



Your everyday guide to balanced glucose health.

Monitor your progress and stay inspired as you work towards enhancing your health and reversing diabetes.



www.Glucofit.ca

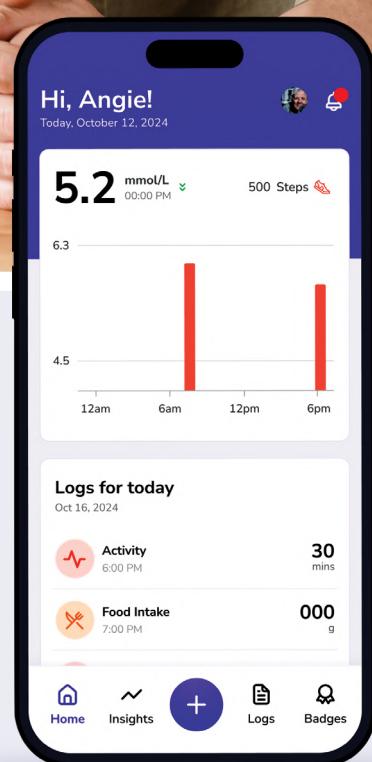


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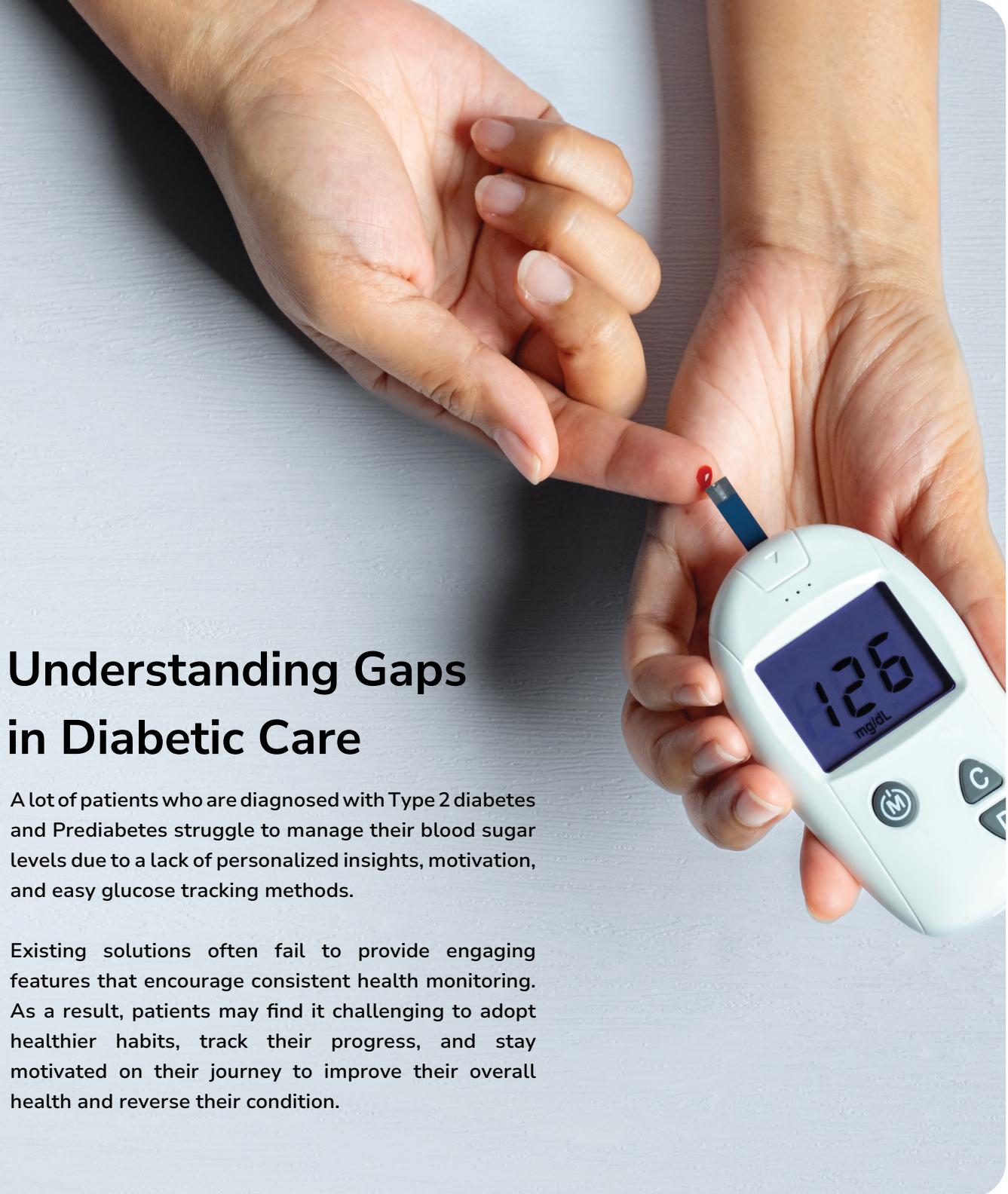


The Problem

Understanding Gaps in Diabetic Care

A lot of patients who are diagnosed with Type 2 diabetes and Prediabetes struggle to manage their blood sugar levels due to a lack of personalized insights, motivation, and easy glucose tracking methods.

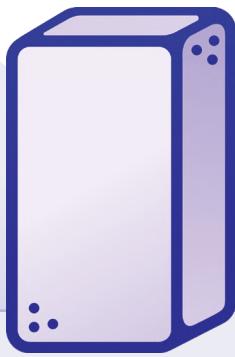
Existing solutions often fail to provide engaging features that encourage consistent health monitoring. As a result, patients may find it challenging to adopt healthier habits, track their progress, and stay motivated on their journey to improve their overall health and reverse their condition.





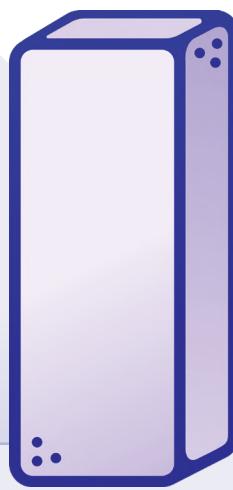
537M

Type 2 Diabetics
Worldwide



643M

Diabetes projection
by 2030



Research shows nearly 50% of Type 2 diabetics fail to achieve target glucose levels due to inadequate education about managing their condition.

Glucofit aims to bridge this gap by not only tracking glucose levels but also educating users through personalized insights based on their logged data, including dietary and lifestyle tips. The app allows users to log food, medication, and personal notes for comprehensive tracking, empowering them to understand their health patterns better.

As the diabetes app market is projected to reach \$18.5 billion by 2030, Glucofit is uniquely positioned to meet the growing demand, with a focus on improving patient education and self-management.



PROJECT OVERVIEW

Competitive Analysis

	glucofit	mySugr	Glucose Buddy	OneTouch
Auto-logging of glucose readings	✓	✓	✓	✓
Detailed dietary and medication log	✓	✓	✓	
Personalized insights for users	✓			
Gamification of user progress	✓			

MySugr, OneTouch, and Glucose Buddy help users track diabetes-related metrics but fall short in providing in-depth insights or a holistic approach to better understand and manage their condition. While they simplify data logging, they often lack robust tools to connect habits, such as lifestyle, food, and medication, to outcomes or offer tailored educational support.

This leaves patients with limited guidance and a fragmented view of their health, making long-term diabetes management more challenging.



Main Features

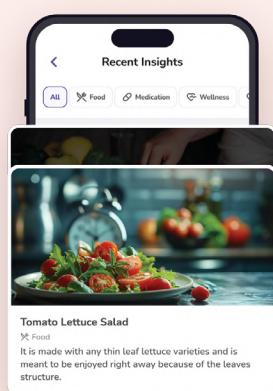
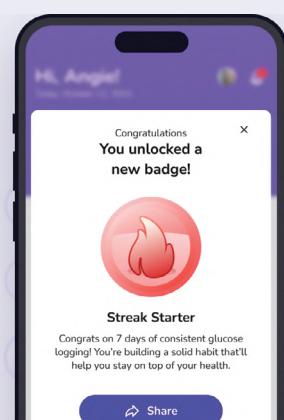


Automated Glucose Logging

Users can streamline the process of blood glucose monitoring, ensuring accurate data transfer without manual entry and maintain up-to-date records of your glucose levels for better tracking and diabetes management.

Gamified Progress Tracking

Glucofit keeps users motivated and committed to a healthy lifestyle. By consistently logging glucose levels, meals, and activities, users can earn unique badges as rewards and tracking their progress streaks.



Personalized Insights

An access to a library of curated articles from trusted medical sources, users can educate themselves about diabetes management, health trends, and lifestyle changes which makes it easier for users to revisit.



PROJECT OVERVIEW

Design Timeline

Week 1

- Brainstorming
- Project Idea Proposal
- Defining Target Users

Week 2

- Market Analysis
- Competitive Analysis
- User Interviews
- Moodboard + Logo Drafts

Week 3

- User Flow
- User Persona + Stories
- Logo Design
- Low-fidelity Wireframes

Week 4

- Mid-Fidelity Wireframes
- Branding + Style Guide
- Components Set-up
- Illustrations

Week 5

- Prototyping
- Badge Designs + Mechanics
- Wireframe Revisions
- Finalize UI Kit

Week 6

- User Testing
- High-fidelity Wireframes

Week 7

- Finalize Wireframes
- Mockups
- Design Hand-off

Week 8

- Print + Marketing Material - Draft
- Finalize Copy

Week 9

- User Testing
- High-fidelity Wireframes
- Presentation Slides - Draft

Week 10

- Final User Testing
- User Feedback

Week 11

- Print + Marketing Materials
- Presentation Script

Week 12

- Final Presentation Slides
- Final Presentation Script

Development Timeline



Week 1

- Brainstorming
- Project Idea Proposal
- Environment Set-up

Week 2

- Plan Timeline
- Assign Roles
- Git Repository Setup
- System Architecture

Week 3

- Fix System Design
- Fix Coding/Branch Rules
- Data Model - 1st Draft
- Full-stack Configuration

Week 4

- Task Breakdown - User Flow
- Data Model - Final
- API Building
- React Component Tree

Week 5

- Authentication
- Alpha Demo Creation
- Device Synchronization

Week 6

- Finalize Alpha Demo

Week 7

- Alpha Building
- Alpha Presentation

Week 8

- Beta Building
- Prioritized Functionalities

Week 9

- Beta Presentation
- Beta Bug Bash

Week 10

- Continuation - Functionalities
- Frontend Styling
- Bug Fix

Week 11

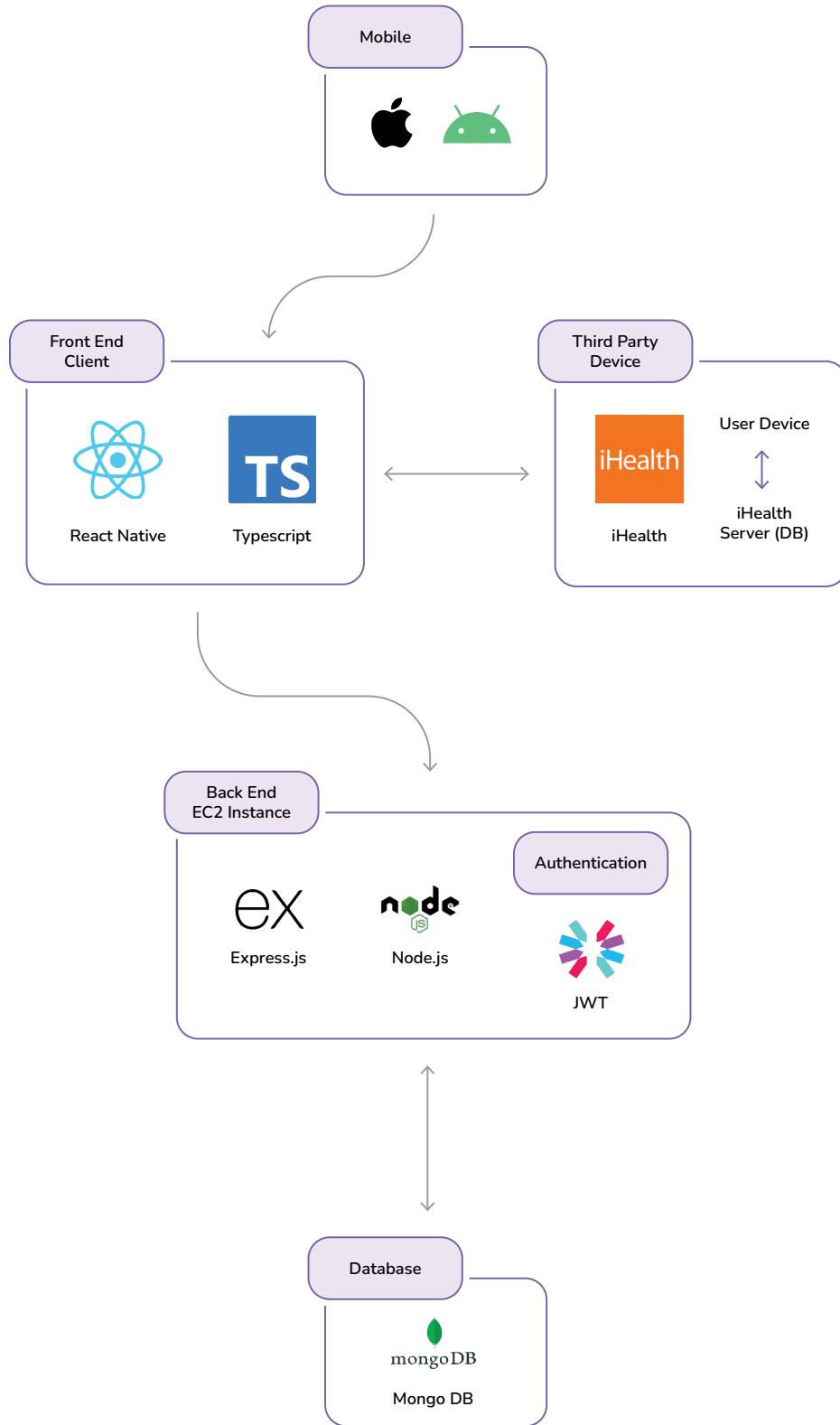
- Bug Fix
- Further styling

Week 12

- Code Freeze

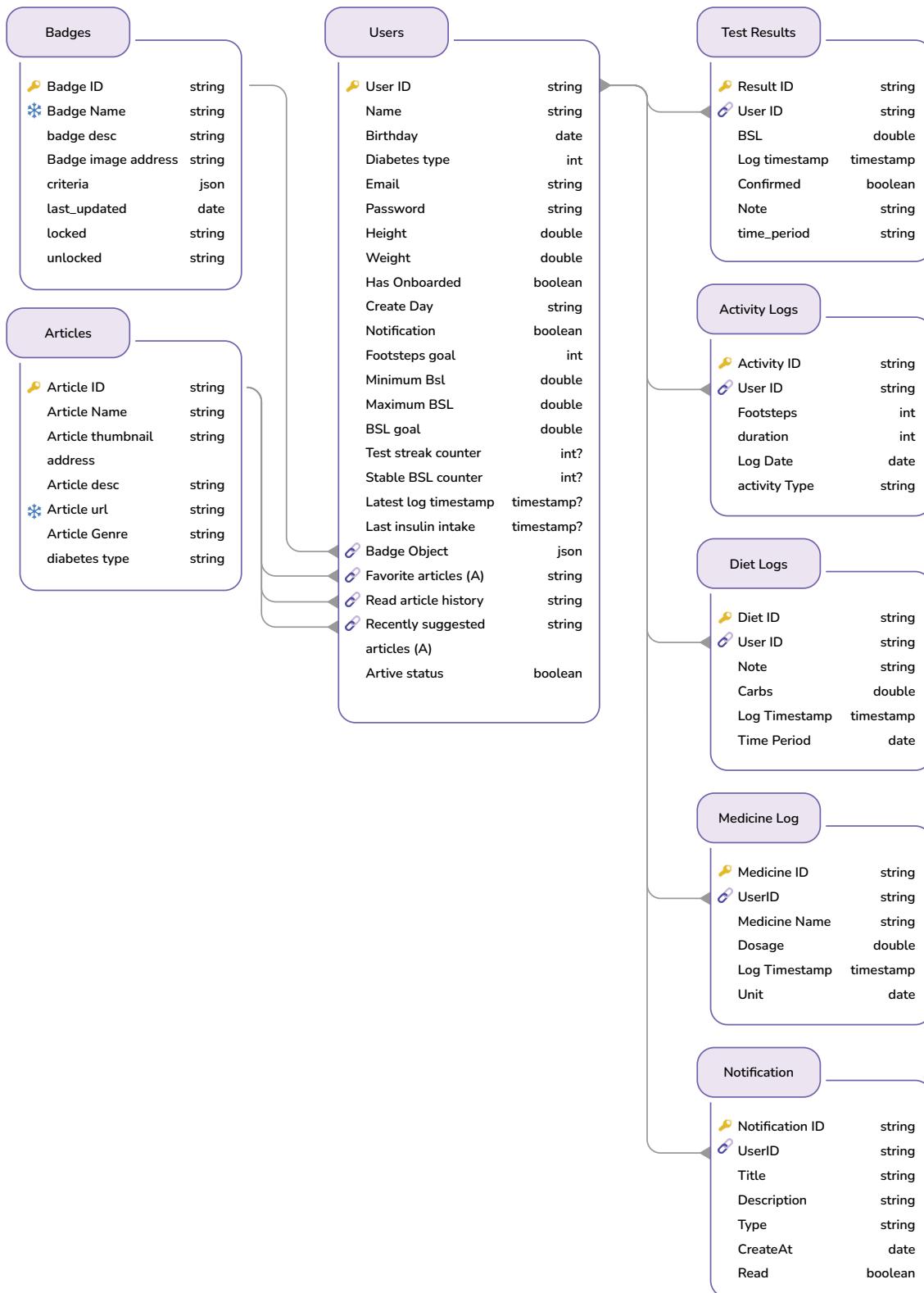


System Architecture





Data Model





TECHNICAL OVERVIEW

Tech Stack



Design

Figma is used in developing the design system, from user flows to UI kits, wireframes, mockups, and prototype.

In parallel, Adobe Illustrator for creating logo design and illustrations, Adobe InDesign for project proposal, Photoshop is used for image enhancements, and Premiere Pro helped us create engaging promotional videos.

After Effects and Lottie were used for animations, adding dynamic and visual elements that enhanced user engagement.



Project Management

Slack was our primary communication tool, for efficient collaboration and real-time interaction among team members.

Jira was utilized for sprint planning, managing tickets and this helps our team to focus on delivering features efficiently on time.

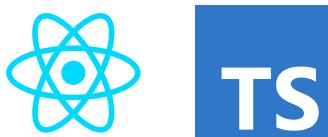
Github was primarily used by the developers for version control, code repositories, pull request and issue tracking.





Front-end

- React native covers both iOS and Android platform. The framework enables us to take component-oriented approach to secure scalability and coding efficiency. Their preset design components and libraries are also reliable for expedited development process.
- Expo makes the development process with React Native faster and more efficient, providing tools like components/libraries, and a tester app. The blood sugar data is brought from 3rd party device via Bluetooth.



Backend, Database, API design and Authentication

- Backend is hosted on AWS EC2 for fully flexible configuration. CI/CD pipeline is automated through Github Action.
- MongoDB is chosen as our database for its flexible schema and for large data set capabilities. Its scalability is one of the leading factors that made the team select MongoDB, as our application is categorized in medical tracking applications that's expected to increase the amount of data.
- Our API design uses GraphQL for precise data fetching, retrieving only relevant health metrics like blood sugar levels. Its flexible queries handle complex health data relationships, ensuring seamless user experience and efficient performance.



TECHNICAL OVERVIEW

System Design

- Our API design uses GraphQL for precise data fetching, retrieving only relevant health metrics like blood sugar levels. Its flexible queries handle complex health data relationships, ensuring seamless user experience and efficient performance.



3rd Party Device

iHealth is a glucose measuring device. Once user take their blood, the device stores sugar level into the device. The application accesses the device (iHealth BG5) via Bluetooth connection to retrieve data even for the one the users recorded while the app is closed.



Cloud Feature

Our server, hosted on an AWS EC2 instance with PM2 and NGINX, ensures scalability and stability. PM2 handles crashes with automatic restarts, while NGINX optimizes traffic and supports high connection volumes. A GitHub CI/CD pipeline enables seamless updates with minimal downtime.



Security Feature:

Data Encryption

- **Data at Rest**

AES-256 encryption is used for our MongoDB database, ensuring data remains unreadable without the decryption key, even if backups or the physical database are accessed.

- **Data in Transit**

Encrypt the connection between the Node.js server and MongoDB using SSL/TLS to prevent data leakage during transmission.

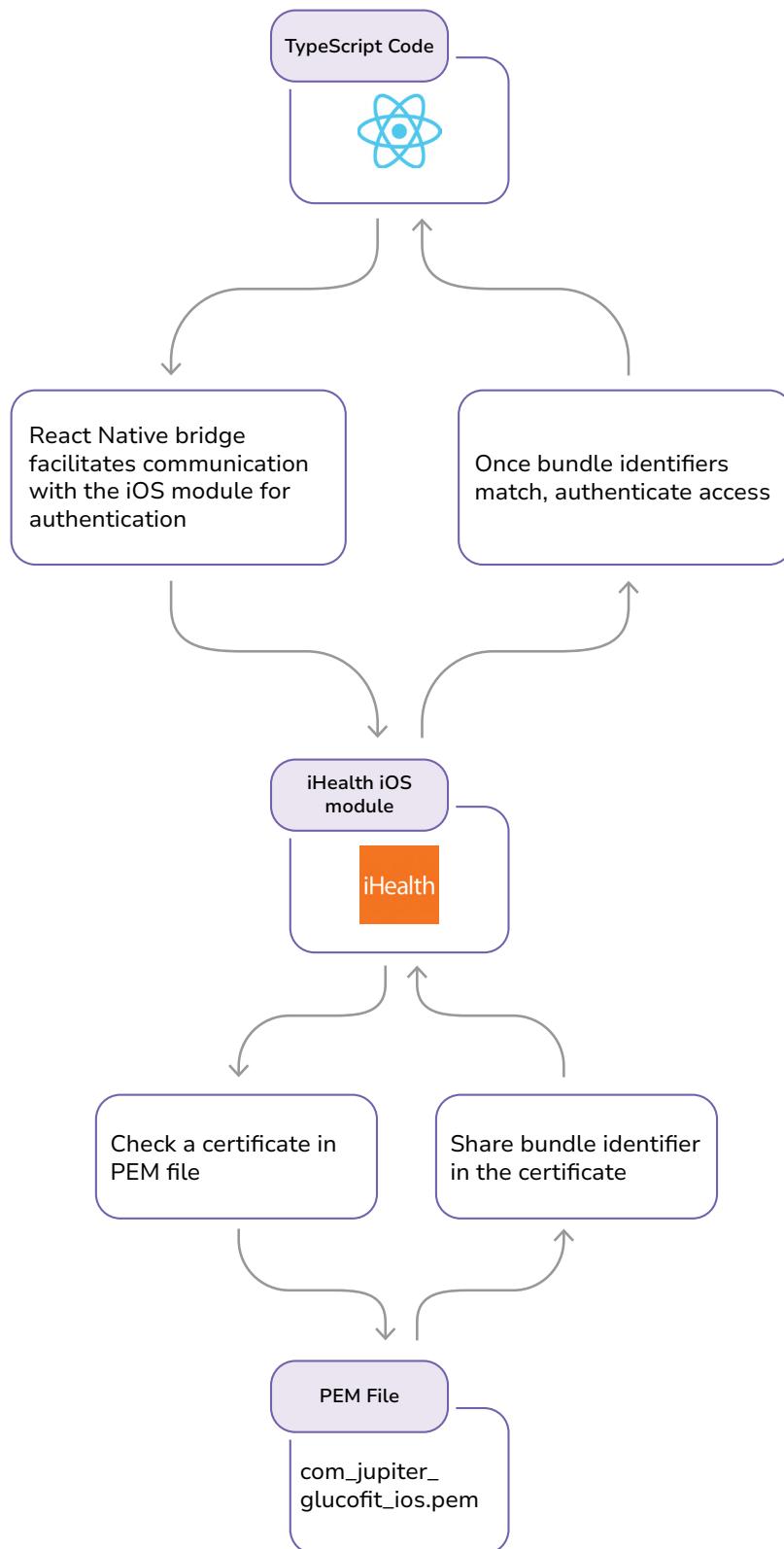
3rd Party Device Security

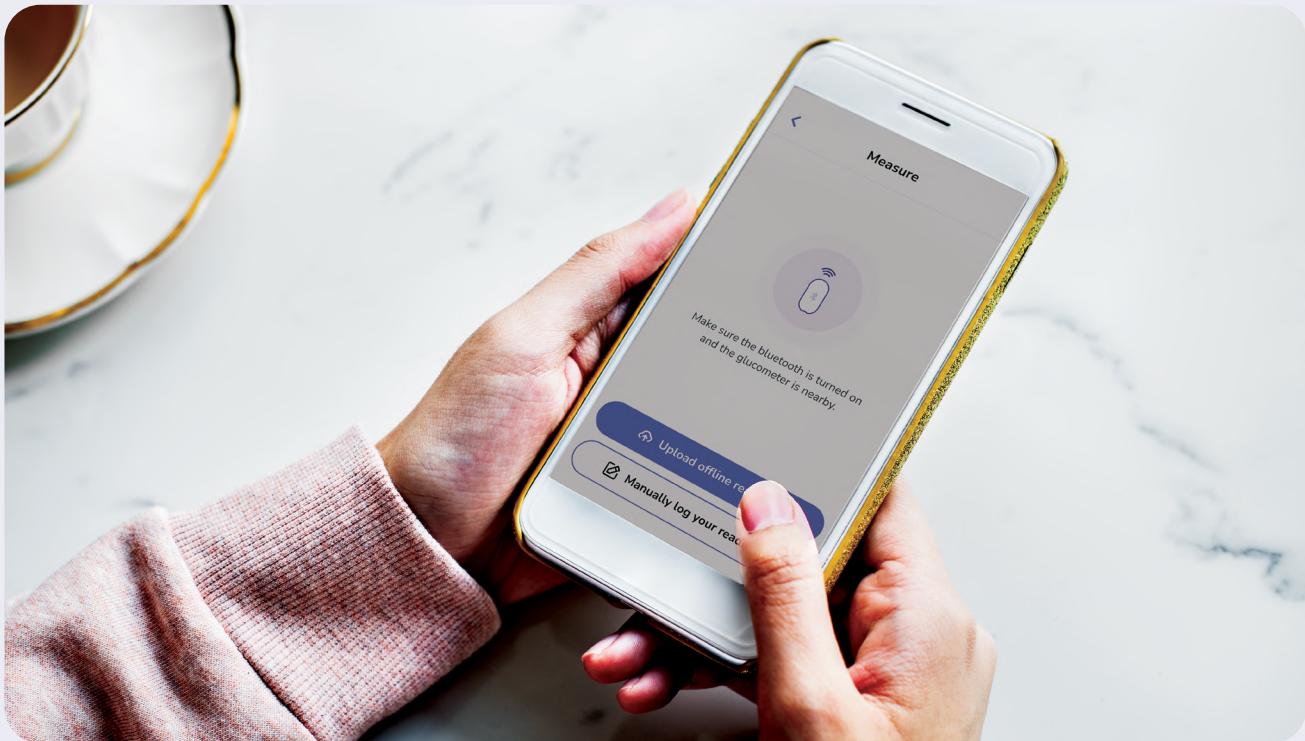
Make sure that we retrieve and store only the minimal necessary data like blood sugar level from iHealth server

When data is passed through from iHealth device, client and to the database, ensure that all API communication with iHealth uses HTTPS with proper authentication so that data is secured.



iHealth Integration





Blood sugar level is initially stored in iHealth device and transmitted to mobile devices via Bluetooth. The React native needs special handling to realize the flow.

Detailed steps to connect iHealth device with an app:

1. Register as a iHealth app developer at iHealth lab and get a pem file for authentication.
2. Store the pem file in iOS folder of your project.
3. Fire authentication function provided by API code. `iHealthAPI.sdkAuthWithLicense("pem_file_name_ios.pem");`
4. React Native bridge facilitates communication with the iOS module for authentication
5. iHealth iOS module checks if a bundle identifier provided by the pem file matches a bundle identifier of the iOS project
6. If they match, the iOS module grants access to all the other functionalities
7. The app starts interacting with the iHealth device by searching for a device nearby and storing its mac number.
8. Once macnumber is stored in the app, it secures connection and get ready for bgl measurement.



User Persona

Leonardo, 56 y.o

Occupation: Maritime Captain

Location: Metro Manila, PH

Diagnosis: Type 2 Diabetes

Leonardo was diagnosed with Type 2 Diabetes at age 56. He is a seafarer and spends most of his time working on ships with limited access to emergency and hospital services.

He follows a strict routine to manage his condition by taking his medications, logging glucose test results in a notebook, following the Glycemic Index Food Guide for his meals, and doing daily walks.



Pain Points

- Manual tracking of glucose levels and food intake
- Indecision on making sound food choices
- Feels restricted and frustrated on following a strict routine at times
- No immediate insights on his glucose test results

Needs & Expectations

Glucose Management

Sync and log glucometer results to effectively track trends and data.

Personalized Recommendations

Lifestyle tips to prevent dips and spikes in blood glucose level.

Motivation Through Gamification

Maintain adherence to recommended lifestyle changes



Pamela, 34 y.o

Occupation: Accountant

Location: Vancouver, BC

Diagnosis: Prediabetic

Pam is on her 6th week of pregnancy. On a routine OB/GYN visit, she did a blood glucose test and it was found that her Fasting Blood Sugar (FBS) level was 112, making her Prediabetic.

Now she's been put on a highly restricted diet where she isn't allowed coffee, sweets, and needs minimal carbohydrate intake. Her diagnosis has prompted her to start incorporating daily low-impact exercises.

Pain Points

- Unaware of apps for tracking food intake.
- Manual tracking of medication
- Difficulty in managing both pregnancy and prediabetic needs.
- Struggles to manage a highly restricted diet.

Needs & Expectations

Motivation Through Gamification

A reward system through badges and streaks to motivate consistency.

Personal Note-taking

Add notes to monitor dietary and lifestyle habits effectively.

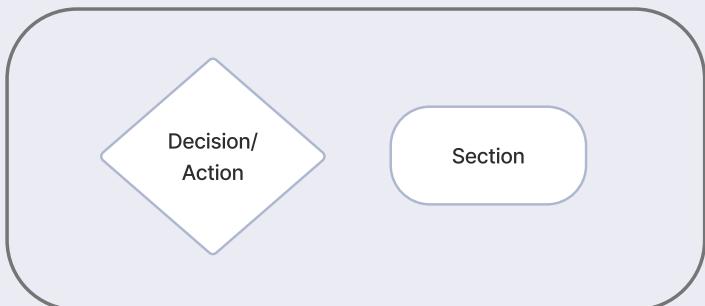
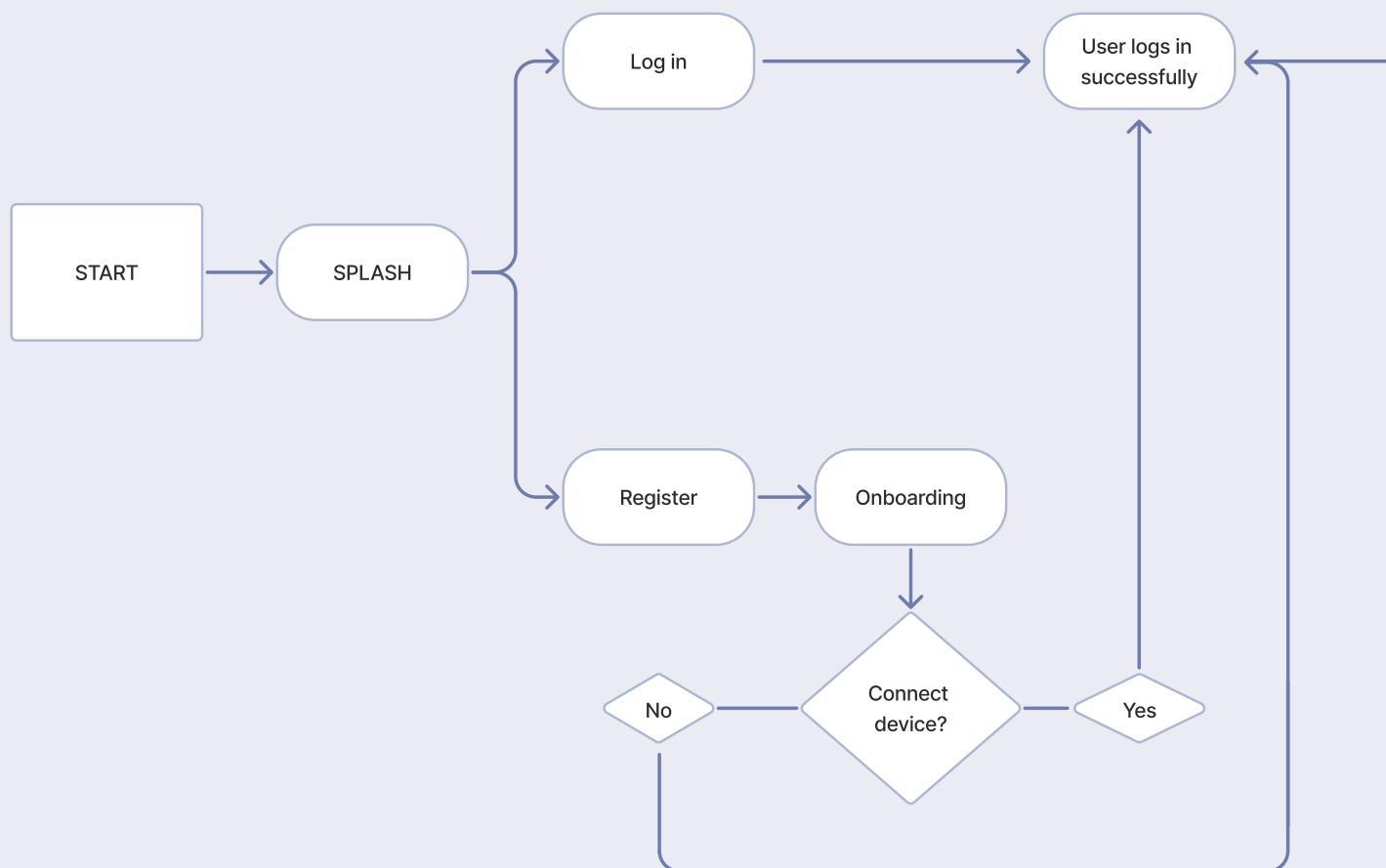
Medication Tracking

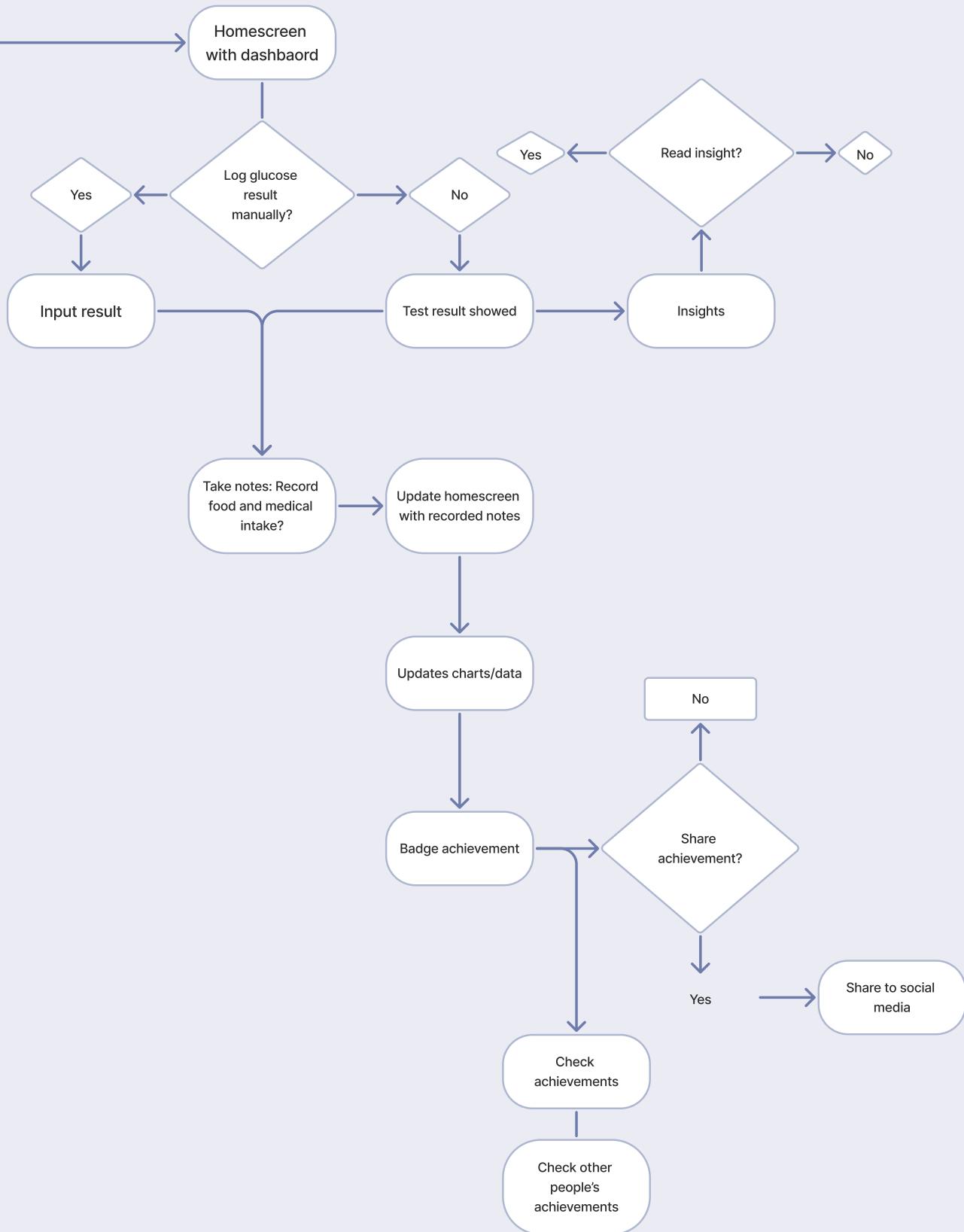
Keep track of medication interval and dosage daily.



DESIGN OVERVIEW

Userflow







DESIGN OVERVIEW

Wireframes

The first wireframe shows the initial state of the app. It displays a blood glucose level of 0 mmol/L at 00:00 PM, with 00 Steps taken. Below this is a graph showing a single data point at 158 mmol/L at 12:00 PM. A banner at the bottom encourages users to "Log your first blood sugar values" and includes a "Record First Log" button. Another banner below it says "Banner to connect your device". The second wireframe shows the same initial state but with a new blood glucose log entry: "Blood Glucose 6:00 PM 150 mg/dL". The third wireframe shows the same initial state but includes a "Logs for today" section with activity logs: "Activity 12:00 PM 30 min" and "Activity 8:00 AM 30 min". It also features a "Weekly Snapshots" section and a "Congratulations! You're a Streak Starter" badge.

The first wireframe shows the "Recent Insights" section with cards for "Roasted veggie grain bowl" (Food) and "Biguanides - Metformin" (Medication). The "Explore" section shows cards for "Cauliflower rice kimchi bowls" (Food), "Amylinomimetic injectables" (Medication), "Portobello mushroom burger" (Food), and "Biguanides - Metformin" (Medication). The second wireframe shows a grid of cards for "Plant-based meal" (Food), "Metformin" (Medication), "Metformin" (Medication), "Plant-based meal" (Food), "Metformin" (Medication), "Metformin" (Medication), "Plant-based Meal" (Food), and "Plant-based Meal" (Food). The third wireframe shows a detailed view of the "Roasted veggie grain bowl" insight, which includes a summary card, a detailed description ("Lorem ipsum dolor sit amet. Qui voluptas delectus ad harum neque aut ipsum dolor sit amet ipsum dolor sit amet."), and a "Read more" link. It also includes a "Biguanides - Metformin" (Medication) card with similar descriptive text.

DESIGN OVERVIEW
Wireframes



The first wireframe shows the 'Streaks' tab with a 'Sugar Baby' badge, a weekly streak from September 2024, and a calendar view. The second wireframe shows the 'Badges' tab with 'Collected Badges' (First Steps, Streak Starter) and 'All Badges' (Early Bird, Night Owl, Stable Star, Knowledge Seeker, Check-in Champion, Fitness Streak). The third wireframe is a detailed view of the 'First Steps' badge, unlocked on September 25, 2024. The fourth wireframe shows a 'Congratulations' message for unlocking a new 'Streak Starter' badge.

The first three wireframes show the 'Measure' process: 1. Instructions to turn on Bluetooth and glucometer. 2. Inserting a test strip and preparing a blood sample. 3. Applying the strip to blood. The fourth wireframe shows the 'Add log' screen with a reading of 11 mmol/L, a schedule for Friday, Oct 4 at 00:00, and an 'After breakfast' time period. It also includes an 'Add Notes' section with a '+'. A 'Save' button is at the bottom.



DESIGN OVERVIEW

Branding

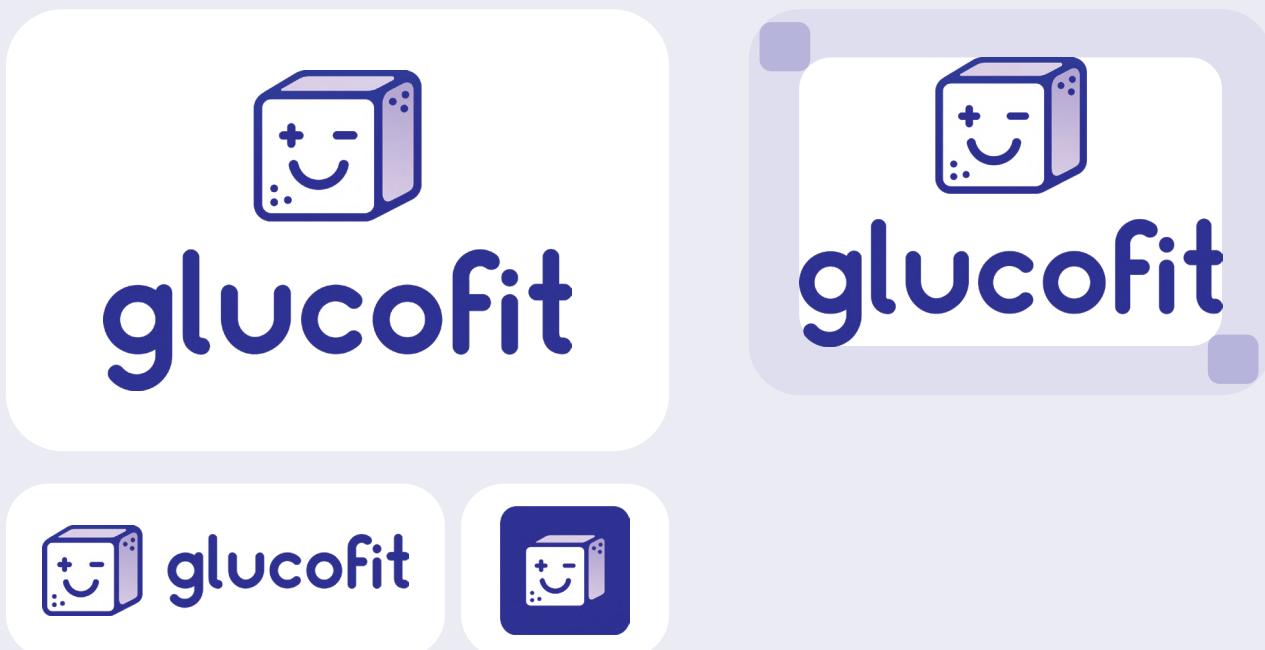
Attributes

Friendly

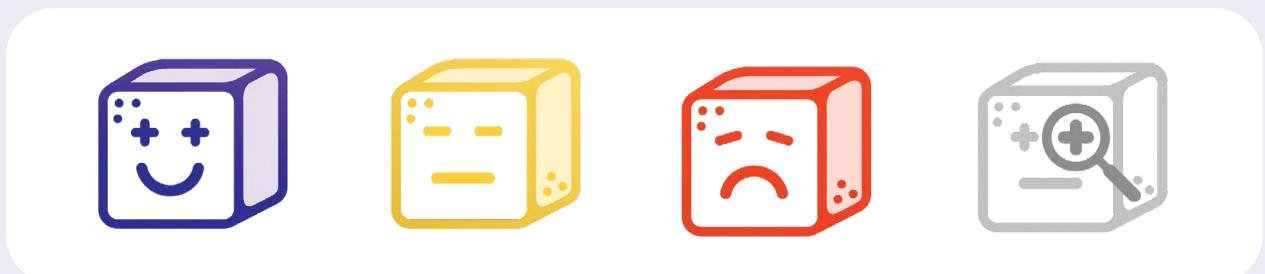
Accurate

Motivating

The Logo



Illustrations





Color Palette

PRIMARY COLORS

HEX: #4800FF

RGB: 47, 43, 124

CMYK: 99, 100, 10, 10

HEX: #FF4621

RGB: 255, 70, 33

CMYK: 99, 85, 0, 0

HEX: #FED85C

RGB: 254, 216, 92

CMYK: 0, 27, 90, 0



Typography

Headline

**Nunito Sans
Bold**

The quick brown fox
jumped over the lazy dog

Body

Nunito Sans
Regular

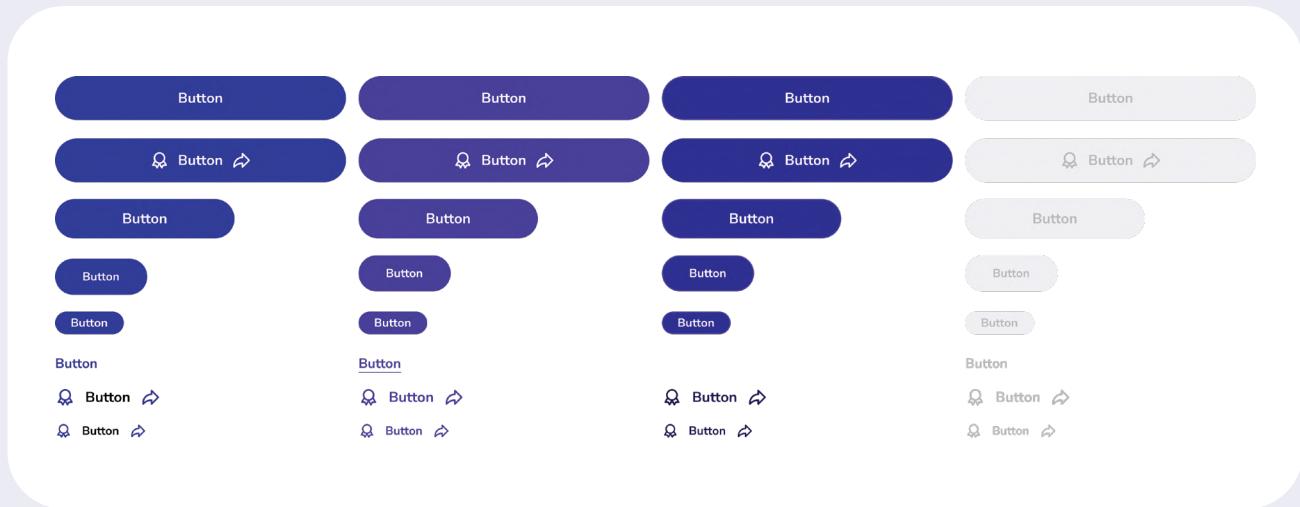
The quick brown fox
jumped over the lazy dog



DESIGN OVERVIEW

UI Kit

Buttons

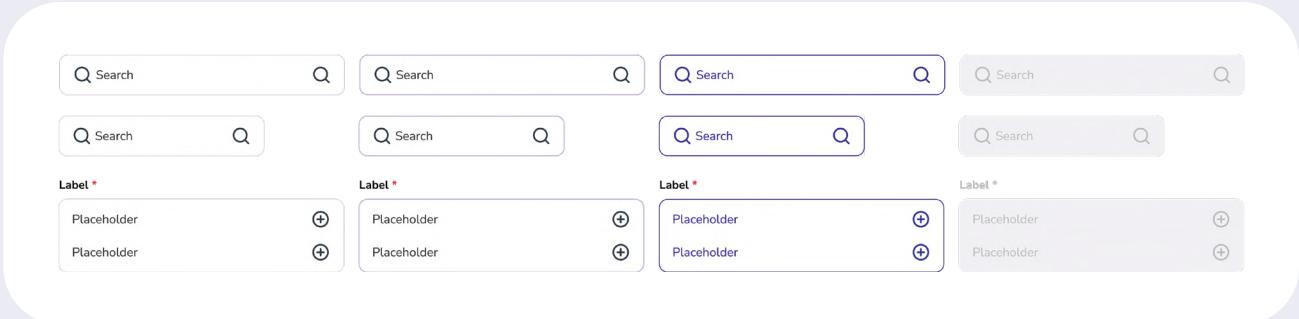


Badges

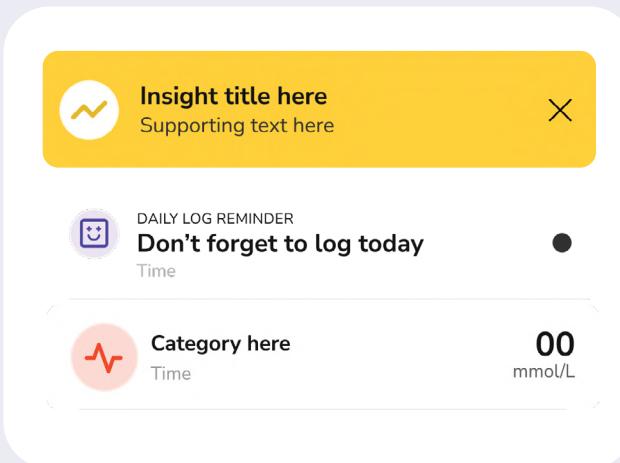




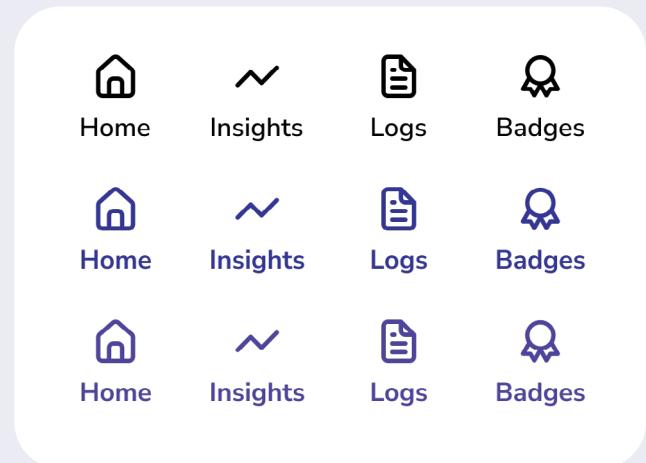
Input Fields



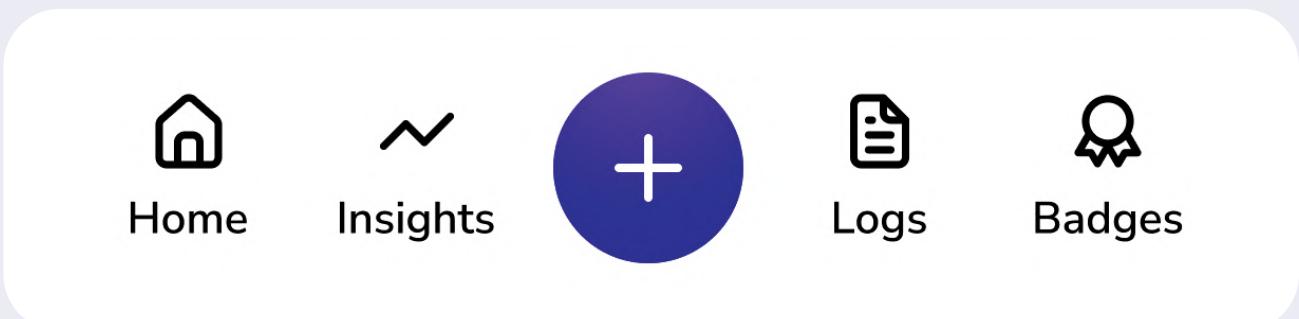
Cards



Navigation Icons



Navigation Bar





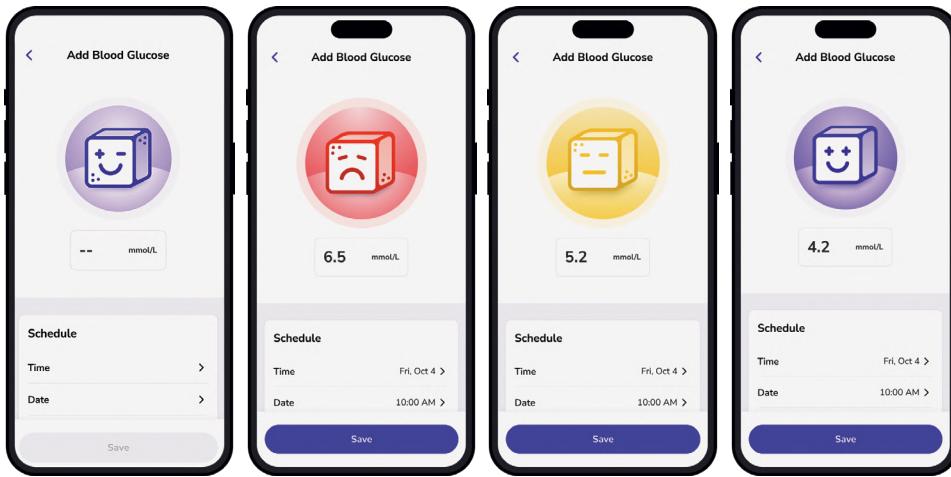
DESIGN OVERVIEW

Mockups

Homescreen & Login / Register

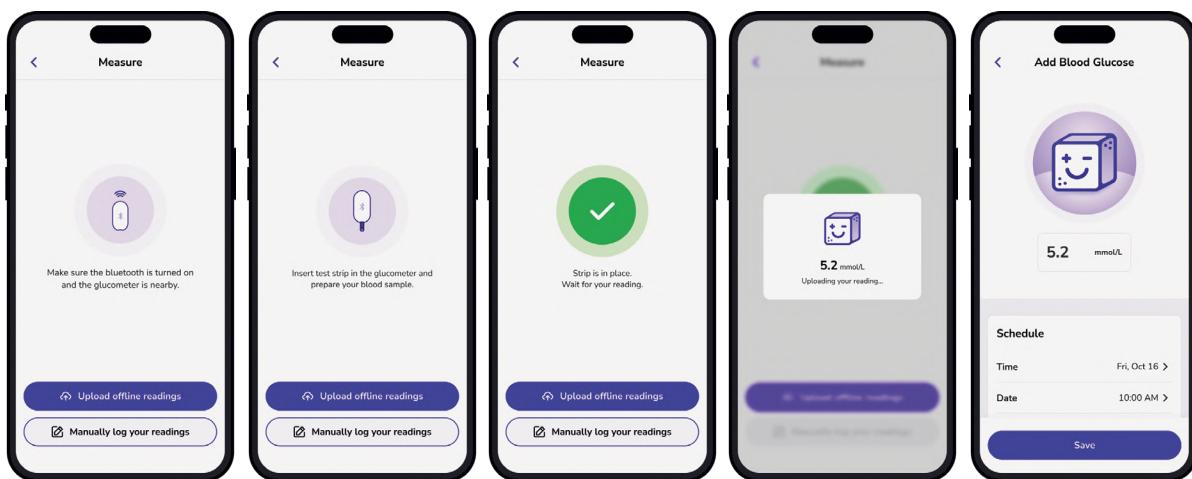


Manual logging

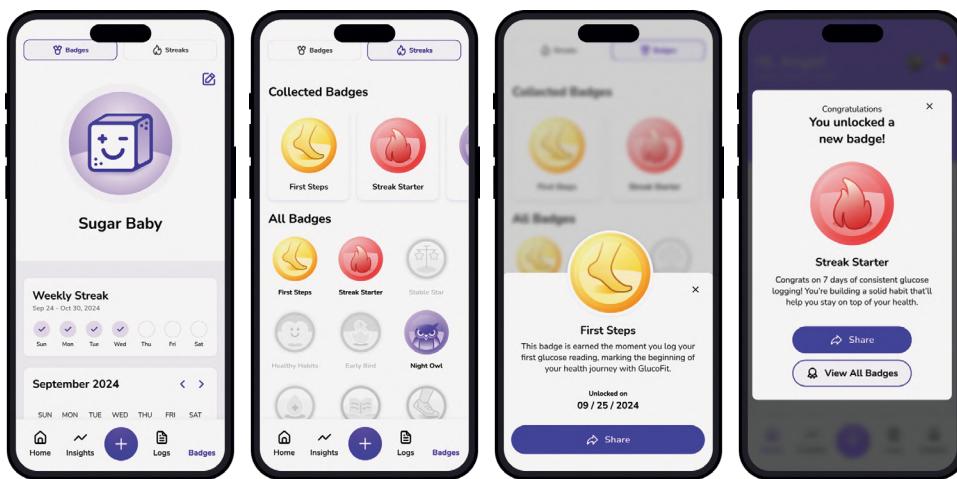




Auto-logging



Gamification

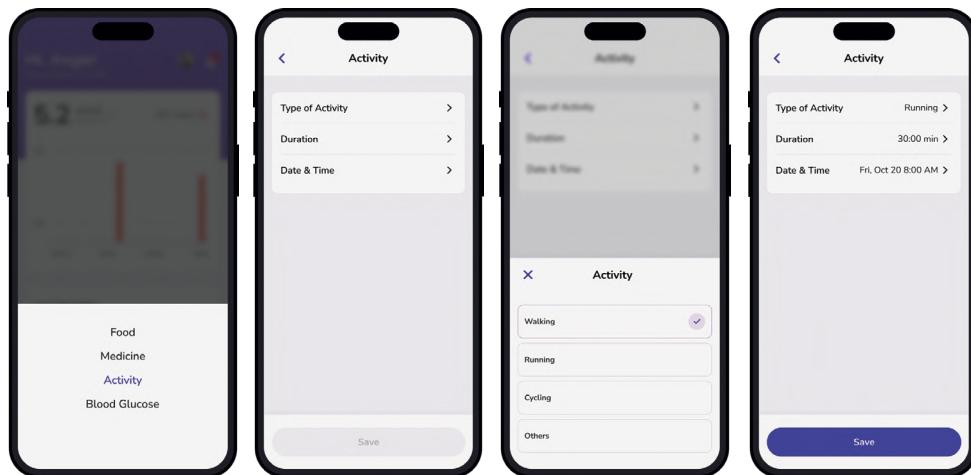




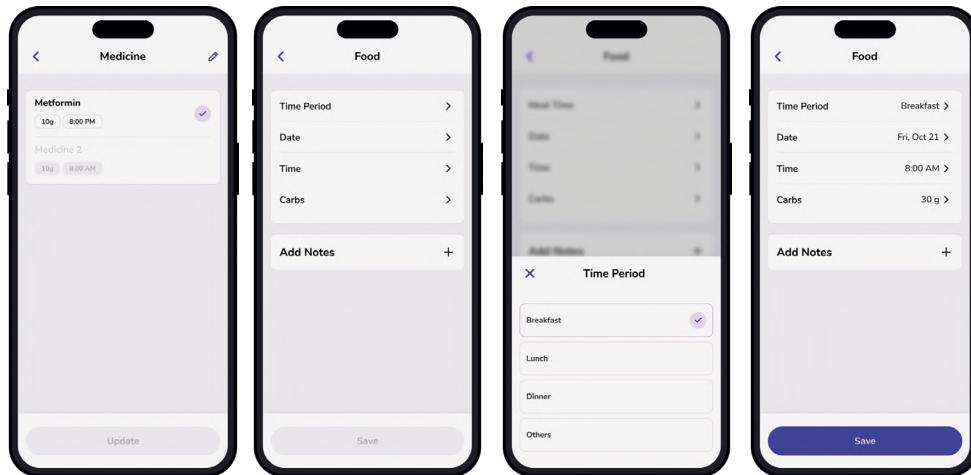
DESIGN OVERVIEW

Mockups

Activity Log

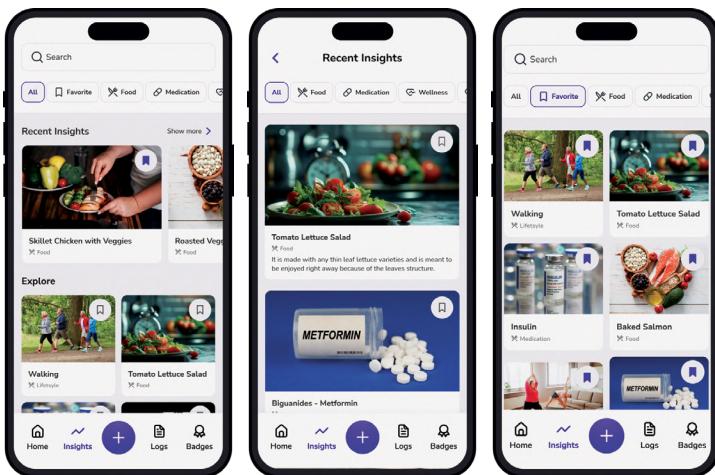


Medicine & Food Log

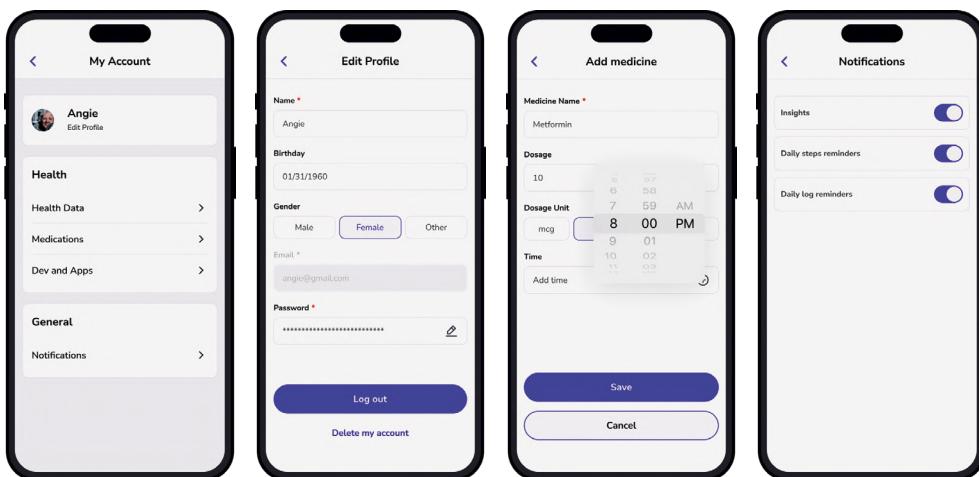




Insights



Settings





Meet the Team



Jennifer Mallari, PM & UI/UX Designer

A UI/UX designer with 5 years of experience in satellite operations, passionate about combining design skills and technical knowledge to create human-centered solutions that connect complex systems with user needs.

linkedin.com/in/jennifergmallari | jennifermallari.ca



Kathleen Nervez, Lead UI/UX Designer

With 10 years of experience designing across a variety of platforms, I am passionate about crafting intuitive, visually appealing, and highly usable digital experiences.

linkedin.com/in/kat-nervez | katnervez.ca



Eliza Francisco, UI/UX Designer

As a designer with 10 years of industry experience, I create visual communication solutions and usable experiences through UX research, wireframes, user test, mock-ups, and prototyping across multiple platforms.

linkedin.com/in/elizafrancisco | elizafrancisco.com



Hazel Lao, UI/UX Designer

A UI/UX designer with a graphic design background, I aim to apply human-centric design thinking to create intuitive, functional interfaces that prioritize user needs and experiences.

linkedin.com/in/hazellao | hazellao.design

**Hisashi Ishihara, Lead Developer**

Full-stack developer who have the track record of leading the team for two consecutive projects in the course. In this term, I will build backend mainly while also handling dev process management and making decisions regarding system architecture.

linkedin.com/in/ishi-hisashi | IshiHisashi

**Akifumi Hayashi, Front-end Developer**

Full-stack developer. During this term and Capstone Project, I will mainly focus on front-end development while helping backend a little bit as I did last term for data manipulation.

linkedin.com/in/akifumi-hayashi | Akiodesukedo

**Sachi Asano, Front-end Developer**

Full-stack developer with an HR background, specializing in front-end development to deliver high-quality user experiences. In my capstone project, I focused on improving development efficiency, team collaboration, and explaining technical decisions to deepen my expertise.

linkedin.com/in/sachi-sacha-asano | c-est-sadesign

**Prathibha Wijetunga, Back-end Developer**

As a full-stack developer with a software engineering background, I will primarily focus on backend development in this term .server-side solutions and optimizing database management.

linkedin.com/in/shehani-wijetunga | shehani-wijetungadesign



ACKNOWLEDGMENT

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