

Florida International University
Knight Foundation School of Computing and Information Sciences

Software Engineering Focus

Final Deliverable

Apple Watch Weight App

Team Members:

Capstone II: **Daniel Condly, Erick Gabriel Rivera, Jem Alvarez, Jonathan Rivero, Kevin Velazco**

Product Owner:

Jessica Ramella-Roman, Ph.D.

Instructor:

Masoud Sadjadi, Ph.D.

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Abstract

This document presents the information necessary to gain a good understanding of the Apple watch weight app. Weight app is a Swift application for iOS/watchOS that allows the user to track their weight through a bluetooth device. The user is also able to track their weight history on both the iPhone and Apple Watch devices through different mechanisms.

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INTRODUCTION

The product is used to deliver accurate results of their weight whatever their needs might be. This could be for several purposes such as personal health concerns or professional use. The application allows the user to see their weight progress for a set period of time and help them determine how they want to progress on their weight loss/gain journey, and also allows them to track their calorie intake.

This application also allows the user to definitively understand their weight progress through a period of time through multiple avenues of data presentation, and they will have a great understanding of where they stand on their journey.

Current System

In our continuation of last semester's development of this project, we were given the initial implementation of the application and have refined it. Both the iOS and watchOS applications share a similar design language and share the same data on which the graphs can be showcased. On both applications, a user can see their weight progress and have graphical representations of this, and their weight history. A login system was implemented where a user can have their credentials saved on an account. The settings page has been developed further to allow for a change in different weight conversions. These implementations have all been done through Swift storyboard and SwiftUI.

Purpose of New System

The intended purpose of this system is to have the weight tracking functionality with a bluetooth device which can then be connected to the user's iPhone and Apple Watch. Both these applications were created separately from one another and thus needed to be refined in order to share the same design language. The weight information will be shown on both the watch and smartphone, and the way in which this data is presented will be uniform across the platforms.

Both user interfaces are similar in addition to following the regular design products which are present in most Apple devices. The purpose of this was so that a user could instantly gain familiarity with it and associate it as an integral part of their iPhone/Apple Watch experience. From last semester's foundational work, the team sought out to improve the design of both apps to achieve the goal of familiarity. Sections which we inherited and improved upon were the watchOS/iOS graph view, iOS login, watchOS/iOS settings section, watchOS/iOS weight display. New sections which were created and worked on were the watchOS/iOS history view, watchOS calorie check, and watchOS statistics sections.

Currently the application is displaying hard coded data due to the bluetooth not being ready for use. In the future, this can be modified to have the device feeding accurate, real-time data to the system. Once the data is received by the system, the user can see it in the associated views such as the graph view on the iPhone and Apple Watch.

PROJECT PLAN

The plan for this project is to refine the codebase for future development and create directories that can easily be changed based on the request of the product owner. It was also important to implement a Firebase database connection for user accounts and data storage.

Hardware and Software Resources

The following is a list of all hardware and software resources that were used in this project:

- Any Mac product that can be updated to the latest version of MacOS.
- Any iPhone that can run iOS 16+.
- Any Apple Watch that can run WatchOS 9+.
- Xcode 14+.
- Swift
- SwiftUI

Sprints Planning

Sprint #1 Planning Meeting

Project: Development of an Apple Watch App Showcasing Weight

Attendees:

Product Owners:

- Jessica Ramella-Roman

Developers:

- Capstone 2
 - Daniel Condly (DC)
 - Kevin Velazco (KV)
 - Erick Gabriel Rivera (ER)
 - Jem Alvarez (JA)
 - Kenny Afonin (KA)
 - Jonathan Rivero (JR)

Date: 1/19/23

Start time: 6:00 PM

End time: 6:30 PM

After discussion, the velocity of the team was estimated to be 25

Sprint User Stories:

- User Story 1 – Install any necessary/required programs - 5
 - Description: Installed/Updated any required programs such as XCode or any other programs to be revealed with PO Meeting.
 - Assigned to: ALL
- User Story 2 – Create Github repository - 5
 - Description: Create a repository and assign feature/branches to members
 - Assigned to: ALL
- User Story 3 – Create a sample Apple watch app - 5
 - Description: To become familiar with Xcode and Swift or SwiftUI, we will all create a sample functioning watch application. Learning resources will be documented.
 - Assigned to: ALL
- User Story 4 - Read any documentation provided by the previous semester - 5
 - Description: Once all the documentation is provided, we shall read through all the documentation.
 - Assigned to: ALL
- User Story 5 – Meet with Product Owner - 5
 - Description: A meeting is set for 1/23 at 1pm with the product owner.
 - Assigned to: ALL

Sprint #2

Planning Meeting

Project: Development of an Apple Watch App Showcasing Weight

Attendees:

Product Owners:

- Jessica Ramella-Roman

Developers:

- Capstone 2
 - Daniel Condly (DC)
 - Kevin Velazco (KV)
 - Erick Gabriel Rivera (ER)
 - Jem Alvarez (JA)
 - Kenny Afonin (KA)
 - Jonathan Rivero (JR)

Date: 01/30/2023

Start time: 6:00 PM

End time: 6:30 PM

We estimate the total sprint will take 26 points

Sprint User Stories:

- User Story 1 – Live demo with bluetooth - 5
 - Description: Set up a meeting between the PO and current grad student working with the project. We will see how the bluetooth weight scale accessory works with the watch.
 - Assigned to: ALL
- User Story 2 – Update Git repository - 6
 - Description: Update the github repository. There will be a master branch merging all features into one. While in development, we will all fork individual features..
 - Assigned to: Kevin
- User Story 3 – Graph data - 5
 - Description: Look into the current situation on how a graph is being displayed and how information is added to the graph.
 - Assigned to: Jonathan Rivero
- User Story 4 - Settings Config - 5
 - Description: Look into the settings page on the phone, there could be more configuration options for the watch. Possibly add a bluetooth setting option to configure the weight scale.
 - Assigned to: Daniel
- User Story 5 – UI - 5
 - Description: Investigate and familiarize with Apple Watch UI - tweak for better UI/UX
 - Assigned to: Jem

Sprint #3

Planning Meeting

Project: Development of an Apple Watch App Showcasing Weight

Attendees:

Product Owners:

- Jessica Ramella-Roman

Developers:

- Capstone 2
 - Daniel Condly (DC)
 - Kevin Velazco (KV)
 - Erick Gabriel Rivera (ER)
 - Jem Alvarez (JA)
 - Jonathan Rivero (JR)

Date: 02/13/2023

Start time: 6:00 PM

End time: 6:30 PM

Sprint User Stories:

- User Story 1 – Login authentication and database configuration - 7
 - Description: Users need a way to log into the app and store their data on a database. Firebase will be used to handle this.
 - Assigned to: All members
- User Story 2 – Hard coded scale data - 5
 - Description: While a custom weight scale is in development, we will hard code data to replicate input from a weight scale.
 - Assigned to: Jonathan
- User Story 3 – Settings Page - 5
 - Description: A user needs a way to configure the bluetooth functionality and any connections made to the weight scale.
 - Assigned to: Daniel
- User Story 4 - UI/UX - 5
 - Description: The overall look and feel of the application can be improved to give the user a better experience.
 - Assigned to: Kevin and Jem
- User Story 5 – Finish the Login Page - 5
 - Description: Add some more fields such as DOB into the register screen and modify the weight variable from a String into an Int.
 - Assigned to: Erick
- User Story 6 – Design a BMI calculator to showcase to PO - 6
 - Description: Design a BMI Calculator so that the PO can consider whether they want to include it in the app.
 - Assigned to: Erick
- User Story 7 – Live demo with bluetooth - 5

- Description: Set up a meeting between the PO and current grad student working with the project. We will see how the bluetooth weight scale accessory works with the watch.
- Assigned to: ALL

Sprint #4 Planning Meeting

Project: Development of an Apple Watch App Showcasing Weight

Attendees:

Product Owners:

- Jessica Ramella-Roman

Developers:

- Capstone 2
 - Daniel Condly (DC)
 - Kevin Velazco (KV)
 - Erick Gabriel Rivera (ER)
 - Jem Alvarez (JA)
 - Jonathan Rivero (JR)

Date: 03/06/23

Start time: 6:00 PM

End time: 6:30 PM

Sprint User Stories:

- User Story 1 – Login authentication and database configuration - 7
 - Description: Users need a way to log into the app and store their data on a database. Firebase will be used to handle this.
 - Assigned to: All members
- User Story 2 – Hard coded scale data - 5
 - Description: While a custom weight scale is in development, we will hard code data to replicate input from a weight scale and prepare for inverting data from the bluetooth device.
 - Assigned to: Jonathan
- User Story 3 – Settings Page - 5
 - Description: A user needs a way to configure the bluetooth functionality and any connections made to the weight scale.
 - Assigned to: Daniel
- User Story 4 - UI/UX - 5
 - Description: The overall look and feel of the application can be improved to give the user a better experience.
 - Assigned to: Kevin and Jem
- User Story 5 – Finish the Login Page - 5

- Description: Add some more fields such as DOB into the register screen and modify the weight variable from a String into an Int.
- Assigned to: Erick
- User Story 6 – Design a BMI calculator to showcase to PO - 6
 - Description: Design a BMI Calculator so that the PO can consider whether they want to include it in the app.
 - Assigned to: Erick
- User Story 7 – Live demo with bluetooth - 5
 - Description: Set up a meeting between the PO and current grad student working with the project. We will see how the bluetooth weight scale accessory works with the watch.
 - Assigned to: ALL

Sprint #5 Planning Meeting

Project: Development of an Apple Watch App Showcasing Weight

Attendees:

Product Owners:

- Jessica Ramella-Roman

Developers:

- Capstone 2
 - Daniel Condly (DC)
 - Kevin Velazco (KV)
 - Erick Gabriel Rivera (ER)
 - Jem Alvarez (JA)
 - Jonathan Rivero (JR)

Date: 03/20/23

Start time: 6:00 PM

End time: 6:30 PM

Sprint User Stories:

Sprint User Stories:

- User Story 1 – Login authentication and database configuration - 7
 - Description: Users need a way to log into the app and store their data on a database. Firebase will be used to handle this.
 - Assigned to: All members
- User Story 2 – Hard coded scale data - 5

- Description: Implement a statistics page using data from the graph.
- Assigned to: Jonathan

- User Story 3 – Settings Page - 5
 - Description: A user needs a way to configure the bluetooth functionality and any connections made to the weight scale.
 - Assigned to: Daniel
- User Story 4 - UI/UX - 5
 - Description: The overall look and feel of the application can be improved to give the user a better experience.
 - Assigned to: Kevin and Jem
- User Story 5 – Finish the Login Page - 5
 - Description: Add some more fields such as DOB into the register screen and modify the weight variable from a String into an Int.
 - Assigned to: Erick
- User Story 6 – Design a BMI calculator to showcase to PO - 6
 - Description: Design a BMI Calculator so that the PO can consider whether they want to include it in the app.
 - Assigned to: Erick

Sprint #6 Planning Meeting

Project: Development of an Apple Watch App Showcasing Weight

Attendees:

Product Owners:

- Jessica Ramella-Roman

Developers:

- Capstone 2
 - Daniel Condly (DC)
 - Kevin Velazco (KV)
 - Erick Gabriel Rivera (ER)
 - Jem Alvarez (JA)
 - Jonathan Rivero (JR)

Date: 04/03/2023

Start time: 6:00 PM

End time: 6:30 PM

Sprint User Stories:

- User Story 1 – Login authentication and database configuration - 7
 - Description: Users need a way to log into the app and store their data on a database. Firebase will be used to handle this.

- Assigned to: All members
- User Story 2 – Hard coded scale data - 5
 - Description: Implement a statistics page using data from the graph.
 - Assigned to: Jonathan
- User Story 3 – Settings Page - 5
 - Description: A user needs a way to configure the bluetooth functionality and any connections made to the weight scale.
 - Assigned to: Daniel
- User Story 4 - UI/UX - 5
 - Description: The overall look and feel of the application can be improved to give the user a better experience.
 - Assigned to: Kevin and Jem
- User Story 5 – Finish the Login Page - 5
 - Description: Add some more fields such as DOB into the register screen and modify the weight variable from a String into an Int.
 - Assigned to: Erick
- User Story 6 – Design a BMI calculator to showcase to PO - 6
 - Description: Design a BMI Calculator so that the PO can consider whether they want to include it in the app.
 - Assigned to: Erick

Sprint #7 Planning Meeting

Project: Development of an Apple Watch App Showcasing Weight

Attendees:

Product Owners:

- Jessica Ramella-Roman

Developers:

- Capstone 2
 - Daniel Condly (DC)
 - Kevin Velazco (KV)
 - Erick Gabriel Rivera (ER)
 - Jem Alvarez (JA)
 - Jonathan Rivero (JR)

Date: 04/17/2023

Start time: 6:00 PM

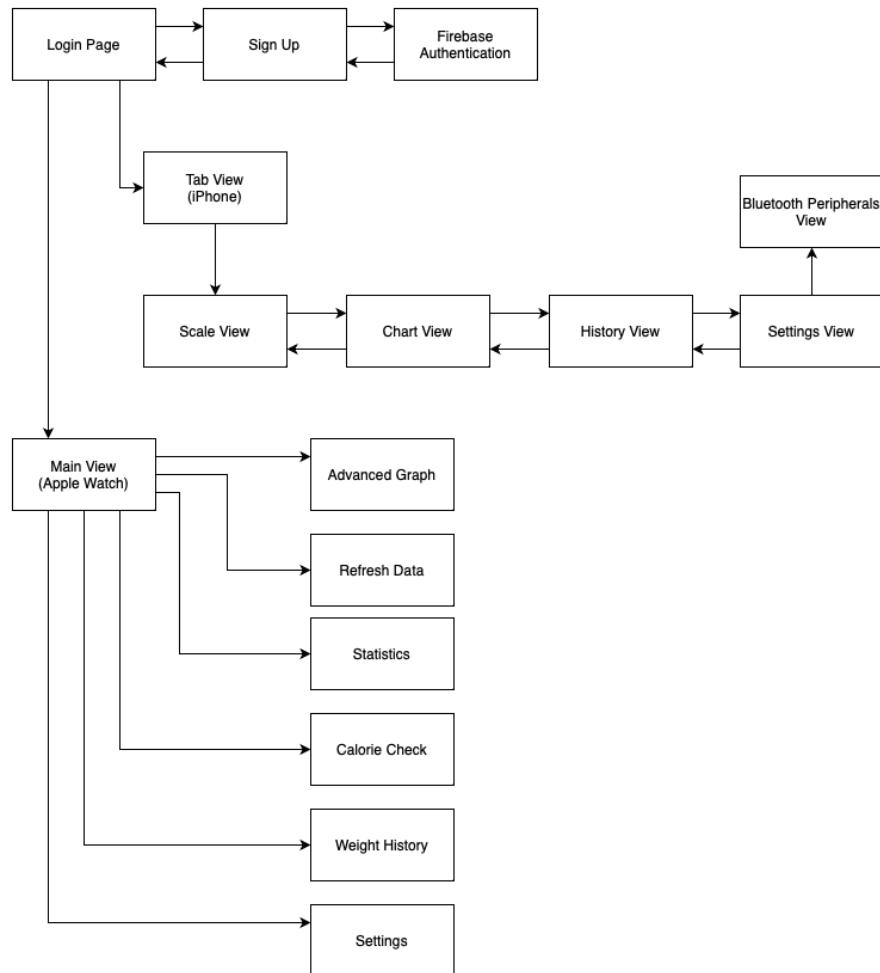
End time: 6:30 PM

Sprint User Stories:

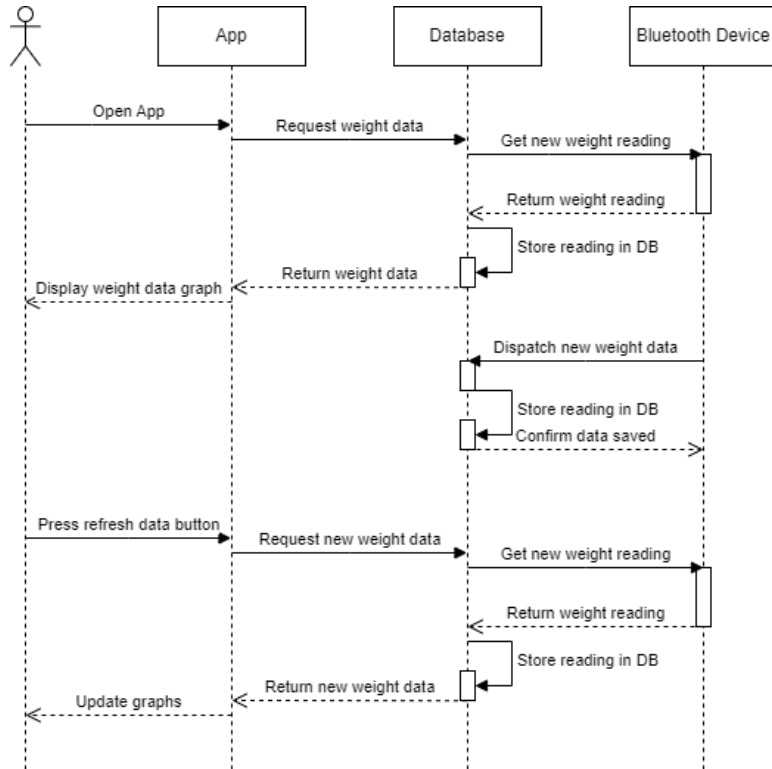
- User Story 1 – Posters
 - Description: Refine and finalize posters
 - Assigned to: All members
- User Story 2 – Video Demo
 - Description: Record video demo, upload to youtube.
 - Assigned to: All members
- User Story 2 – Presentation Slides
 - Description: Create showcase presentation slides
 - Assigned to: All members

SYSTEM DESIGN

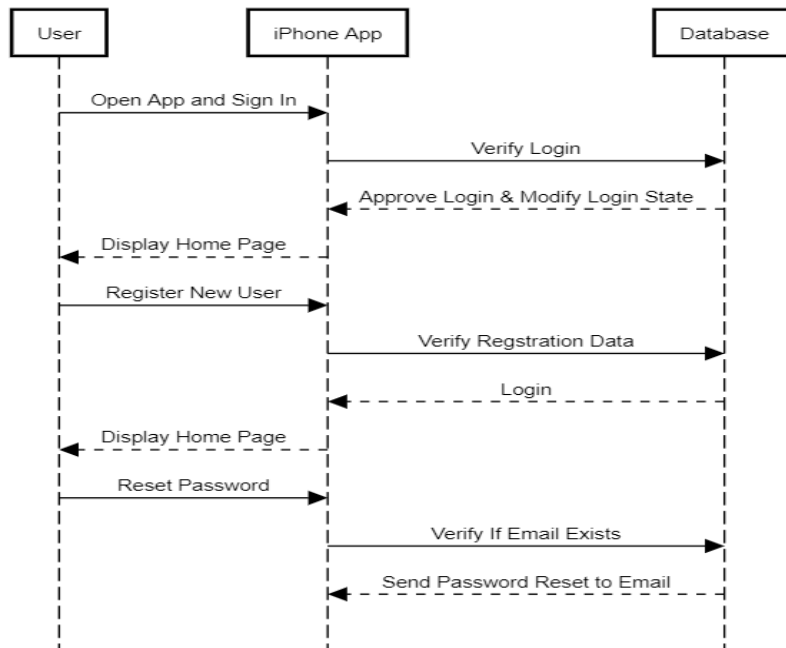
Architectural Patterns



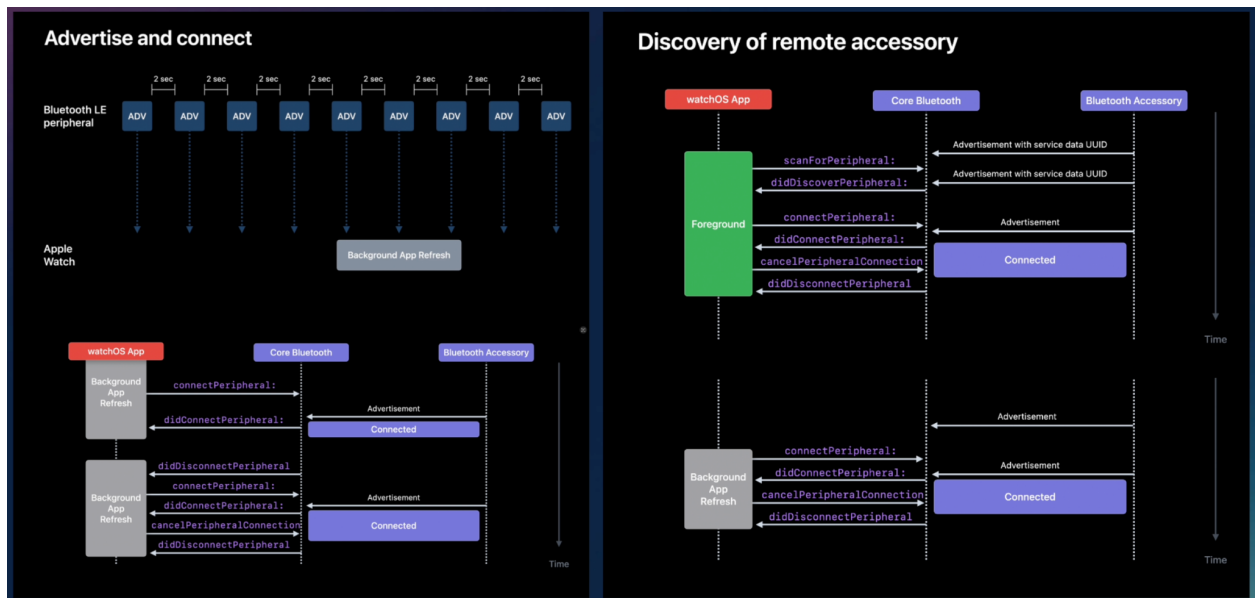
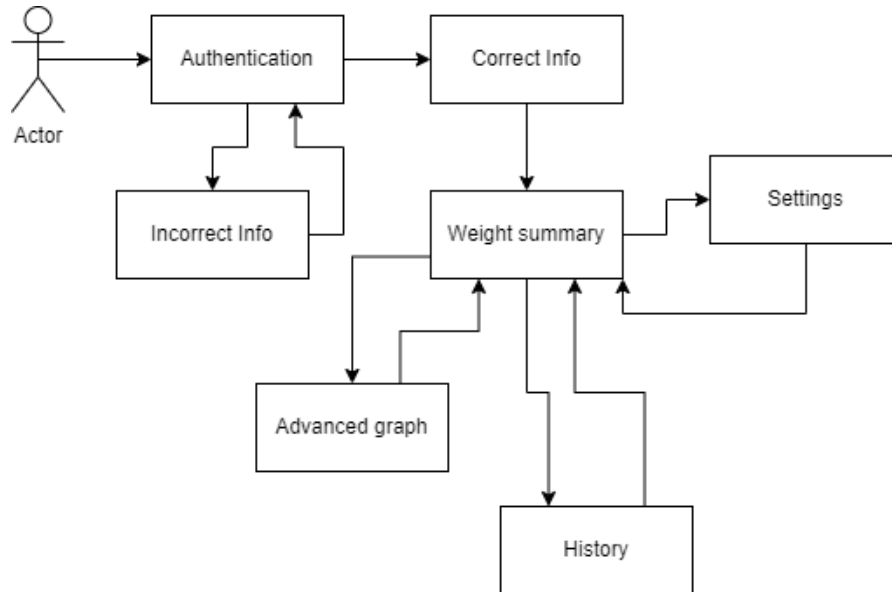
System Sequence Diagram



Login



Object Diagram



SYSTEM VALIDATION

System Test Case #01	
System Test Case: User Login	
User Story: Implementing Login	
Purpose: To keep the user data secure	
Pre-Conditions:	Before accessing any user sensitive data, the App must check the users Authentication state with Firebase.
Expected Results:	If the Authentication state is false, the user is either logged out or directed to login/register page. Once they login, the authentication state is changed to true, and the user is to be redirected to the homepage.
Actual Results:	The Authentication state is false, the user is either logged out or directed to login/register page. Once they login, the authentication state is changed to true, and the user is redirected to the homepage.
Status:	Pass

System Test Case #02	
System Test Case: WatchOS Graphs/App UI/UX	
User Story: WatchOS UI/UX	
Purpose: Expand and improve UI/UX of the existing watch app	
Pre-Conditions:	Open WatchOS app and see information
Expected Results:	User should be able to see graph and summary information, as well as action buttons.
Actual Results:	User is able to see a graph displaying weight data, with markers for better readability, and buttons to see detailed graph and settings.
Status:	Pass

System Test Case #03

System Test Case: WatchOS Graphs/Statistics

User Story: WatchOS Statistics

Purpose: Implement Statistics page for watch app using existing graph data

Pre-Conditions:	User should be able to see statistic as a percentage and description of what the stat means, depending on which format is chosen.
Expected Results:	If the Authentication state is false, the user is either logged out or directed to login/register page. Once they login, the authentication state is changed to true, and the user is to be redirected to the homepage.
Actual Results:	User should be able to see statistic as a percentage and description of what the stat means, depending on which format is chosen. The user can see through the color of the percentage (green/red) to determine if the weight goal is met.
Status:	Pass

System Test Case #04

System Test Case: History View

User Story: iOS UI/UX Improvements

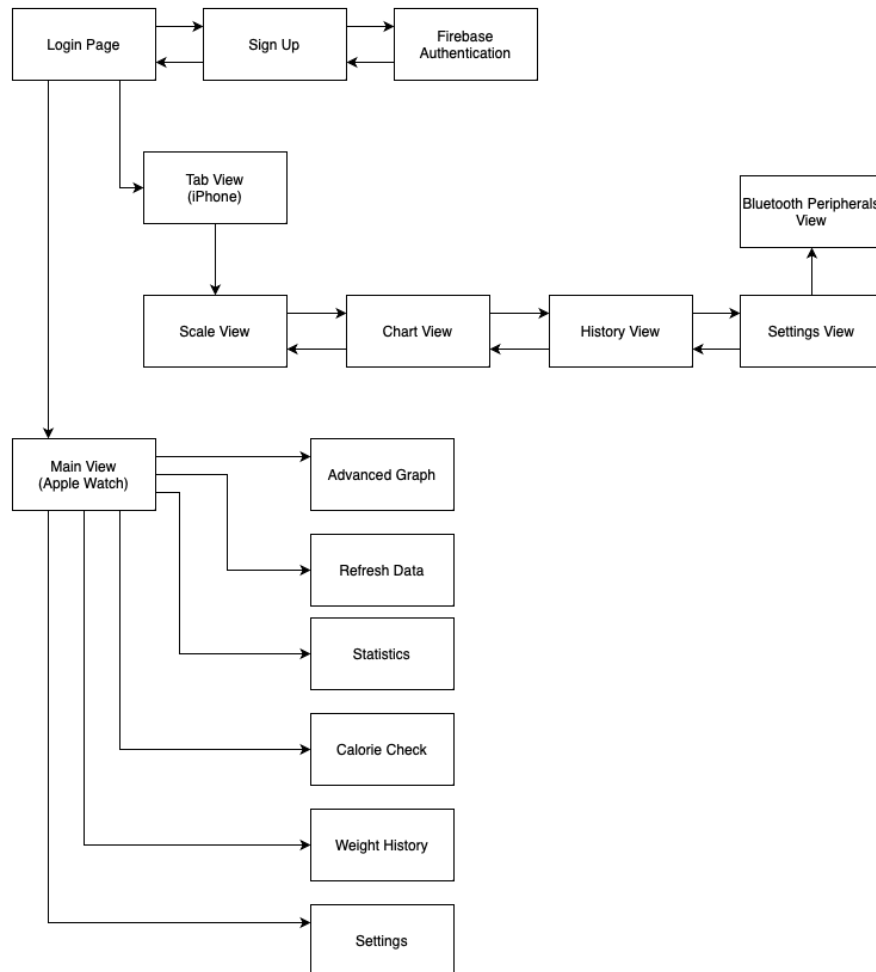
Purpose: To display previous weight data by date.

Pre-Conditions:	A user must be in the History tab.
Expected Results:	Previously recorded weight data must be shown. It must include weight, time taken and date. It must also be sorted from most recent to oldest.
Actual Results:	When the history tab is selected, the user can see their recorded weight data history from newest to oldest and scroll if necessary.
Status:	Pass

APPENDIX

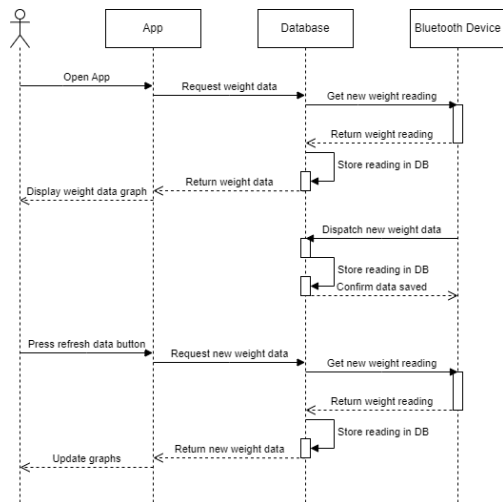
Appendix A - UML Diagrams

Architectural Pattern

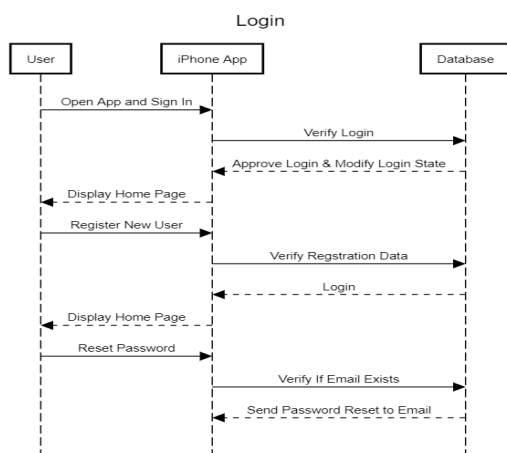


Sequence Diagrams:

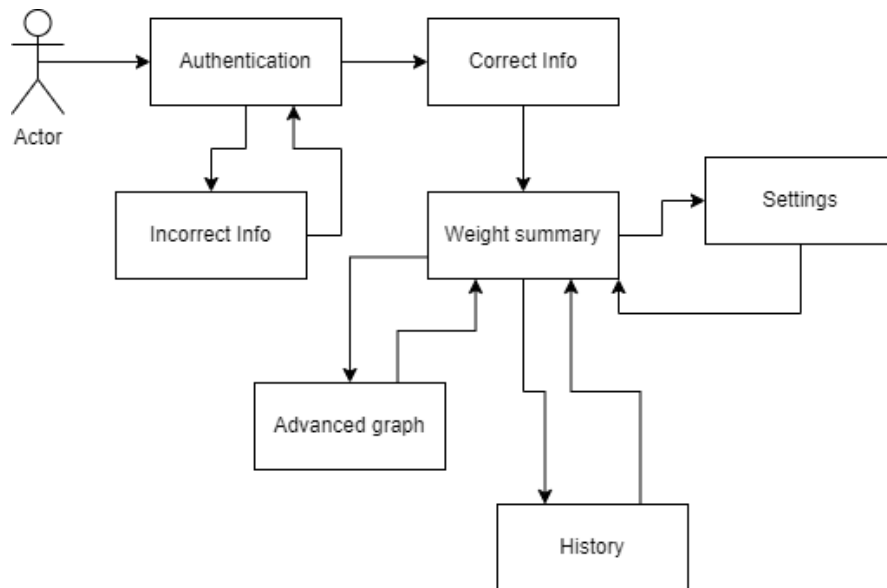
Weight Data -



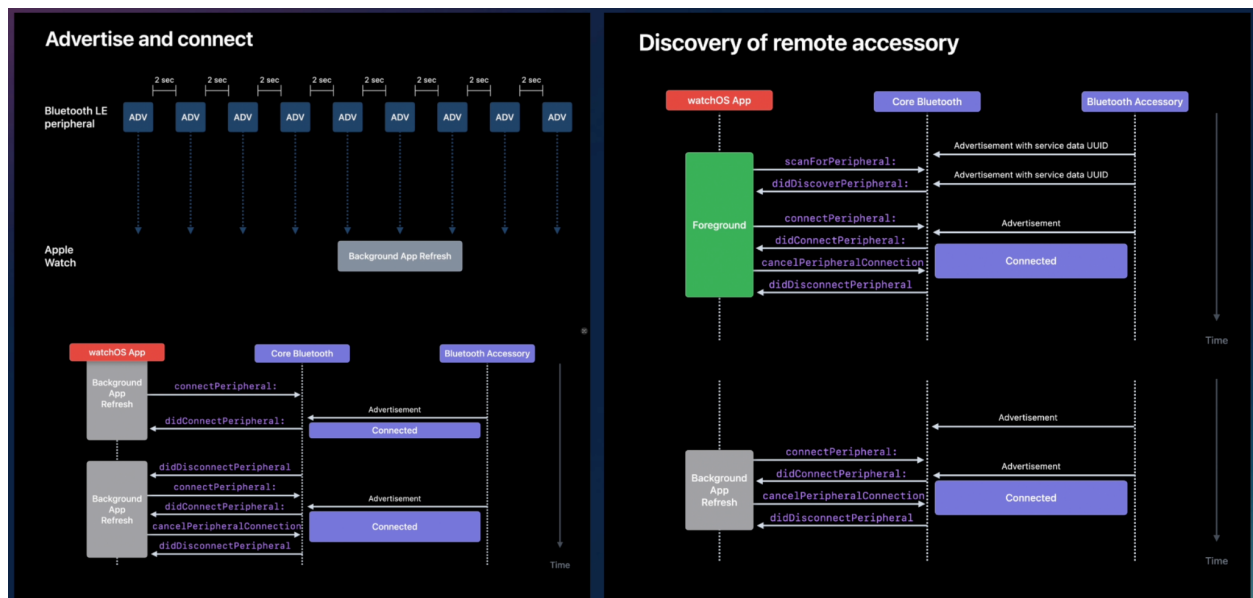
Login



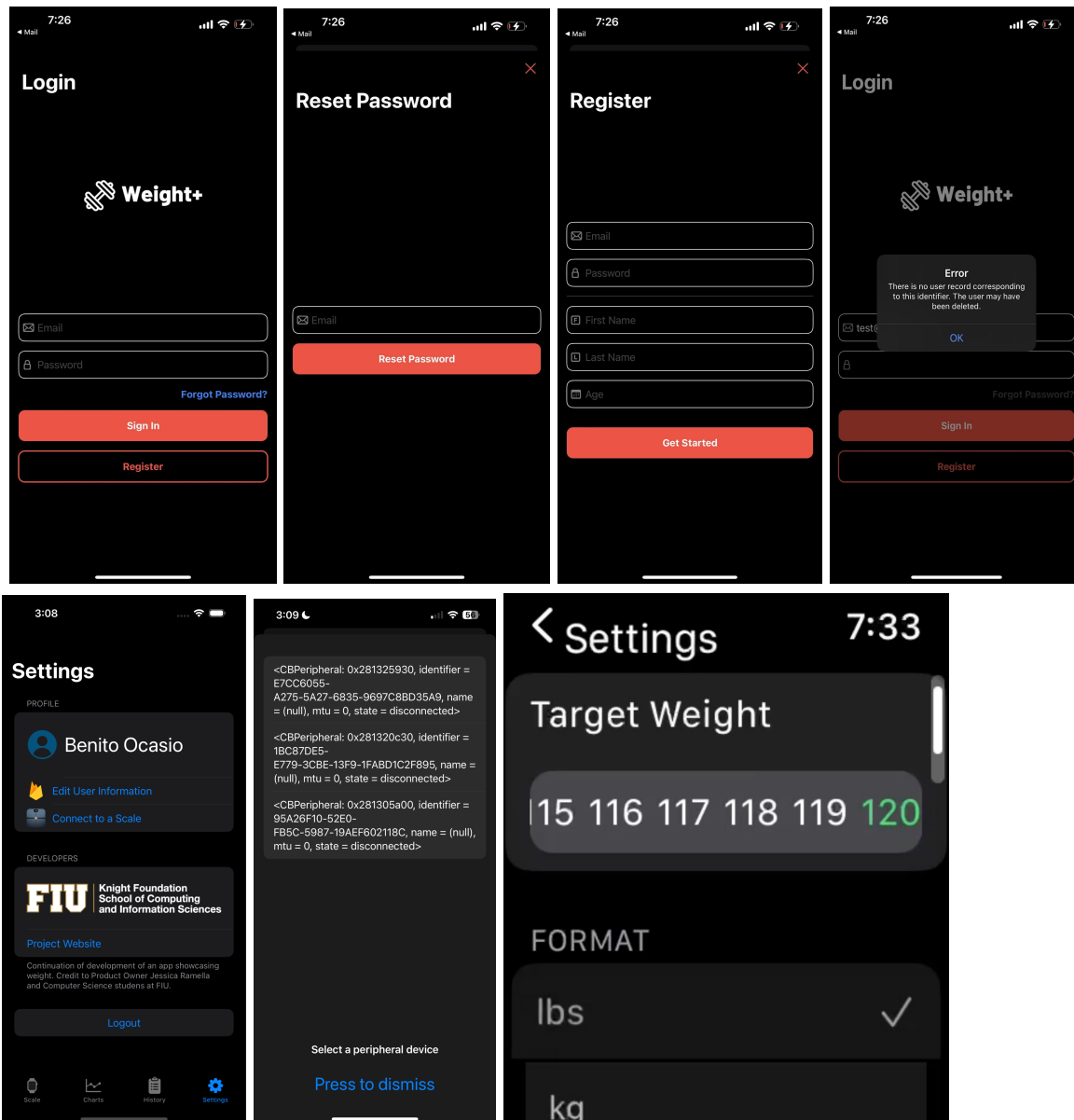
Object Design

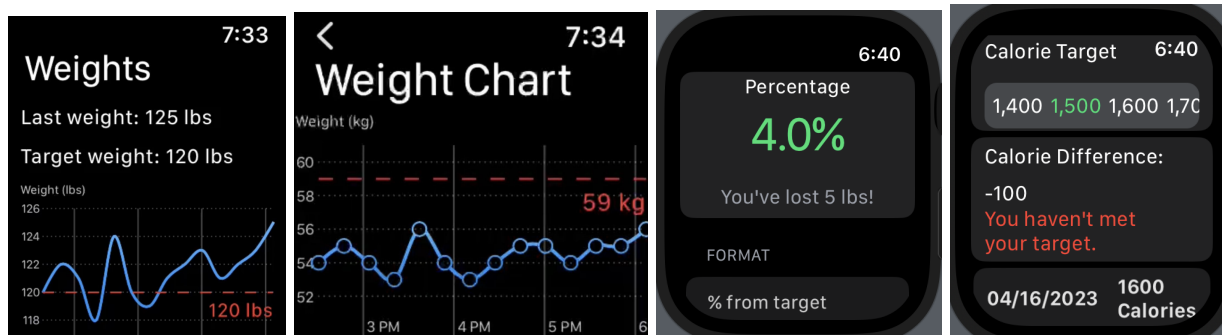
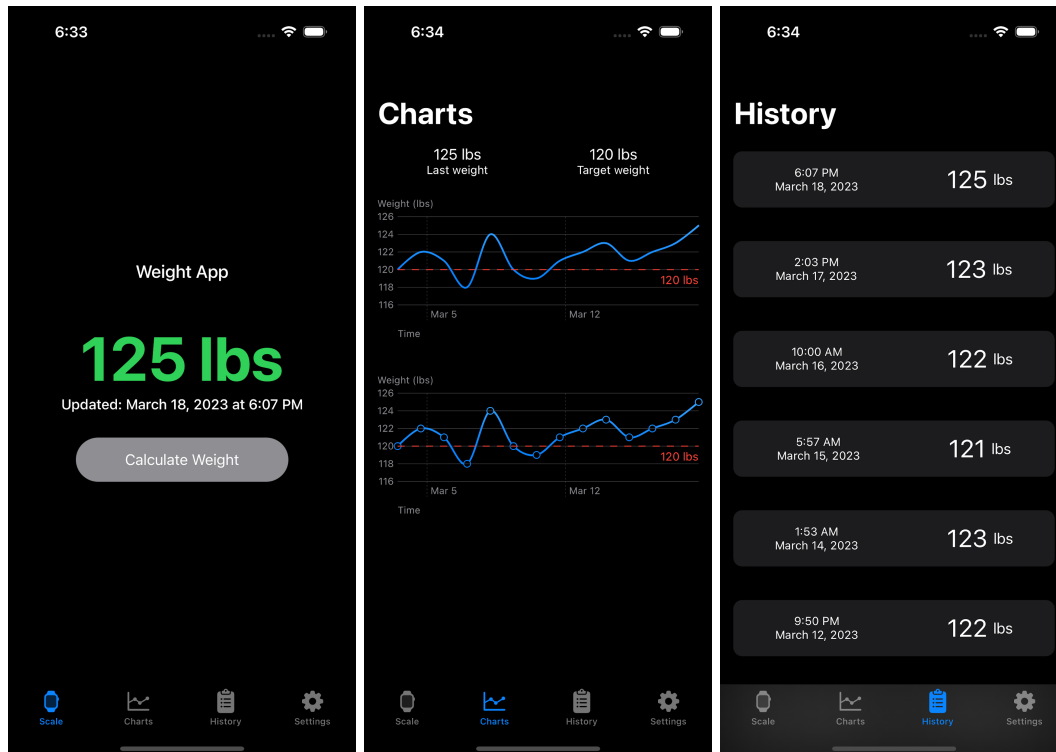


Apple Core Bluetooth Object Protocol



Appendix B - User Interface Design





Appendix C - Sprint Review Reports

Sprint #1 Review Meeting

Project: Development of an Apple Watch App Showcasing Weight

Attendees:

Product Owners:

- Jessica Ramella-Roman

Developers:

- Capstone 2
 - Daniel Condly (DC)
 - Kevin Velazco (KV)
 - Erick Gabriel Rivera (ER)
 - Jem Alvarez (JA)
 - Kenny Afonin (KA)
 - Jonathan Rivero (JR)

Date: 01/29/23

Start time: 6:00 PM

End time: 6:30 PM

After a show and tell presentation, the implementation of the following user stories were accepted by the product owners:

- User Story 1 – Install any necessary/required programs - 5
 - Description: Installed/Updated any required programs such as XCode or any other programs to be revealed with PO Meeting.
 - Assigned to: ALL
- User Story 2 – Create Github repository - 5
 - Description: Create a repository and assign feature/branches to members
 - Assigned to: ALL
- User Story 3 – Create a sample Apple watch app - 5
 - Description: To become familiar with Xcode and Swift or SwiftUI, we will all create a sample functioning watch application. Learning resources will be documented.
 - Assigned to: ALL
- User Story 4 - Read any documentation provided by the previous semester - 5
 - Description: Once all the documentation is provided, we shall read through all the documentation.
 - Assigned to: ALL
- User Story 5 – Meet with Product Owner - 5
 - Description: A meeting is set for 1/23 at 1pm with the product owner.
 - Assigned to: ALL

Sprint #2 Review Meeting

Project: Development of an Apple Watch App Showcasing Weight

Attendees:

Product Owners:

- Jessica Ramella-Roman

Developers:

- Capstone 2
 - Daniel Condly (DC)
 - Kevin Velazco (KV)
 - Erick Gabriel Rivera (ER)
 - Jem Alvarez (JA)
 - Jonathan Rivero (JR)

Date: 02/12/23

Start time: 6:00 PM

End time: 6:30 PM

After a show and tell presentation, the implementation of the following user stories were accepted by the product owners:

- User Story 1 – Live demo with bluetooth - 5
 - Description: Set up a meeting between the PO and current grad student working with the project. We will see how the bluetooth weight scale accessory works with the watch.
 - Assigned to: ALL
- User Story 2 – Update Git repository - 6
 - Description: Update the github repository. There will be a master branch merging all features into one. While in development, we will all fork individual features..
 - Assigned to: Kevin
- User Story 3 – Graph data - 5
 - Description: Look into the current situation on how a graph is being displayed and how information is added to the graph.
 - Assigned to: Jonathan Rivero
- User Story 4 - Settings Config - 5
 - Description: Look into the settings page on the phone, there could be more configuration options for the watch. Possibly add a bluetooth setting option to configure the weight scale.
 - Assigned to: Daniel
- User Story 5 – UI - 5
 - Description: Investigate and familiarize with Apple Watch UI - tweak for better UI/UX
 - Assigned to: Jem
 -
- User Story 6 – Login Page - 6

- Description: Design and create the new Login Page
- Assigned to: Erick

Sprint #3 **Review Meeting**

Project: Development of an Apple Watch App Showcasing Weight

Attendees:

Product Owners:

- Jessica Ramella-Roman

Developers:

- Capstone 2
 - Daniel Condly (DC)
 - Kevin Velazco (KV)
 - Erick Gabriel Rivera (ER)
 - Jem Alvarez (JA)
 - Jonathan Rivero (JR)

Date: 2/26/23

Start time: 6:00 PM

End time: 6:30 PM

After a show and tell presentation, the implementation of the following user stories were accepted by the product owners:

- User Story 1 – Login authentication and database configuration - 7
 - Description: Users need a way to log into the app and store their data on a database. Firebase will be used to handle this.
 - Assigned to: All members
- User Story 2 – Hard coded scale data - 5
 - Description: While a custom weight scale is in development, we will hard code data to replicate input from a weight scale.
 - Assigned to: Jonathan
- User Story 3 – Settings Page - 5
 - Description: A user needs a way to configure the bluetooth functionality and any connections made to the weight scale.
 - Assigned to: Daniel
- User Story 4 - UI/UX - 5
 - Description: The overall look and feel of the application can be improved to give the user a better experience.
 - Assigned to: Kevin and Jem
- User Story 5 – Finish the Login Page - 5
 - Description: Add some more fields such as DOB into the register screen and modify the weight variable from a String into an Int.
 - Assigned to: Erick
- User Story 6 – Design a BMI calculator to showcase to PO - 6

- Description: Design a BMI Calculator so that the PO can consider whether they want to include it in the app.
 - Assigned to: Erick
- User Story 7 – Live demo with bluetooth - 5
 - Description: Set up a meeting between the PO and current grad student working with the project. We will see how the bluetooth weight scale accessory works with the watch.
 - Assigned to: ALL

Sprint #4 Review Meeting

Project: Development of an Apple Watch App Showcasing Weight

Attendees:

Product Owners:

- Jessica Ramella-Roman

Developers:

- Capstone 2
 - Daniel Condly (DC)
 - Kevin Velazco (KV)
 - Erick Gabriel Rivera (ER)
 - Jem Alvarez (JA)
 - Jonathan Rivero (JR)

Date: 03/19/23

Start time: 6:00 PM

End time: 6:30 PM

After a show and tell presentation, the implementation of the following user stories were accepted by the product owners:

- User Story 1 – Login authentication and database configuration - 7
 - Description: Users need a way to log into the app and store their data on a database. Firebase will be used to handle this.
 - Assigned to: All members
- User Story 2 – Hard coded scale data - 5
 - Description: While a custom weight scale is in development, we will hard code data to replicate input from a weight scale.
 - Assigned to: Jonathan
- User Story 3 – Settings Page - 5
 - Description: A user needs a way to configure the bluetooth functionality and any connections made to the weight scale.
 - Assigned to: Daniel

- User Story 4 - UI/UX - 5
 - Description: The overall look and feel of the application can be improved to give the user a better experience.
 - Assigned to: Kevin and Jem
- User Story 5 – Finish the Login Page - 5
 - Description: Add some more fields such as DOB into the register screen and modify the weight variable from a String into an Int.
 - Assigned to: Erick
- User Story 6 – Design a BMI calculator to showcase to PO - 6
 - Description: Design a BMI Calculator so that the PO can consider whether they want to include it in the app.
 - Assigned to: Erick
- User Story 7 – Live demo with bluetooth - 5
 - Description: Set up a meeting between the PO and current grad student working with the project. We will see how the bluetooth weight scale accessory works with the watch.
 - Assigned to: ALL

Sprint #5 Review Meeting

Project: Development of an Apple Watch App Showcasing Weight

Attendees:

Product Owners:

- Jessica Ramella-Roman

Developers:

- Capstone 2
 - Daniel Condly (DC)
 - Kevin Velazco (KV)
 - Erick Gabriel Rivera (ER)
 - Jem Alvarez (JA)
 - Jonathan Rivero (JR)

Date: 04/02/2023

Start time: 6:00 PM

End time: 6:30 PM

After a show and tell presentation, the implementation of the following user stories were accepted by the product owners:

- User Story 1 – Login authentication and database configuration - 7

- Description: Users need a way to log into the app and store their data on a database. Firebase will be used to handle this.
- Assigned to: All members

- User Story 2 – Hard coded scale data - 5
 - Description: Implement a statistics page using data from the graph.
 - Assigned to: Jonathan

- User Story 3 – Settings Page - 5
 - Description: A user needs a way to configure the bluetooth functionally and any connections made to the weight scale.
 - Assigned to: Daniel

- User Story 4 - UI/UX - 5
 - Description: The overall look and feel of the application can be improved to give the user a better experience.
 - Assigned to: Kevin and Jem

- User Story 5 – Finish the Login Page - 5
 - Description: Add some more fields such as DOB into the register screen and modify the weight variable from a String into an Int.
 - Assigned to: Erick

- User Story 6 – Design a BMI calculator to showcase to PO - 6
 - Description: Design a BMI Calculator so that the PO can consider whether they want to include it in the app.
 - Assigned to: Erick

- User Story 7 – Live demo with bluetooth - 5
 - Description: Set up a meeting between the PO and current grad student working with the project. We will see how the bluetooth weight scale accessory works with the watch.
 - Assigned to: ALL

Sprint #6 Review Meeting

Project: Development of an Apple Watch App Showcasing Weight

Attendees:

Product Owners:

- Jessica Ramella-Roman

Developers:

- Capstone 2

- Daniel Condly (DC)
- Kevin Velazco (KV)
- Erick Gabriel Rivera (ER)
- Jem Alvarez (JA)
- Jonathan Rivero (JR)

Date: 04/16/2023

Start time: 6:00 PM

End time: 6:30 PM

After a show and tell presentation, the implementation of the following user stories were accepted by the product owners:

- User Story 1 – Login authentication and database configuration - 7
 - Description: Users need a way to log into the app and store their data on a database. Firebase will be used to handle this.
 - Assigned to: All members
- User Story 2 – Hard coded scale data - 5
 - Description: Implement a statistics page using data from the graph.
 - Assigned to: Jonathan
- User Story 3 – Settings Page - 5
 - Description: A user needs a way to configure the bluetooth functionality and any connections made to the weight scale.
 - Assigned to: Daniel
- User Story 4 - UI/UX - 5
 - Description: The overall look and feel of the application can be improved to give the user a better experience.
 - Assigned to: Kevin and Jem
- User Story 5 – Finish the Login Page - 5
 - Description: Add some more fields such as DOB into the register screen and modify the weight variable from a String into an Int.
 - Assigned to: Erick
- User Story 6 – Design a BMI calculator to showcase to PO - 6
 - Description: Design a BMI Calculator so that the PO can consider whether they want to include it in the app.
 - Assigned to: Erick
- User Story 7 – Live demo with bluetooth - 5
 - Description: Set up a meeting between the PO and current grad student working with the project. We will see how the bluetooth weight scale accessory works with the watch.
 - Assigned to: ALL

Appendix D - User Manuals, Installation/Maintenance Document, Shortcomings/Wishlist Document and other documents

INSTALLATION GUIDE

Requirements

- Any Mac computer updated to the latest version of MacOS (current build runs on MacOS version 13).
- Xcode updated to the latest version (14+).
- Github account or source code.
- Firebase Project.

Recommendations

- An iOS device that can run iOS 16+.
- An Apple Watch that can run WatchOS 9+.

Installation

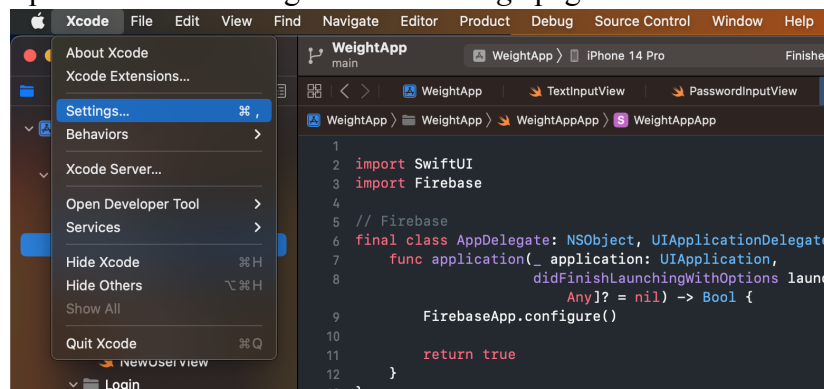
If you are starting with source code, have one person upload it to Github as a repository. This will be the main branch. Then, all members of the team may follow these steps.

Github Setup

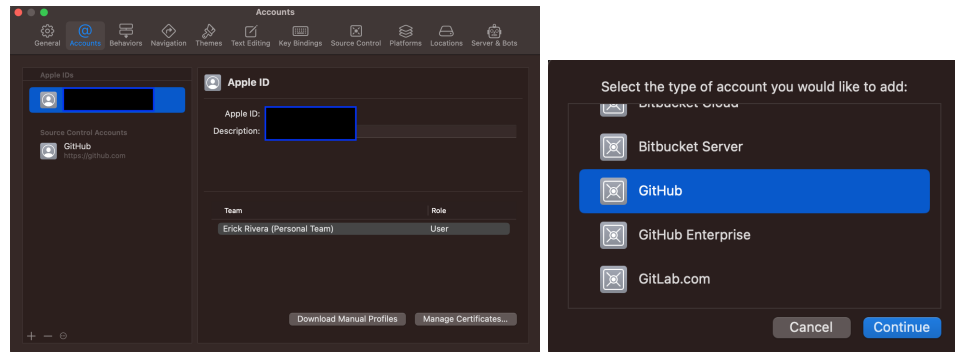
1. Linking your Github account to Xcode.
 - a. Configure Github on your Mac by copy/pasting the following lines into the devices terminal.

```
git config --global user.name "username"  
git config --global user.email "test@test.com"
```

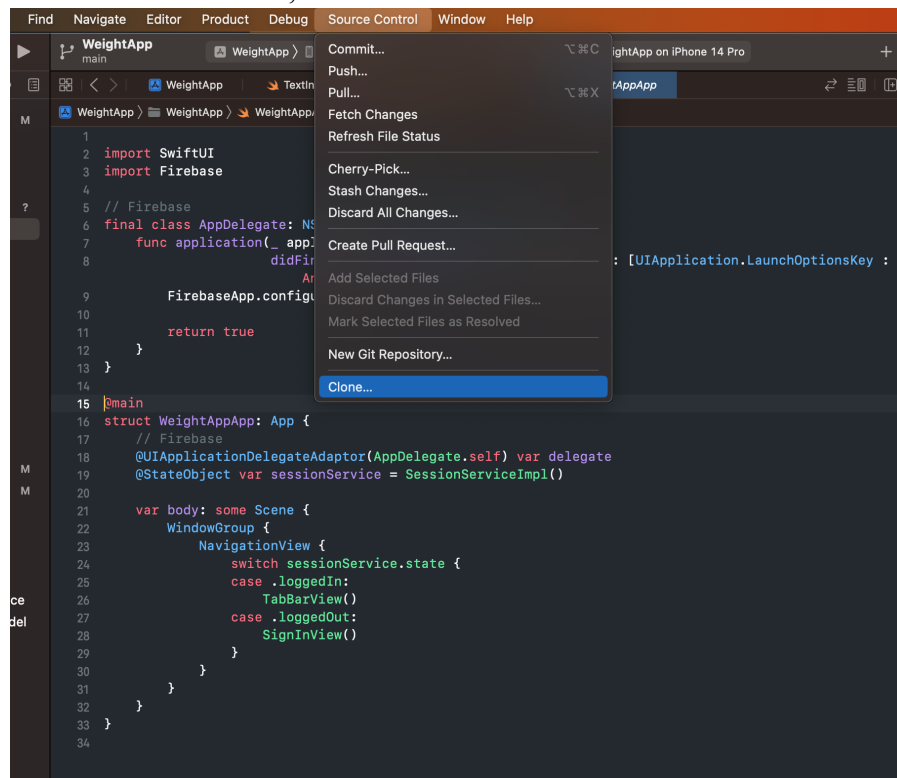
- b. Add your Github account to Xcode.
 - i. Open Xcode and navigate to the *Settings* page.



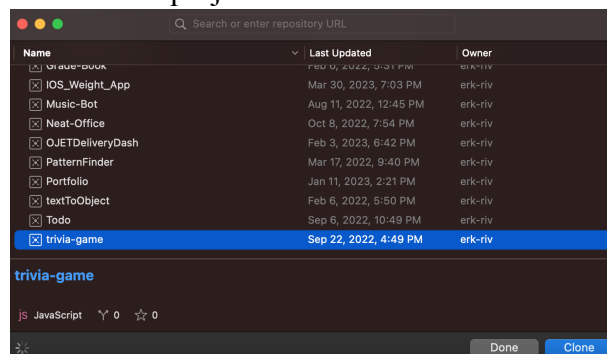
- ii. Navigate to *Accounts*, then click the + at the bottom of the window and select *Github*.



- iii. Enter the Github Account username and Personal Access Token.
(Skip to Step 2 for the guide on creating the PAT)
- iv. Under *Source Control*, select *Clone*.



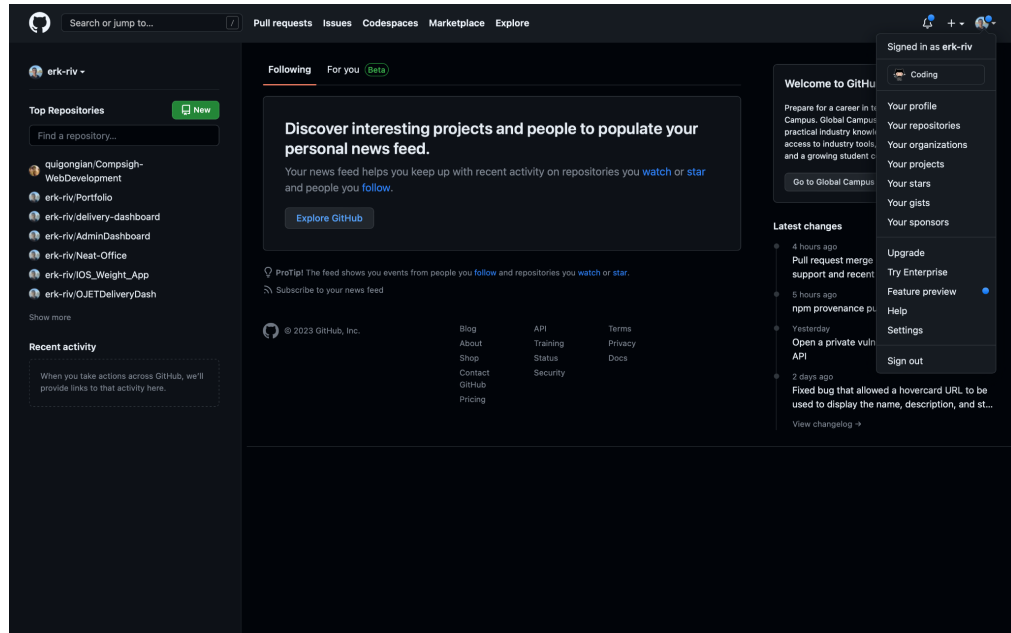
- v. Click on the project to be cloned and click *Clone*.



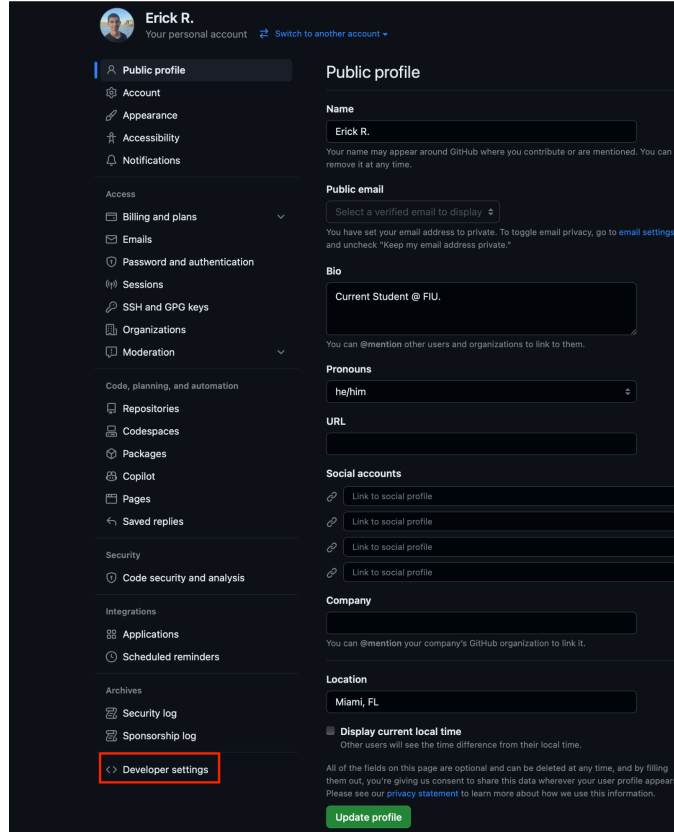
vi. Skip to Step 3.

2. Creating Personal Access Token

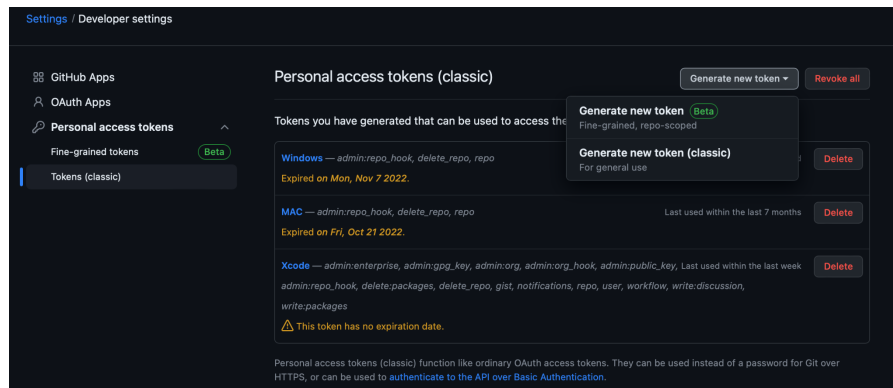
a. Once you're signed into Github. Head over to the *Settings* page on the top right.



b. Click on *Developer Settings* on the bottom left.



- c. Then click on *Personal Access Tokens* → *Generate New Token*



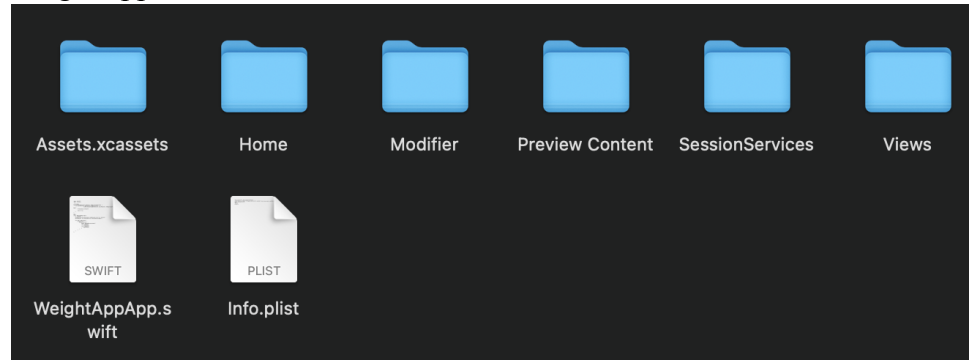
- d. Finally name your token and select *repo*, *admin:public_key*, *notifications*, *user*, and *delete_repo*.

Select scopes

Scopes define the access for personal tokens. [Read more about OAuth scopes.](#)

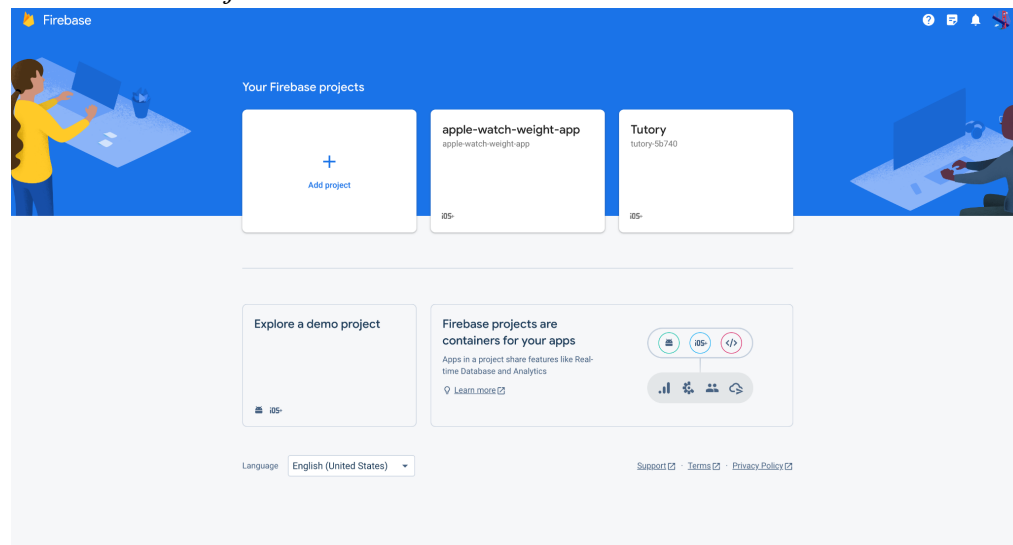
☒ repo	Full control of private repositories
☒ repo:status	Access commit status
☒ repo_deployment	Access deployment status
☒ public_repo	Access public repositories
☒ repo:invite	Access repository invitations
☒ security_events	Read and write security events
☐ workflow	Update GitHub Action workflows
☐ write:packages	Upload packages to GitHub Package Registry
☐ read:packages	Download packages from GitHub Package Registry
☐ delete:packages	Delete packages from GitHub Package Registry
☐ admin:org	Full control of orgs and teams, read and write org projects
☐ write:org	Read and write org and team membership, read and write org projects
☐ read:org	Read org and team membership, read org projects
☐ manage_runners:org	Manage org runners and runner groups
☒ admin:public_key	Full control of user public keys
☒ write:public_key	Write user public keys
☒ read:public_key	Read user public keys
☐ admin:repo_hook	Full control of repository hooks
☐ write:repo_hook	Write repository hooks
☐ read:repo_hook	Read repository hooks
☐ admin:org_hook	Full control of organization hooks
☐ gist	Create gists
☒ notifications	Access notifications
☒ user	Update ALL user data
☒ read:user	Read ALL user profile data
☒ user:email	Access user email addresses (read-only)
☒ user:follow	Follow and unfollow users
☒ delete_repo	Delete repositories

- e. Return back to Step 1.
- 3. Starting up the project.
 - a. Open the project and run the build.
 - b. If an Info.plist error occurs, make sure the Info.plist file is present in the WeightApp folder.



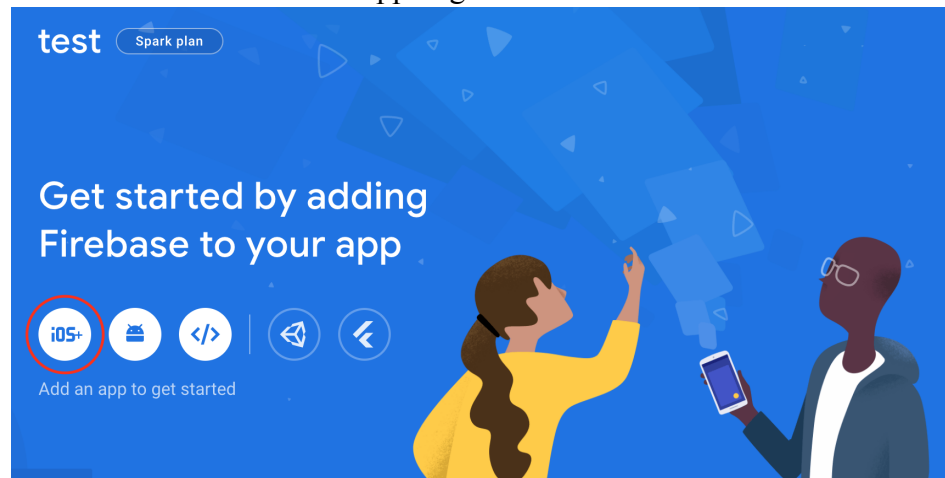
Usability

- 1. Replacing or Adding the GoogleService-Info.plist file.
 - a. Visit <https://firebase.google.com/> and create a new account or login to an existing account.
 - b. Hit *Go to Console*.
 - c. Press on *Add Project*.

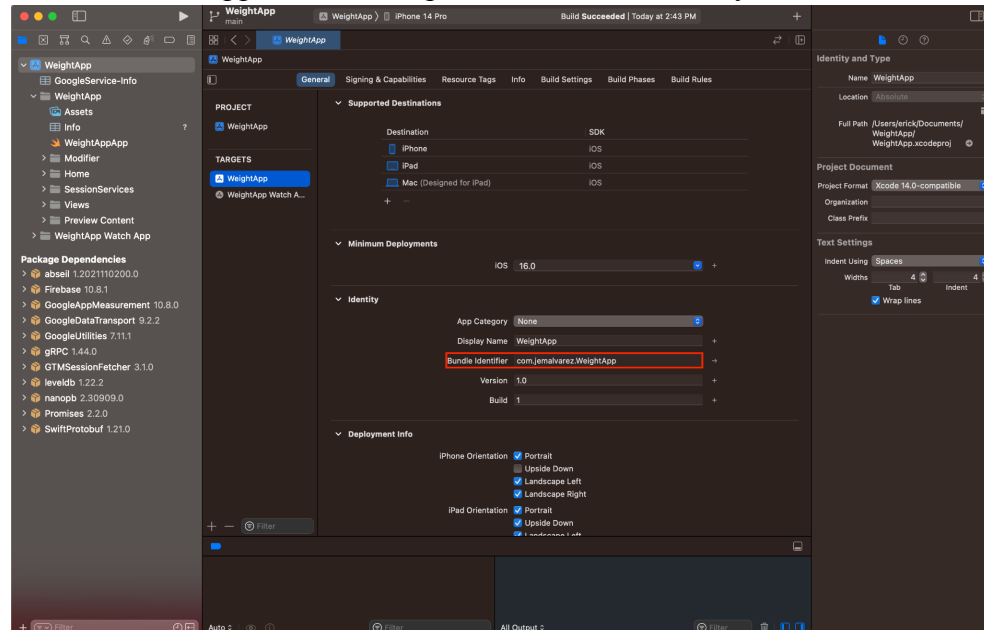


- d. Name the project and hit *continue*
- e. For **Configure Google Analytics**, select *Default Account for Firebase* and click create.

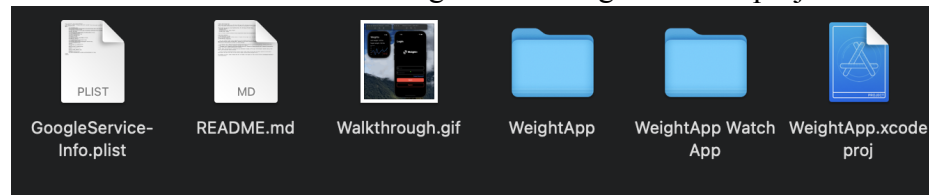
- f. Select iOS+ for the Add an app to get started section.



- g. Grab your Apple bundle ID by heading to Xcode and under display name. Copy the Bundle Identifier. Click Register App when that's done. Note that App Nickname and App Store ID is optional and not necessary.



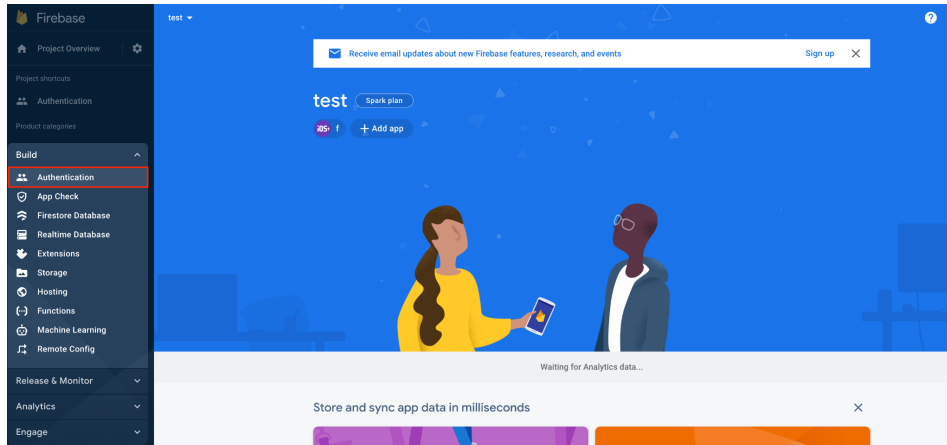
- h. Make sure to download the config file and drag it into the project's start folder.



- i. Run the project to make sure no errors occur.

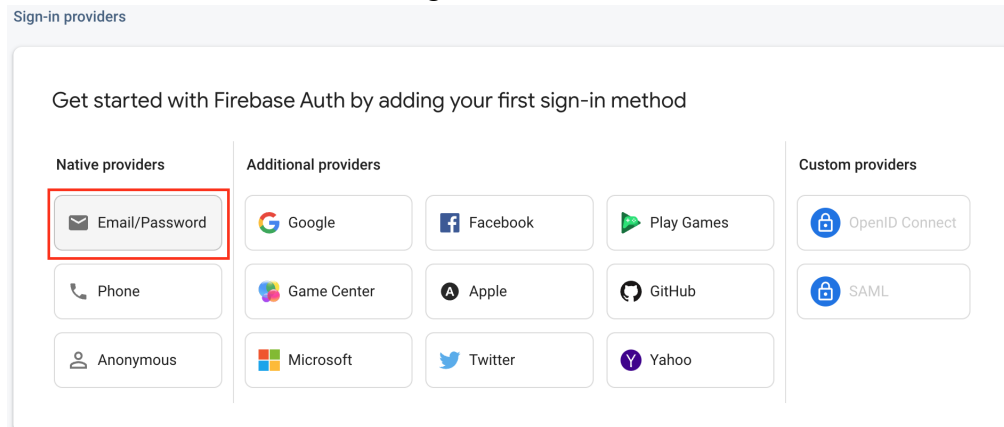
2. Initialize Firebase Authentication

- a. Select *Authentication* from the Build menu on the left side.

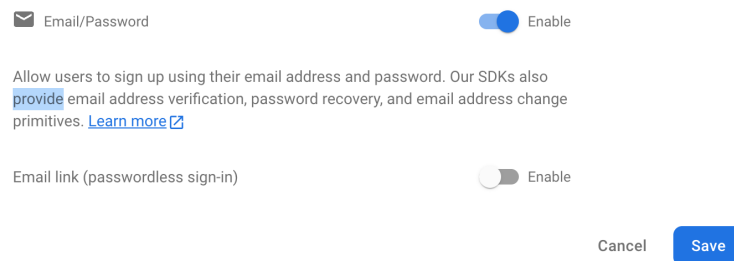


- b. Tap Get Started.

- c. Select *Email/Password* for the Sign-In Method.



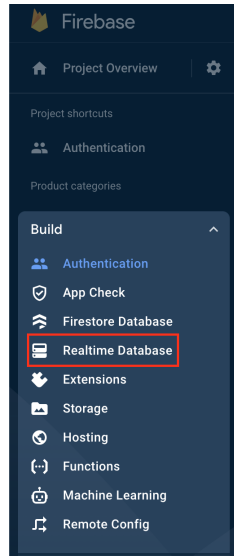
- d. Enable *Email/Password* ONLY on the following screen and SAVE.



- e. (Optional) You may edit the *templates* to fit the needs of the future project.

3. Initialize Firebase Realtime Database

- a. Select under Build on the left side of the screen *Realtime Database*.



- b. Tap on *Create Database*.
- c. Select the Database Location (up to you) and under **Security Rules**, select *Start in Locked Mode*. Hit Enable.

Set up database

Database options

2 Security rules

Once you have defined your data structure you will have to write rules to secure your data.
[Learn more](#)

☒ **Start in locked mode**
Your data is private by default. Client read/write access will only be granted as specified by your security rules.

☐ **Start in test mode**
Your data is open by default to enable quick setup. However, you must update your security rules within 30 days to enable long-term client read/write access.

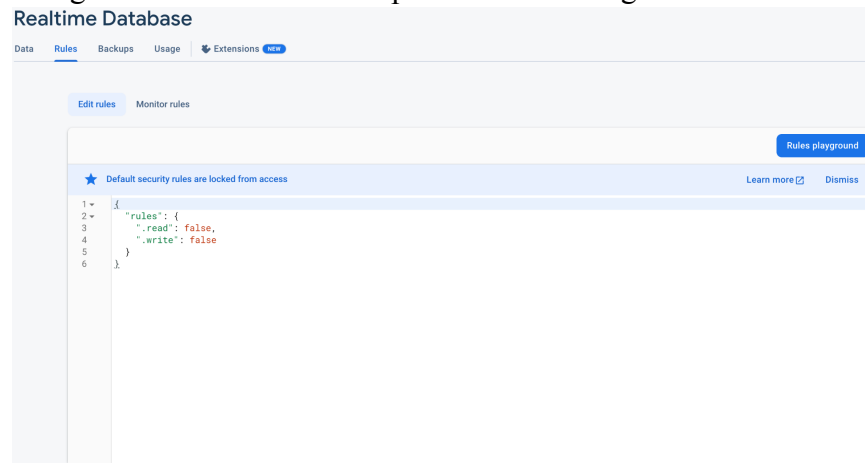
```
{
  "rules": {
    ".read": false,
    ".write": false
  }
}
```

All third party reads and writes will be denied

Cancel

Enable

- d. Navigate to the *Rules* tab and paste the following code below:



```
{  
  "rules": {  
    "users": {  
      "$user_id": {  
        ".read": "auth != null && $user_id === auth.uid",  
        ".write": "auth != null && $user_id === auth.uid"  
      }  
    }  
  }  
}
```

- e. As you create users, the *Data* page will begin to populate.

4. Happy Coding!

Shortcomings/Wishlist

- Current configuration uses hard coded data instead of the optimal bluetooth connected solution.
- Use of a bluetooth connected hardware weight scale.
- Feature continuity should be achieved between both platforms as much as possible.
- Calorie and Statistics features could be developed further to be more complex, like tracking calorie intake during a period of seven days.

References

Core bluetooth. Apple Developer Documentation. (2023). Retrieved April 19, 2023, from <https://developer.apple.com/documentation/corebluetooth>

Core Bluetooth Programming Guide. About Core Bluetooth. (2013, September 18). Retrieved April 19, 2023, from https://developer.apple.com/library/archive/documentation/NetworkingInternetWeb/Conceptual/CoreBluetooth_concepts/AboutCoreBluetooth/Introduction.html#//apple_ref/doc/uid/TP40013257

Google. (2023). Google. Retrieved April 19, 2023, from <https://firebase.google.com/>