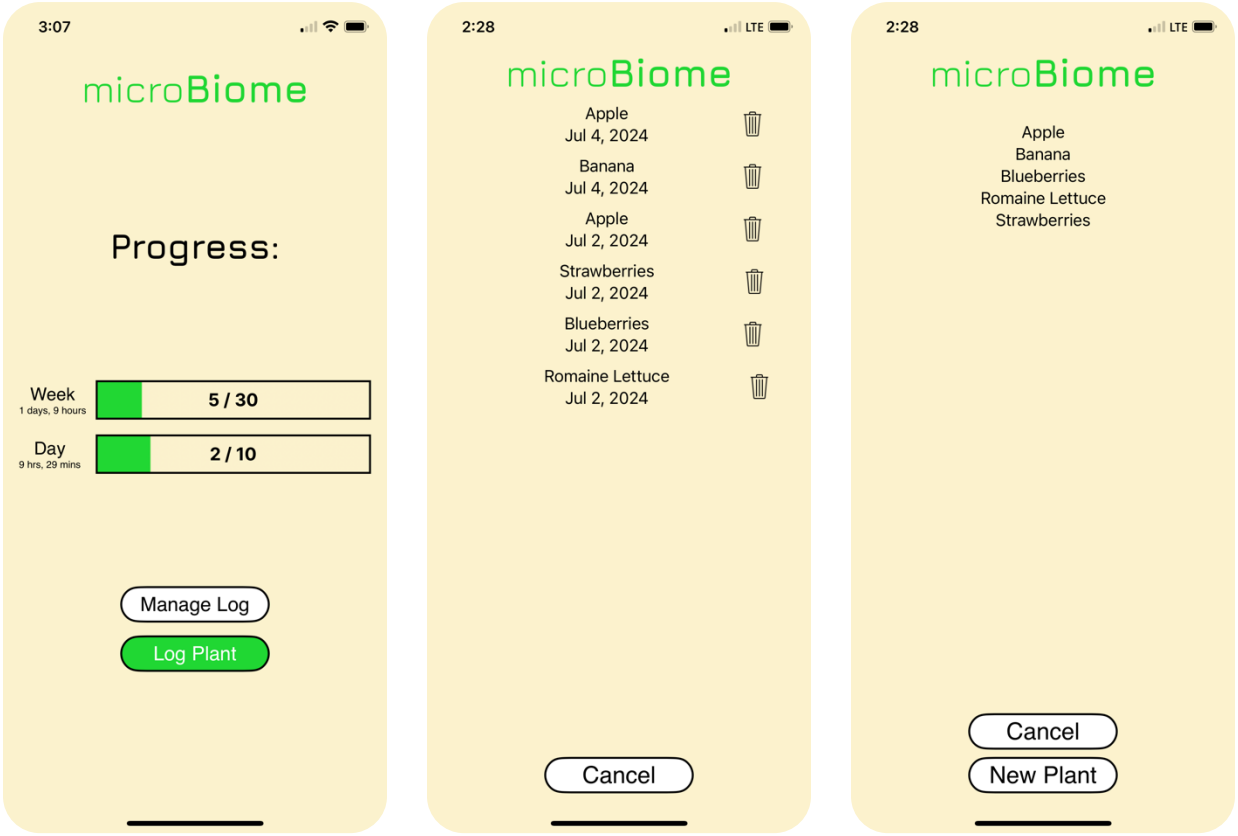
Project Report



microBiome – Plant Consumption Tracker

Software Engineering Project

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Table of Contents

I Project Description

1 Project Overview

App for logging plant consumption to help maintain a healthy gut microbiome diversity.

2 Purpose and Context

Scientific studies have suggested that consuming 30 plants a week corresponds with a healthy gut microbiome. This app allows a user to track the different plants (fruits, vegetables, nuts, seeds, etc.) they consume. Throughout the week, they can see their progress toward the 30 unique weekly plants.

3 Description of the Project

The app has multiple views. In the main view, the user can see two proress bars indicating the user's progress toward a weekly and daily goal. Below the progress bars are two buttons. The first button links to the "plant log". Here, the user can view in chronological order the previously logged plants and the dates on which they were logged. In this screen, the user can also delete items from the log.

A second button allows the user to log a new plant. When the user is new, the only option is to log a new "custom" plant. As the user has spent more time in the app, the user can additionally select from an alphabetized list of all of the user's previously selected plant. When logging plants, the user can select the date of consumption, allowing users to log plants consumed on previous days.

II Software Architecture

4 Overview

The software architecture is fairly straight forward. There is a Plant Class, a master control file (MicroBiomeApp.swift), the initial ContentView.swift, and two additional View files for logging a plant (LogPlant.swift) and managing the plant log (ManageLogView.swift).

5 Technologies

This project relies on the basic IOS development technologies. Written in Swift, this project uses components from the SwiftUI library. All data persistence is done using SwiftData (introduced in WWDC 23).

6 User Interface

As this is an app, the user interface is crucial. The progress bars are fairly straightforward, providing an easy way to visualize goal progress throughout the week. The progress bar is green during hangs and yellow during resting to differentiate the two states. The buttons stand out as white against the dark background.

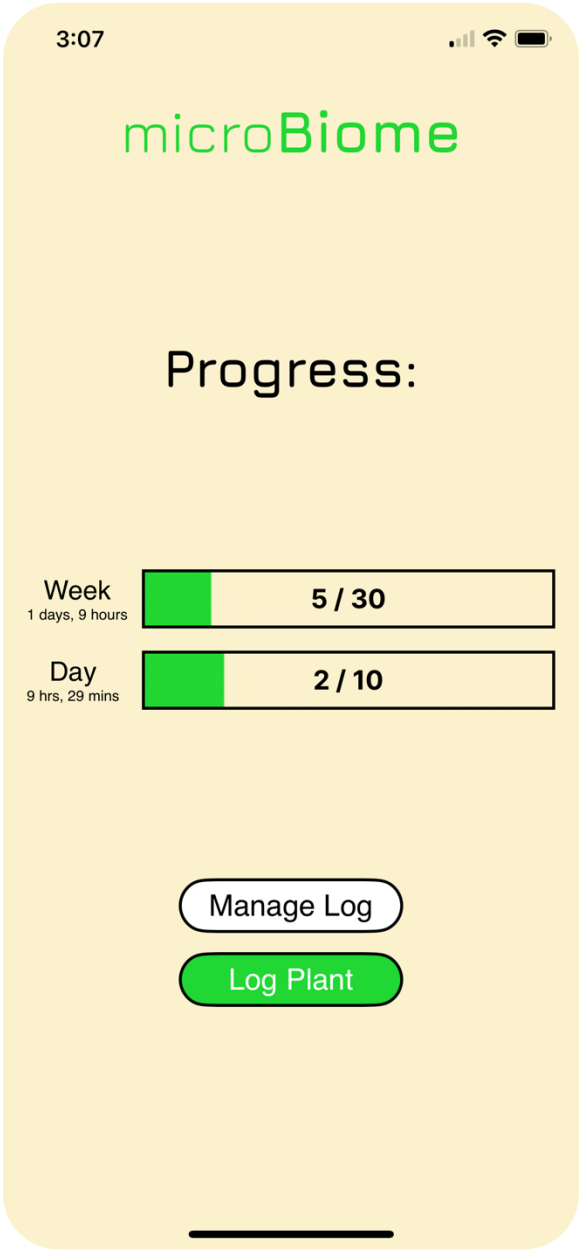

Figure 1 – Main View

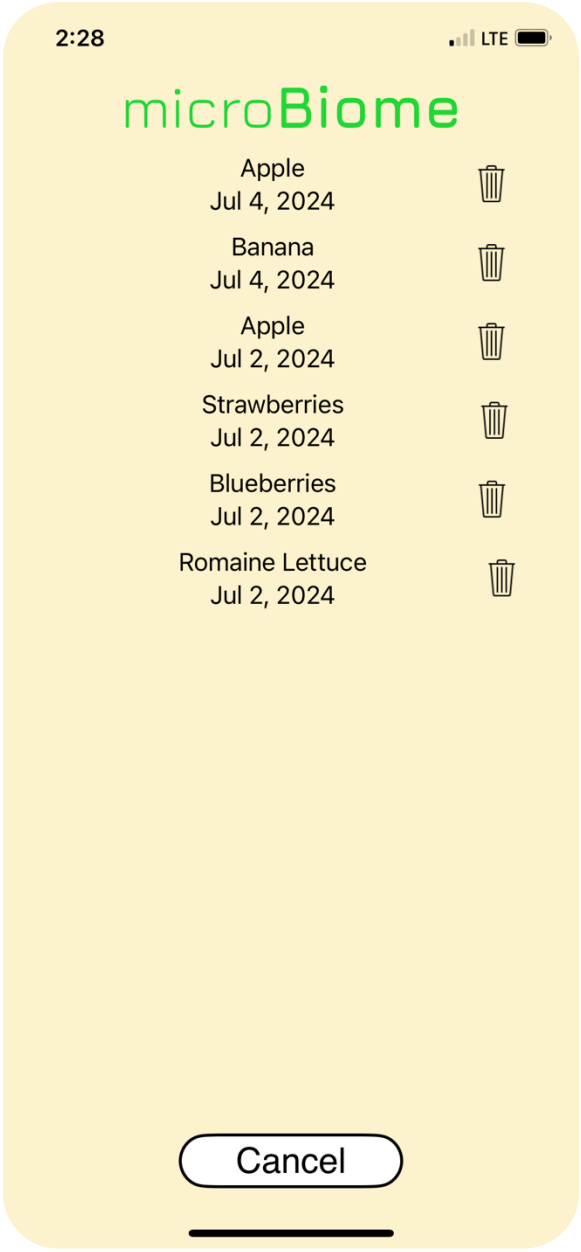

Figure 2 – Manage Log View

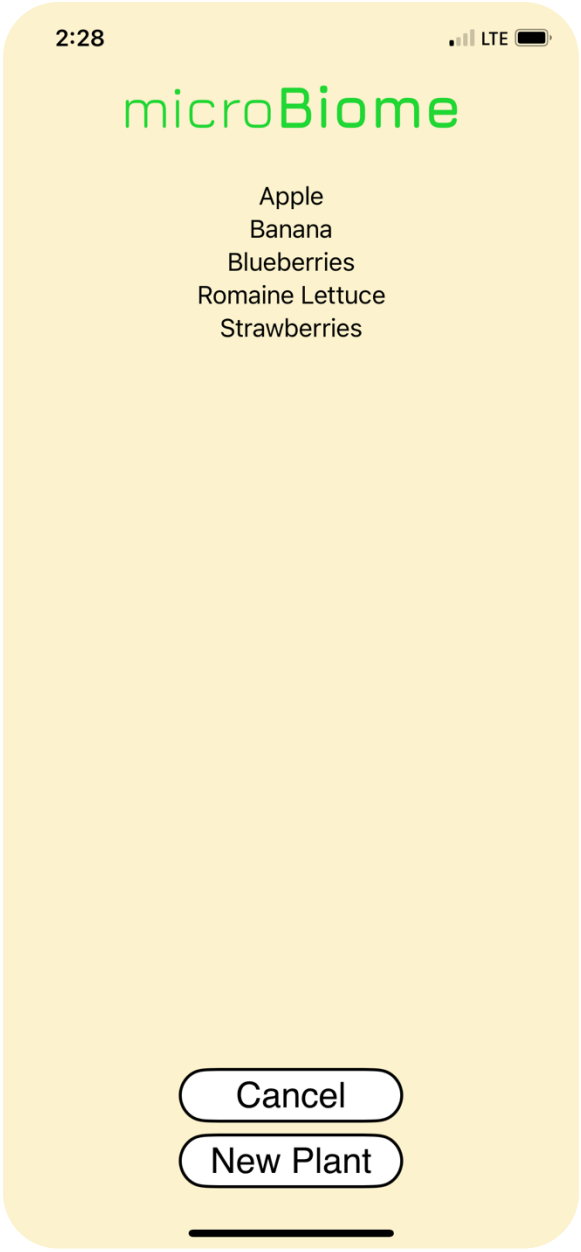

Figure 3 – Log Plant Selection View

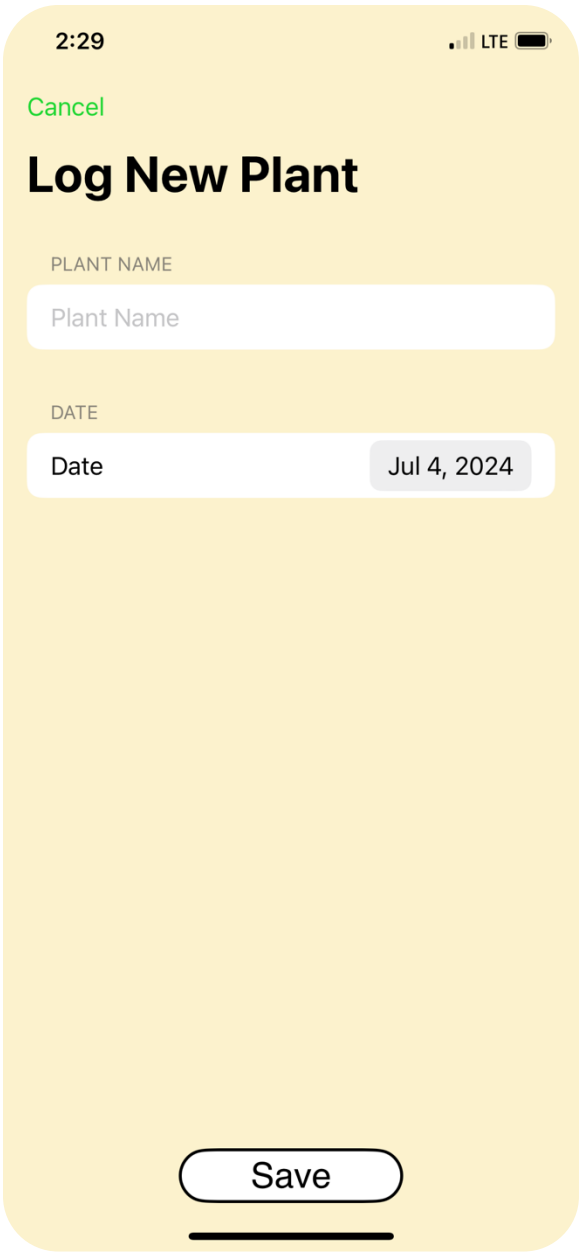

Figure 4 – Log New Plant View

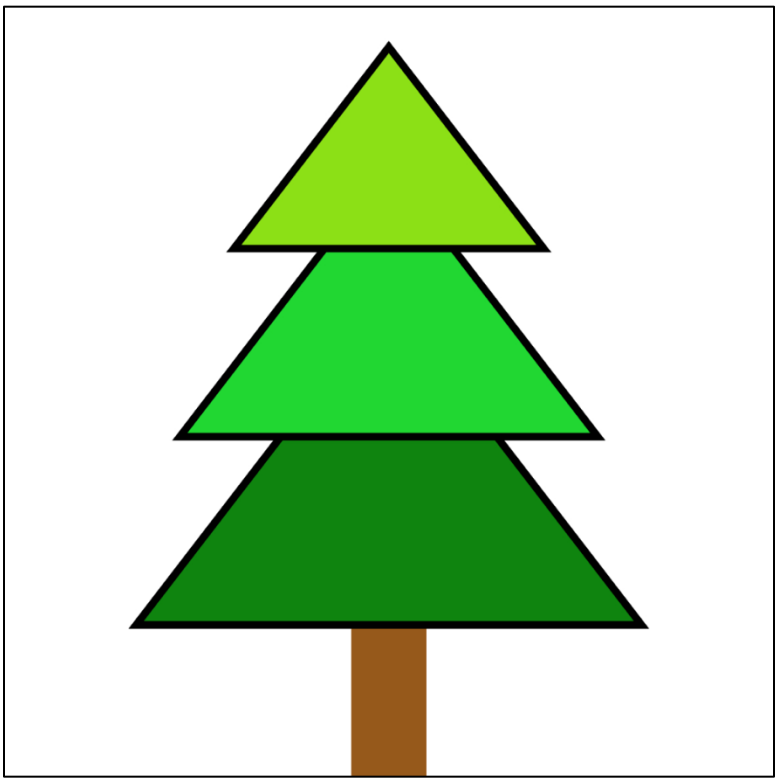

Figure 5 – App Icon

III Conclusion

7 Conclusion

The current version of the app successfully solves the problem I had of desiring an easy way to track progress toward the "30 plants a week" challenge. I am pleased with the added touch of selecting from an alphabetized list of my previously logged plants. I have previously used the IOS Notes app to track my progress. This app will save me a lot of time both in logging plants and viewing progress (daily and weekly) at a glance. I am excited to use this app going forward.

8 Future changes

The app is not yet hosted on the IOS App Store. This is a step I must take in the future to make this app accessible to others.

There are several other changes that I look forward to making in improving this project. In the Manage Log View, I think there should be a way to modify the previously logged items. Currently, you would have to delete one from the log and then re-log it. I'd like to make it so you can click on the item in the log and go to a screen similar to the "Log New Plant View", but to Update the Plant. This would have a cancel and save button.

Additionally, I think this app could be replicated similarly for water consumption. I wish to add a two-tab selection at the bottom of the screen to change between microbiome logger and water logger. In the water logging section, I envision a single progress bar (same design but in blue) for daily water consumption. When logging water, the user should be able to type the number of fluid ounces or ml that they consume.

For a premium model of the app, the user could save their custom water bottles, thus allowing them to click “32 Ounce Hydroflask” or “500 ml bottle” to log their liquids faster. Perhaps the premium version also comes with the ability to customize goals. Additionally, I could see the free version for microBiome only having the weekly progress bar, but the premium version unlocking custom daily and monthly plant goals. Lastly, I would imagine an end of year export to see all of the days (or weeks) where the user successfully met their goals. I’d imagine the premium version being priced at 99¢.

IV References / Bibliography

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