	**As a… (Role)**	**I want to be able to… (Requirement)**	**So that…**	**Priority**	**Sprint**	**Status**
1	Visitor	Sign up	So that I can have an account and start managing my medicine intake	MUST	1	DONE
2	User	Log in	I can start managing my medicine intake	MUST	1	DONE
3	User	View homepage	I can see a summary of today's medication	MUST	1	DONE
4	User	Search medicine	I can read medication details such as medication dosage	MUST	1	DONE
5	User	Search doctors	I can view doctor's profile and book a doctor's appointment	MUST	1	DONE
6	User	Search pharmacies	I know where I can buy my prescribed medications	MUST	1	DONE
7	User	Search clinics	I can book an appointment depending on what medical condition I have	MUST	1	DONE
8	User	Search hospitals	I will know which hospital is best to treat my medical condition	MUST	1	DONE
9	User	View my medication calendar	I can be more informed of what medication I am taking daily	MUST	2	DONE
10	User	Scan my medication	It will automatically add what medication and time I should take it	MUST	2	DONE
11	User / Visitor	View community page	I will be informed if there are news or advices in the medical community	MUST	2	DONE
12	User	View my profile	I can read and edit my details when needed such as emergency contacts	MUST	3	DONE
13	User	Choose a pharmacy	I can shop and pick up medicine easily	MUST	4	DONE
14	User	Get Support	I can navigate the app when I am lost	MUST	4	DONE
15	User	View my medical history	I will know what medication I have taken in the past	MUST	5	TO BE DONE
16	User	Place an order	I can refill my medication whenever I run out	MUST	5	TO BE DONE
17	User	Add a reminder	I can be reminded when I should take my medicine daily	MUST	5	TO BE DONE
18	User	Sign out	If I want to stop using the application	MUST	5	TO BE DONE
19	User	Edit an alarm	If I have a mistake, I can change it easily	MUST	5	TO BE DONE
20	Visitor	Create account	I will have an account to have full access of the application	MUST	5	TO BE DONE
21	User	Change Language	I can use that app in my desired language	SHOULD	5	TO BE DONE
22	User	Activate automatic medicine refill	I will not run out of medication if I forgot to order	MUST	5	TO BE DONE
23	User	Deactivate automatic medicine refill	I will not have any extra medicine after purchasing	MUST	5	TO BE DONE
24	User	View order history	I will know when and what I ordered previously	MUST	5	TO BE DONE
25	User	Contact health professionals	If I have a question about my medication, I can contact them	MUST	6	TO BE DONE
26	User	Change font size	I can properly read medication information	COULD	6	TO BE DONE
27	User	Change theme (Dark and light mode)	I can see details properly	COULD	6	TO BE DONE

Sprint backlog

SPRINT BACKLOG			
SPRINT	**WORK DONE**	**Status**	**Worked by**
Sprint 1 (Jan. 14, 2024 - Jan. 27, 2024)			
1	Requirements gathering	Done	Allen, Oyinkonsola, Jashan, Manas
1	Create Product backlog	Done	Allen, Oyinkonsola, Jashan, Manas
Sprint 2 (Jan. 28, 2024 - Feb. 10, 2024)			
2	Create wireframes	Done	Allen, Oyinkonsola, Jashan, Manas
2	Test	Done	Allen, Oyinkonsola, Jashan, Manas
2	Retrospect	Done	Allen, Oyinkonsola, Jashan, Manas
Sprint 3 (Feb. 11, 2024 - Feb. 24, 2024)			
3	Develop mockups	Done	Oyinkonsola
3	Inspect mockups	Done	Allen, Oyinkonsola, Jashan, Manas
3	Test	Done	Allen, Oyinkonsola, Jashan, Manas
3	Retrospect	Done	Allen, Oyinkonsola, Jashan, Manas
Sprint 4 (Feb. 25, 2024 - Mar. 9, 2024)			
4	Design database	Done	Allen, Oyinkonsola, Jashan, Manas
4	Develop database	Done	Allen, Oyinkonsola, Jashan, Manas
4	Develop prototype	Done	Allen, Oyinkonsola, Jashan, Manas
4	Test	Done	Allen, Oyinkonsola, Jashan, Manas
4	Prepare MPR	Done	Allen, Oyinkonsola, Jashan, Manas
4	Prepare presentation	Done	Allen, Oyinkonsola, Jashan, Manas
4	Restrospect	TO BE DONE	Allen, Oyinkonsola, Jashan, Manas

Conclusion

After this sprint, the team will now go forward in the planning phase for sprint 5. The team successfully delivered the major features required for the current phase of the application. Additional wireframes and mockups will be developed in the subsequent sprints, leading to the creation of the final prototype for the team's final deliverable.