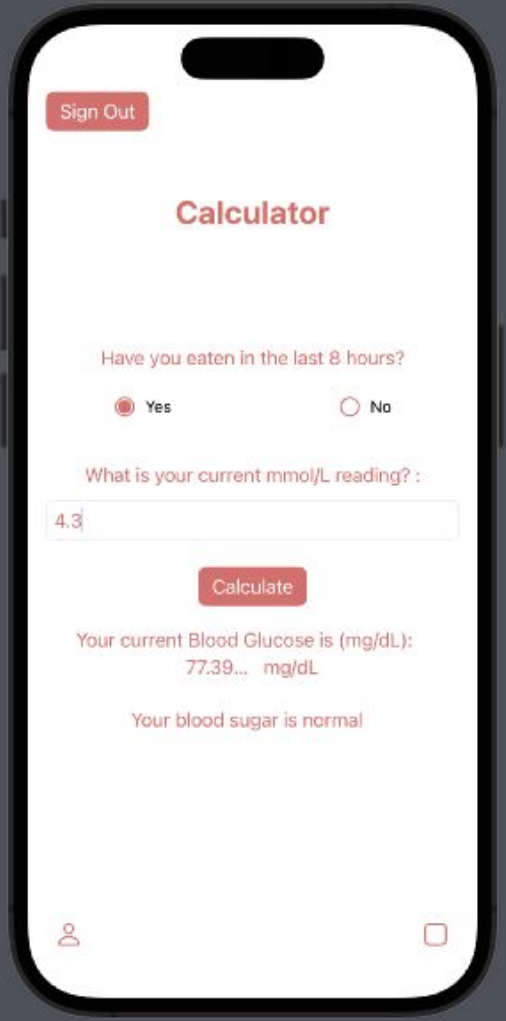

DiaLog

A Diabetic Tracking Solution

Team Members

-Eduardo Reyes | Project Manager, Front End

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Aaron Massey | Front End Engineer

Andres Ventura | Back End Engineer

Saul Cubillo | Back End Engineer | Quality Assurance

Purpose

The ideal is to create an easy to use tool, one that those with diabetes can easily input their data, and get an accurate reading to their own body.

Since blood sugar varies depending on the users body, if they’ve eaten recently, how they’ve done along the week. We wanted to make a dynamic tool that can give results depending on each individual user.

Project Timeline

- Week 1: Select groups and identify project goals
- Week 2: Identify project scope, including target audience, format, and platform to be used
- Week 3: Finalize on roles and languages to be used; begin researching software requirements for completing the project
- Week 4: Develop use case diagrams and finalize on class models
- Week 5: Create sequence and data flow diagrams
- Week 7: Finalize on the early iterations of documentation
- Week 8: Program login logic and its interaction with user database
- Week 9: Create user interface and optimize user experience
- Week 10: Update documentation to reflect changes made to software
- Week 11: Debug application and present demonstration

Ease of Use

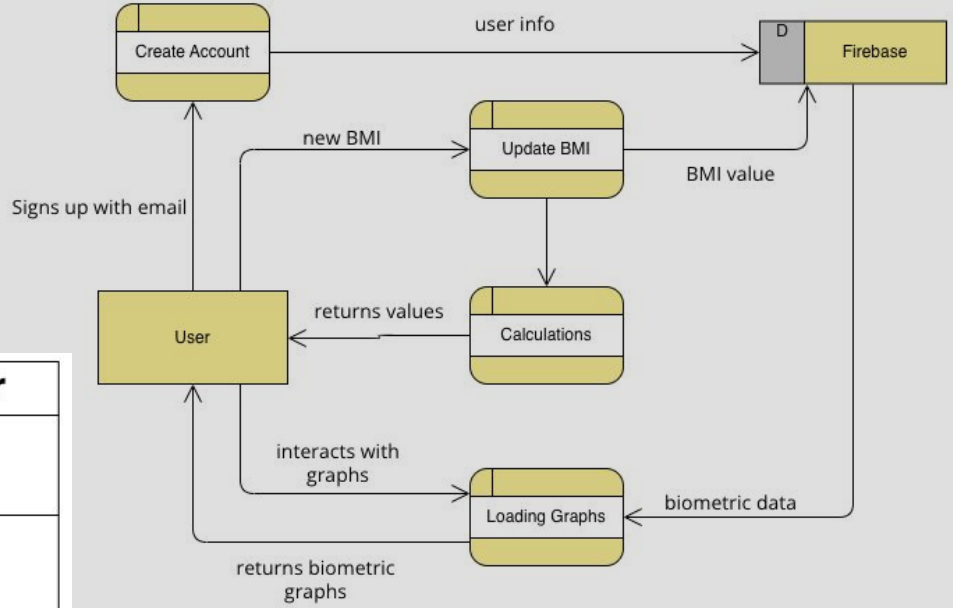
We designed our app to incorporate a one handed use case. Hence it was made with easy to reach buttons in the interface, so the user can quickly grab their phone after taking a blood reading, and immediately get their calculations and report on how their week has been, and if any abnormalities have been recorded.

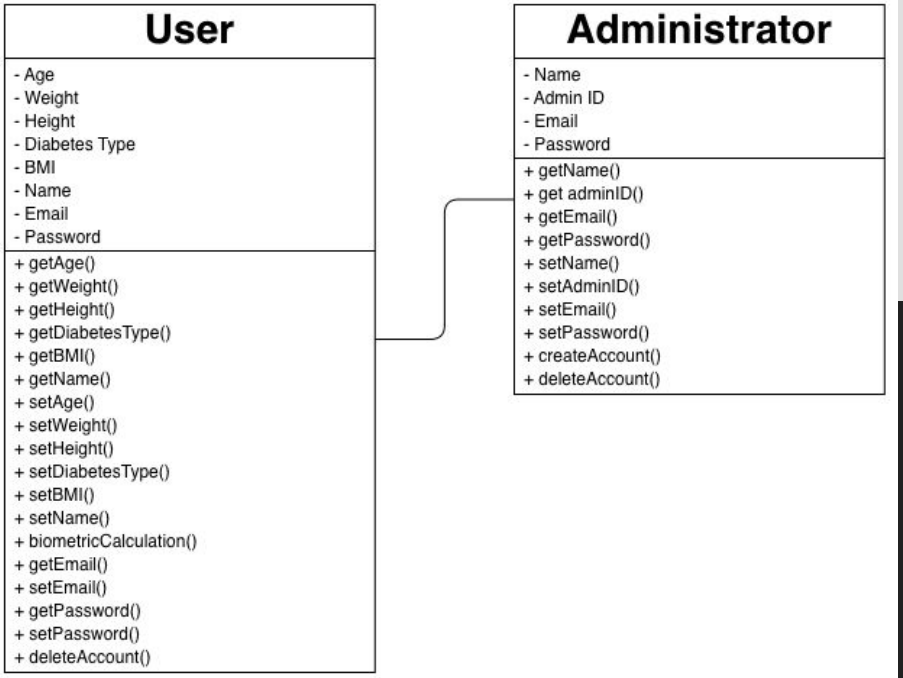
Language I Swift

The language we chose for this project is swift for the following reasons:

- The simplicity of integrating with apple devices for ease of use
- Swifts many in-built functions and extensions to enhance development
- The ease of testing through X-code
- It compliments our project with a clean UI and navigation experience

Diagrams


Create Account
user info
D
Firebase
new BMI
Update BMI
BMI value
Signs up with email
User
returns values
Calculations
interacts with graphs
Loading Graphs
biometric data
returns biometric graphs


User
- Age
- Weight
- Height
- Diabetes Type
- BMI
- Name
- Email
- Password
+ getAge()
+ getWeight()
+ getHeight()
+ getDiabetesType()
+ getBMI()
+ getName()
+ setAge()
+ setWeight()
+ setHeight()
+ setDiabetesType()
+ setBMI()
+ setName()
+ biometricCalculation()
+ getEmail()
+ setEmail()
+ getPassword()
+ setPassword()
+ deleteAccount()
Administrator
- Name
- Admin ID
- Email
- Password
+ getName()
+ get adminID()
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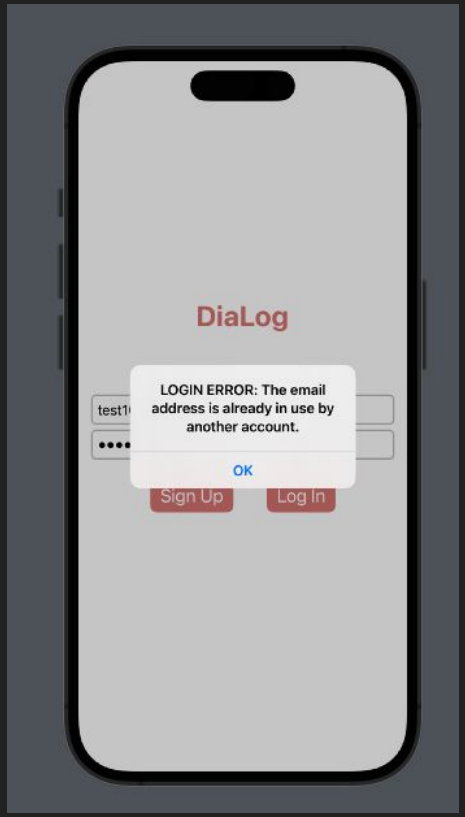
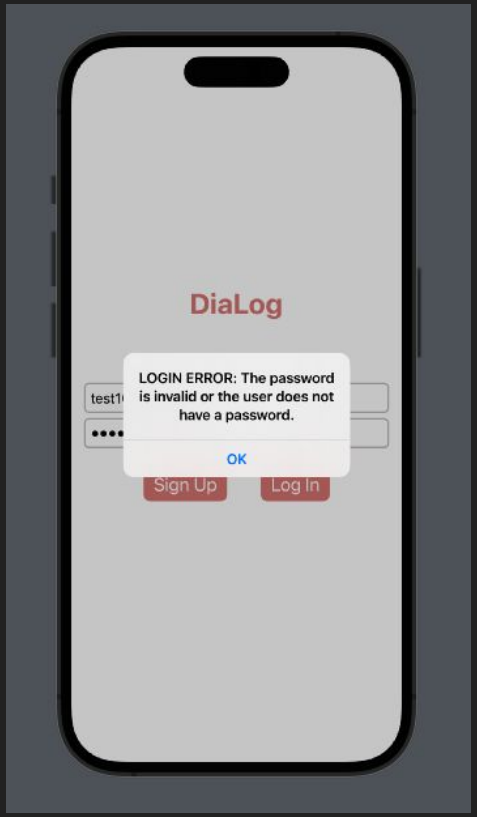
+ setName()
+ setAdminID()
+ setEmail()
+ setPassword()
+ createAccount()
+ deleteAccount()

User Interface | Login

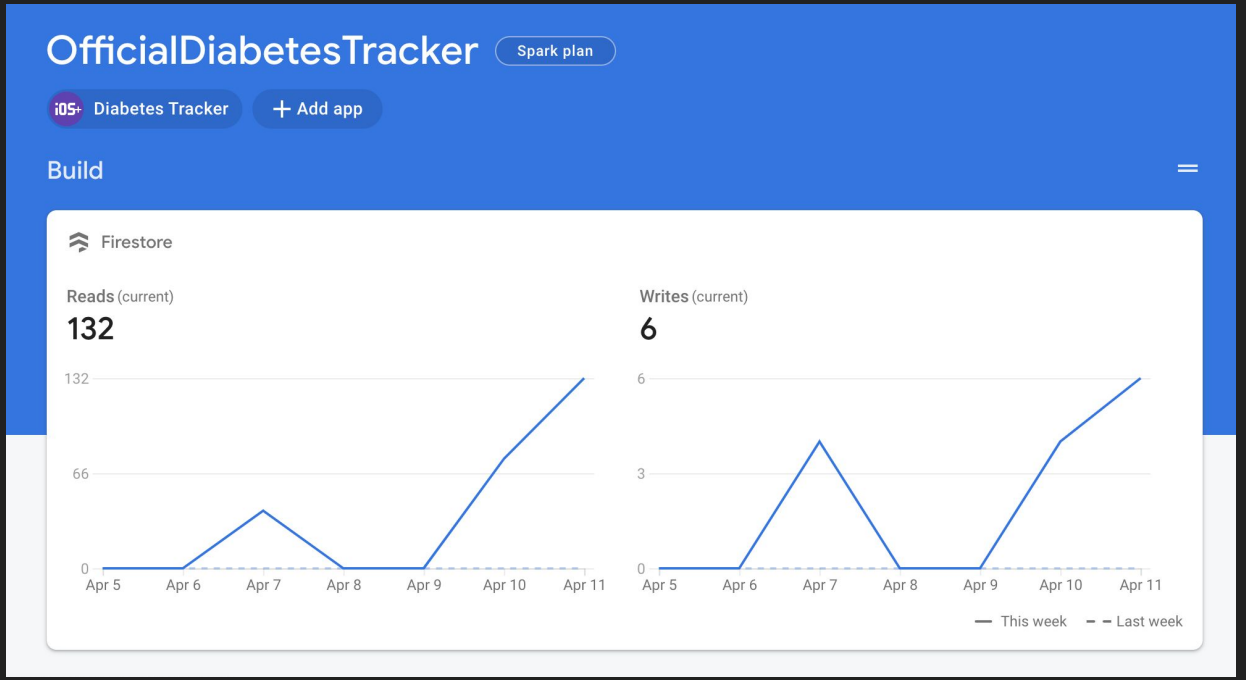


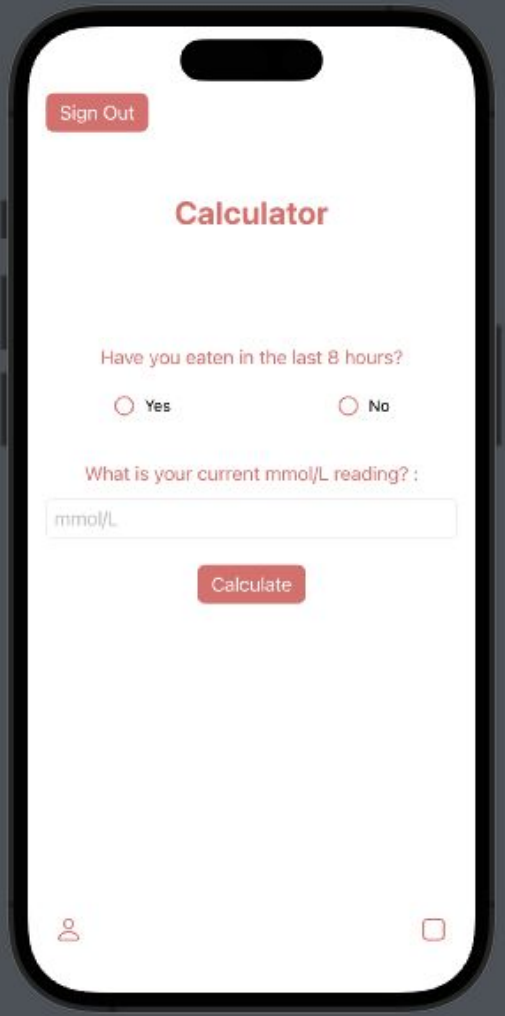


Login Functionality | Firebase

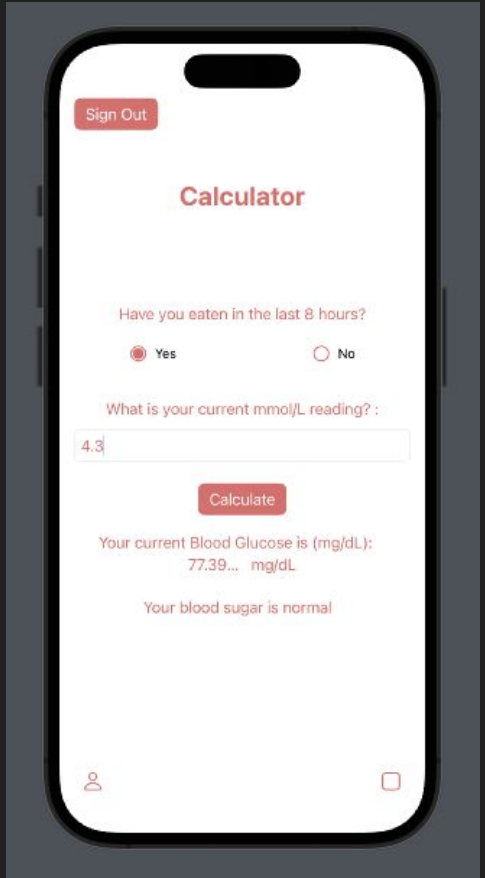
Firebase is a backend database that is specialized for mobile app development. It allows for easy integration between Unity, Web, IOS, and Android applications.

Allows for user authentication using email, phone number, Facebook and Google accounts.





Home Screen



The main screen begins at the calculator for ease of use, incase the user only needs the reading.

Then the tabs along the bottom of the screen can navigate to the user data, and the weekly report and graph.

Blood Glucose Calculations

The math mostly revolves around the mmol/L to mg/dL

```
print("Please enter mmol/L reading")
var num1 = Float(readLine()!)!

var bloodglucose = mmol * 18
print("Your current blood glucose is \(sum) mg/dL")
```

The calculation is also prepared to ask if the user has eaten recently, as that varies the output greatly.

```
if let inputData = readLine() {
  if inputData.lowercased() == "yes"{
print("subject is fasting")
```

Benefits of mg/dL over mmol

There is great benefit to doing these calculations instead of taking the Blood glucose monitors mmol reading at face value.

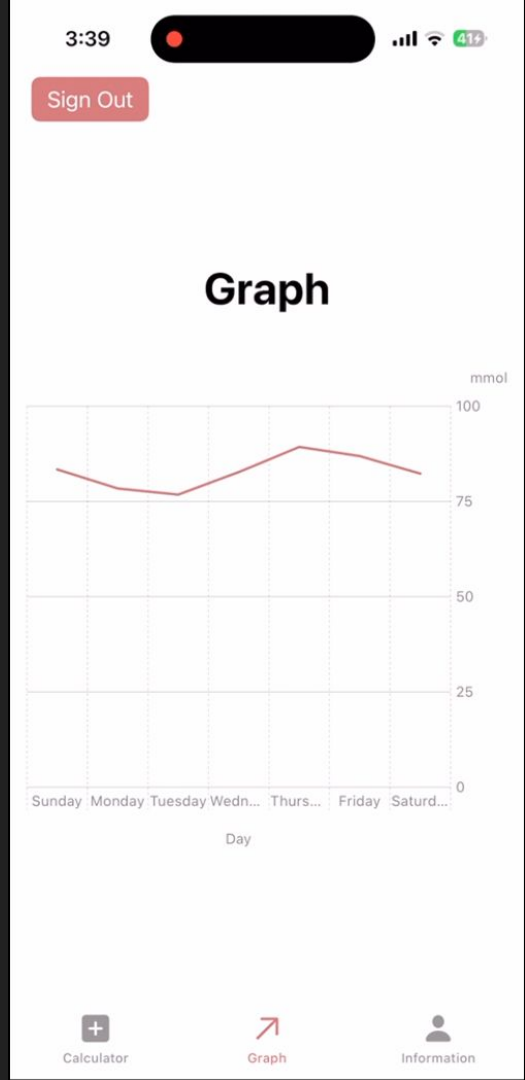
Mmol/L provides the molarity (the number of molecules of any substance within a defined volume mostly used for fluids), while, mg/dL provides the concentration by the ratio of weight to volume, for example, milligrams per deciliter.

Mg/dL is the actual amount of blood glucose in the blood per liter, which is a more accurate calculation when factoring in the users health, biometrics, and diet.

Graphing Capability

The application will have the capability to display a user's blood sugar levels over the course of the past week in order to observe trends

More functionality is planned in order to adjust visibility of time periods and provide comments and insights on current trends



Biometric Updating (UX)

Upon creating an account, users will be prompted to provide their relevant biometric information

This information can be updated when necessary to maintain accurate calculation values