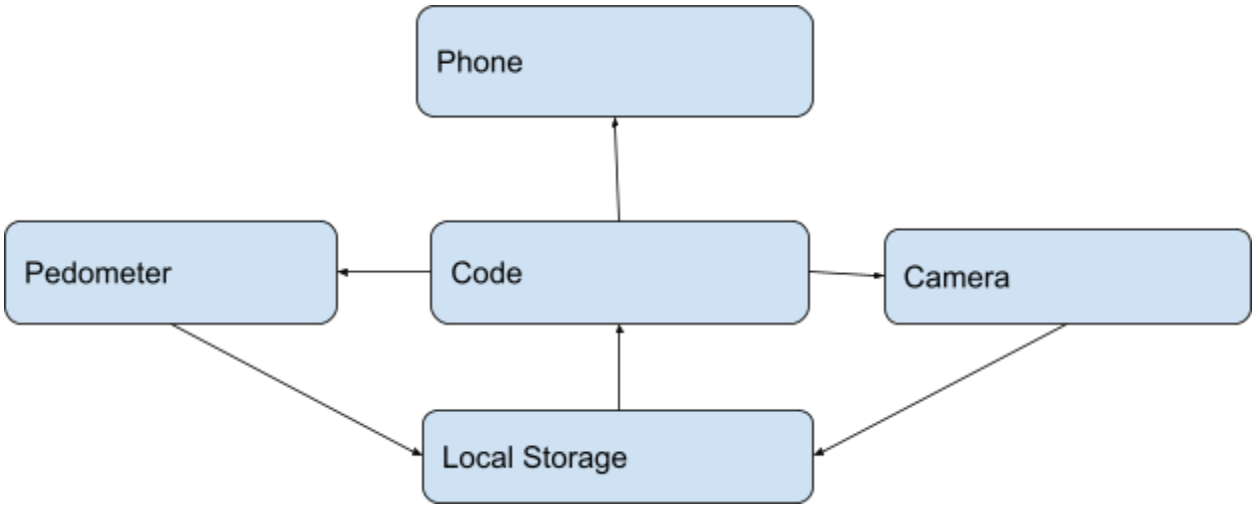
Team 18
Dylan Hunt, Alexander MacDonald
Mobile and Ubiquitous Computing
Requirement Specification

New items are in bold
~~Removed items are crossed out~~

Introduction:

Plant Pal is an app focused around interacting with virtual pets and tracking real life steps. This document will cover the technical requirements as well as the system architecture that will be required for the project. While simple in scope, it is still essential for these elements to be laid out for design and planning considerations.

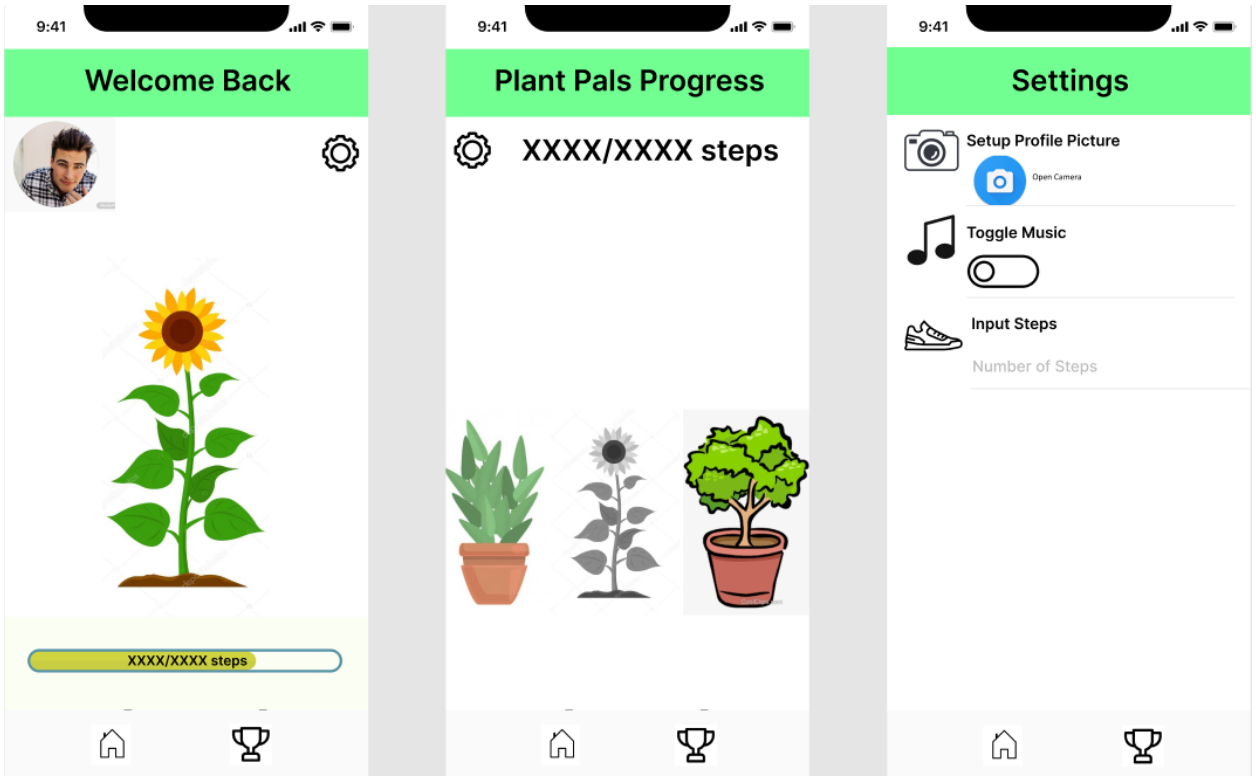
System Architecture:



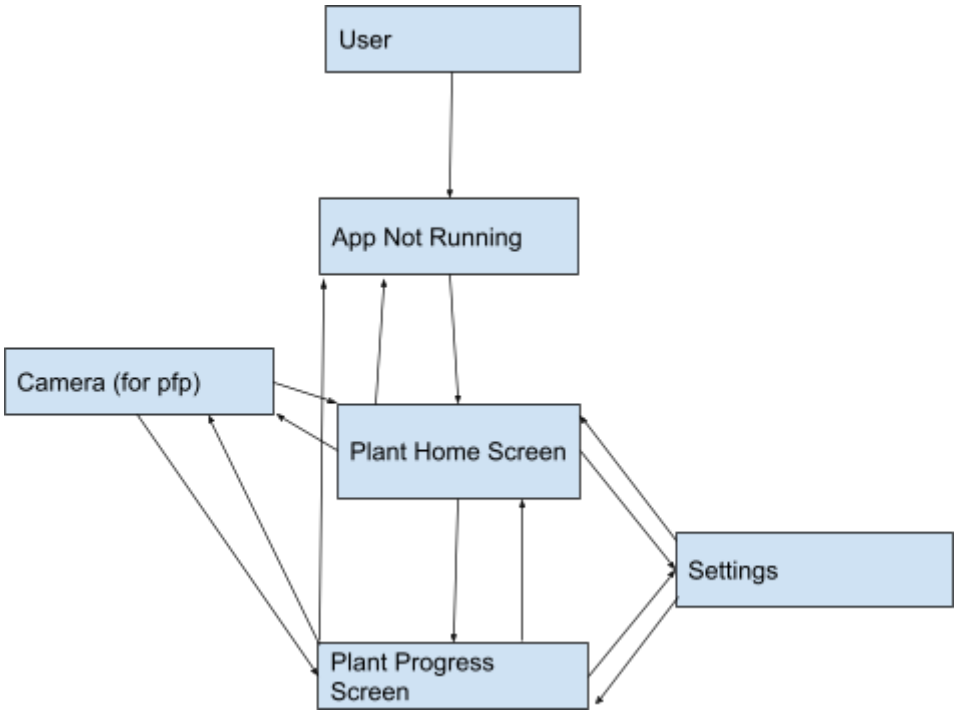
Formal User Stories:

- As someone trying to get into shape, I want my steps to be accurately tracked
- As someone trying to get into shape, I want my activity to be rewarded
- As a user, I want the app I'm using to be navigable and intuitive
- As a user, I want the game I'm playing to be fun

UI Mockup:


9:41
Welcome Back
XXXX/XXXX steps
9:41
Plant Pals Progress
XXXX/XXXX steps
9:41
Settings
Setup Profile Picture
Open Camera
Toggle Music
Input Steps
Number of Steps

Use Case Diagram:
APPENDED
Justification: The camera should be able to be easily accessed from the main screens.



Performance Considerations (issues):

- Not setting buffers for maximum size photo
- Not setting limits on the maximum amount of plants
- Poorly optimized data storage
- **Not all devices have a functional step counter sensor (specifically the emulator)**

Performance Considerations (technique):

- Minimize data writing
- Only communicating between screens when necessary
- ~~Making lower resolution drawables so loading is faster~~
    - **Justification: Standard resolution drawables maintained good performance**

Security and Privacy (issues):

- ~~Data theft~~
- ~~Location tracking through pedometer~~
    - **Justification: We stored data locally and the app can be used without the internet so no location is tracked.**
- Unrequested camera access

Security and Privacy (techniques):

- Store everything locally

- ~~Ask permission before camera is used~~
    - **Justification: Used Manifest file for permission**
- Don't track location

Implementation:
Baseline Goals:

Screens:
- **There are two main screens, the plant with the goal and the plant collection screen. Furthermore, there is a settings screen.**

ViewGroups:
- **There are many viewgroups in this project. Two of the most important ones were the scrollview and the relativeview for both user accessibility as well as UI design.**

Intent Extras:
- **Intent extras are used in two places, one for the user to optionally give the app a profile picture as well as sharing user progress between the main plant activity with the plant collection activity to prevent many expensive reads.**

Screen Rotation:
- **Layouts are specified for portrait and landscape formats and made specifically for use of the application in landscape or portrait orientation. Data is maintained between portrait and landscape orientations.**

Long-Term Storage:
- **Long term storage is achieved through both physical files in the local data scope of the application as well as using the shared preferences library provided to developers.**

Sensor:
- **The camera is the sensor used as the user has the option to take a photo with the device's camera sensor which is displayed in the top left of the application.**

Networking:
- **There is <u>no</u> networking :)**

Performance:
- **Low data load functionality led to sufficient boot times and activity switching.**

Security/Privacy:
- **All app data is stored locally within the application's data scope and therefore does not necessarily need the internet to function which removes many vulnerabilities that other applications may hold.**

Technical Achievement #1 UI:
- **App UI features the color green as its main theme. Not only does green symbolize plants, nature, and growth, but psychologists have found that green can also be a motivating color. Research has found that many people associate the color green with achievement, which is one of the core gameplay loops presented to the user. The progression bar and the collection page further reinforce the theme of progress, motivating the user to continue exercising.**

References:

Cherry, Kendra. *Green in Color Psychology*. Very Well Mind, 17 July 2022. Accessed 12 October 2022. Retrieved from https://www.verywellmind.com/color-psychology-green-2795817

Developer Guides. Android Developers. (2022). Retrieved from https://developer.android.com/guide

Google Draw [Computer Software]. (2022). Retrieved from https://docs.google.com

Figma [Computer Software]. (2022). Retrieved from https://www.figma.com/