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Dr. Pulimood and Mr. Devlin

CSC 415-02

4 March 2019

Assignment 3 - Project Proposal

Project Title: Leftovers

Option Chosen: Option 2

Type of Application: iOS mobile application developed on Xcode 10 using the Swift 4.2 programming language. Platforms will consist of most iPhones (likely 5s+) and most iPads.

Project Idea: The mobile application will serve as a sort of free, online marketplace where people who have "leftover" items can post to the app and others can claim these items and set up a time and place to come get them.

Social Issue: The social issue being addressed with this app would be general poverty. Whether it is to help a certain individual who has been down on their luck for a while, or a family who has been deeply ingrained in poverty for a while.
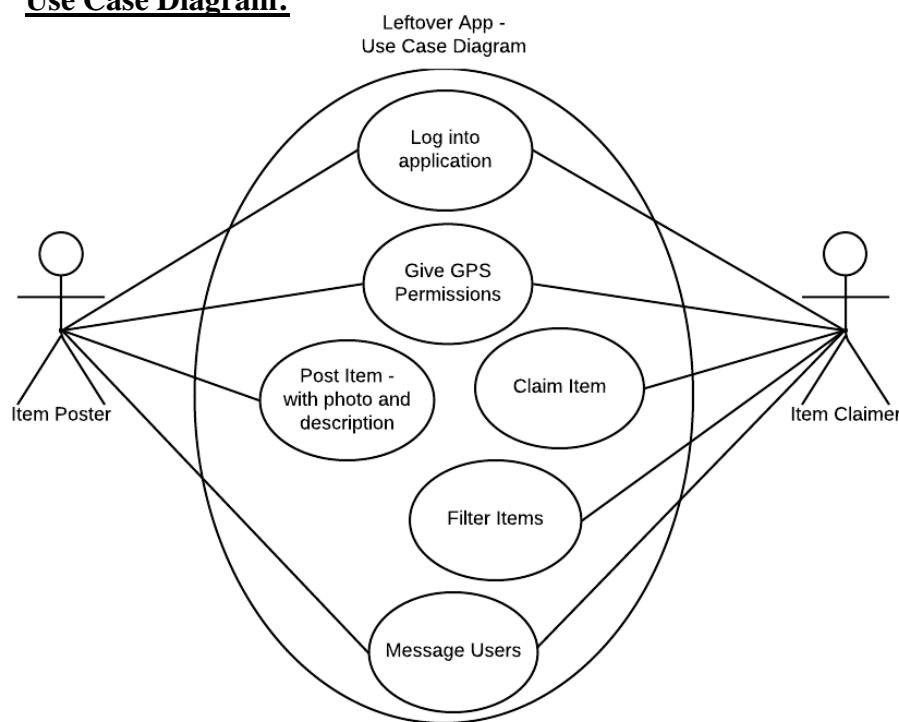
Why It's Innovating and Interesting: There are many applications that you can use to sell, swap, share, and even borrow items, however one specifically designed solely for giving is harder to find. While they've existed in the past or on the internet, finding a modern, popular iOS app proved a challenge. Leftovers can help those who are truly struggling with poverty, or someone who is just down on their luck and has a need for something they can't afford right now. This app will make it easy for the more fortunate people who just have leftover items and they want to give back but don't exactly know how. While it might seem small-scale to the general issue of poverty, it could certainly help address the issue one person at a time.

Algorithms and Rationale: One algorithm that I intend to implement is using the user's location to sort and only show posting that are within a certain range, perhaps chosen by the user, of them. The rationale behind this is that it seems essential to make sure you are not seeing postings that are hundreds of miles away from you. Another algorithm could be further sorting down search results by having posters add info tags to posts and the requestors then searching for posts that contain those info tags. The rationale behind this one is that it will make the use of the app a lot easier for someone searching for items.
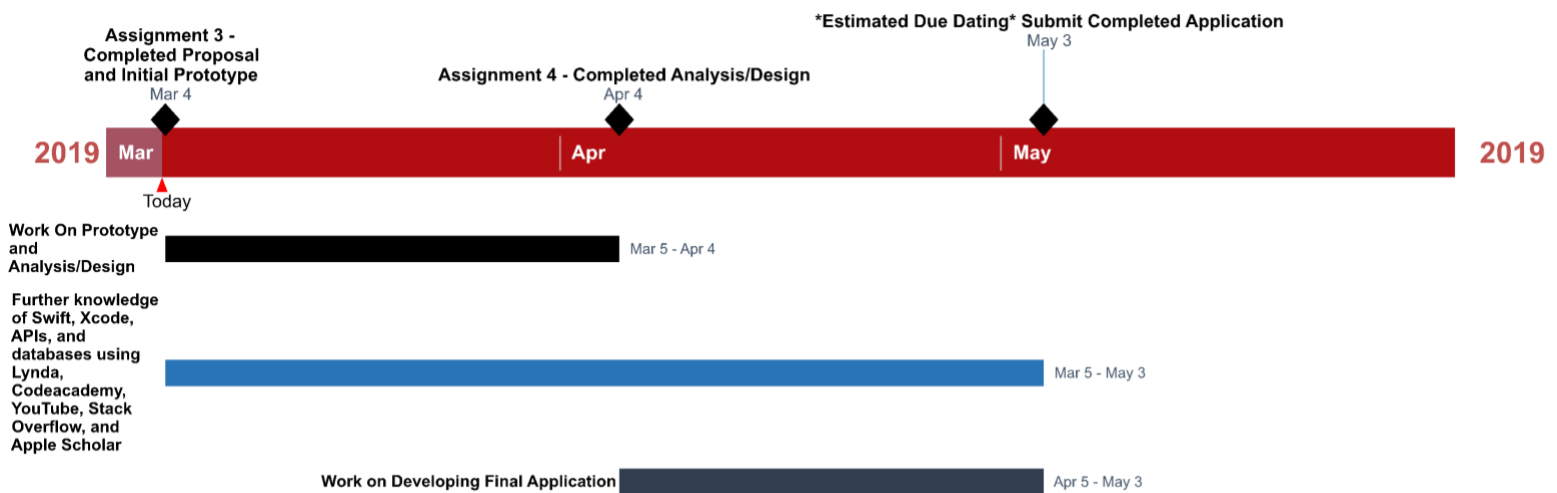
Data Structures and Rationale: One data structure that I will need to implement will have to be an online database to store posts and their info. The rationale behind this is so posts can be uploaded to the online database and pulled down by another user when they request to see it. Other data structures I will likely implement will probably be a hash table or some arrays. These will be used to store lists of items and used when sorting/filtering is needed.

New Software Engineering Concepts Being Learnt: Some new concepts I expect to learn will be working with databases and building an API to access that database to pull down what the user wants. I'd like to reinforce concepts such as developing an application in Swift using Xcode and working with more advanced data structures and algorithms.

Use Case Diagram:

Leftover App -
Use Case Diagram

Log into application

Give GPS Permissions

Item Poster

Post Item - with photo and description

Claim Item

Item Claimer

Filter Items

Message Users

Projected Timeline:

GitHub: https://github.com/izzom3/Leftovers

- Repository Name: Leftovers

    - Has the code folder, with prototype code, and the docs folder, with this PDF.