CS 4720 - F17 - Final Project Proposal

Device Name: Unown Platform: Android

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App Name: Farm Table

Project Description:

Our app, Farm Table, aims to make local, fresh food more easily accessible to communities across the country. Many communities in America struggle with food insecurity, or only have access to mass-produced, preservative-laced foods. Furthermore, even for communities that do host regular farmers markets, residents may find that items are too expensive, or that the market is held at times that they are unavailable. Farm Table intends to alleviate these issues by enabling both local farmers and residents to buy and sell foods they grow, whether it be from their farms or their personal backyard gardens, to those around them. Sellers and buyers have the freedom to meet at times convenient for them to exchange goods and payment, not strictly at times when a farmers market is open. Furthermore, without the additional cost of transportation and by enabling any resident to sell foods they grow, the items on the Farm Table app will be, on average, cheaper than those usually offered at farmers markets, and users do not need to arrange their schedules around times that a farmers market will be open. All in all, Farm Table will alleviate the issue of lack of accessibility to fresh, local foods through its online marketplace.

What we propose to do is create an app that will do the following:

- Both Buyers and Sellers
    - The system shall allows users can register on the app as a Seller or a Buyer, using a username and password of their choice
    - The system shall allow users to view their profile, where they can set their name on the app, their location/address, email, and a profile picture
    - Monetary transactions between sellers and buyers will happen outside of the app through Venmo
- Sellers Only
    - The system shall allows Sellers to view the items in their pantry (their inventory), and add items to their pantry
    - The system shall allows Sellers to view orders placed by buyers requesting one of their items
    - The system shall allows Sellers to click on an order request to mark it as "done", or to view the contact information of the buyer requesting the order
    - The system shall integrate SQLite to enable Sellers to update their pantry without an internet connection
- Buyers Only

    - The system shall dynamically read from a database a list of items that each Seller offers
    - The system shall allows Buyers to search items offered by all sellers on the app and add desired items to their cart
    - The system shall allows Buyers to view the items in their cart and generate an order for those items
    - The system shall allows Buyers to clear all the items in their cart at once, or delete individual items by clicking on that item in the list

We plan to incorporate the following features:

- Camera (15pts) - Users can take a picture on the app or upload an image from their device to set as their profile picture
- Build and consume your own web service using a third-party platform (15pts) - We use Firebase as our database backend for the system to store user information, product information, items in users' carts and pantries, and to store profile pictures
- Data storage using SQLite (20pts) - We use this to allow Sellers to edit their pantry items without an internet connection
- Data storage using key/value pair storage (10pts) - We use SharedPreferences to store user login credentials (username and password)

Wireframe Description:

Our wireframe (found in the root of our GitHub) displays the basic layout we used for our app. On launch, the app opens on the login page, which also contains a button that can lead new users to a registration page, where users can register as either a Buyer or a Seller. With exception of these two screens, which appear to both Buyers and Sellers, the first row of the prototype screens are for Buyers, and the second row of the prototype screens are for Sellers. On logging in Sellers see the page detailing orders Buyers are requesting from them. Buyers will see the search page where they can query our database for items to add to their cart. Users have a sidebar navigation menu that slides out when they click the button in the top left toolbar, and this is how they navigate throughout the app. Buyers and Sellers have different navigation menus so they can access their unique respective activities/functionalities in the app.

Platform Justification

We chose to use Android because after working on iOS and Android, we both felt more comfortable in Android Studio. Neither of us have macs and prefer to work on our own computers so we also enjoy android for that reason. The Google Play store is also easier to publish Apps to so we thought that the platform would be nice if we ever decided we wanted to continue working on it and put it on Google Play. Android is an awesome platform because of the market size. It is used all over the world and has a wide range of users with a lot of resources and support for learning how to do many different things in Android.

Major Features/Screens

- All users
    - Login
        - Enter username and password to login
        - Clicking “Registration” will take you to the Registration activity
    - Registration
        - Enter a unique username and password to register as a user
        - Select to register as either a Seller or a Buyer
    - Profile
        - Includes a profile picture, your name, your location, and email
        - Click “Edit Profile” to edit your profile
    - Edit Profile
        - Choose a new profile picture, and edit your profile name, location, or email
        - Click “Save” to save the updated information
- Sellers
    - Pantry
        - View the items you have in your inventory (includes item name, price, quantity)
        - Click the “+” button to add a new item to your pantry stored in sqlite
        - Click the “Upload” button to upload any changes to firebase
    - Edit Pantry
        - Enter the name, price, and quantity of a new item that you want to add to your pantry, and it will appear on your pantry page
    - Order Requests
        - View orders that buyers have requested from you
        - Once you fulfill an order, click on that item in the list to delete it, or to view the buyer’s contact information
- Buyers
    - Search
        - Use the search bar to search for an item
        - Click on “Add” to add the item to your cart
        - A dialog box pops up asking the buyer how many of that item they want to buy, based on what the respective seller has in stock
    - Cart
        - Review the items you have placed in your cart, and the total price of your order
        - Click “Place Order” to order the items in your cart
        - Click on “Clear Cart” to clear the items on your cart
        - Click individual items to remove them from your cart

Optional Features

- Camera (15pts)
    - Go to the user’s profile, and select “Edit Profile”
    - Either take a photo, or upload a photo from the device, then “Save” (this uploads your profile picture to Firebase)

    - Because Firebase Storage does not update in realtime, you must refresh the profile page before the photo will appear (go to a new activity and then return to your profile)
- Build and consume your own web service using a third-party platform (15pts) - Firebase
    - For the Pantry Activity for Sellers, add a new item to the pantry and it will appear in Firebase and as an item to be sold on the app by that Seller
- Data storage using SQLite (20pts) - We use this to allow Sellers to edit their pantry items without an internet connection
    - The seller can add items to their pantry and edit items and these are stored on their internal SQLite database. When the seller is ready they can press upload to publish their pantry so buyers can see the items in it.
- Data storage using key/value pair storage (10pts)
    - Register as a new user, and the username and password will be added to SharedPreferences
    - If you try to login with a username/password that is not registered, you will be shown an error message because those credentials are not stored in SharedPreferences
    - If you try to login with credentials that are already taken, you will be asked to choose new credentials

Testing Methodologies

We tested the app using the Android Emulator, as well as a physical Android device. When testing activities that interacted with Firebase like Pantry and Cart, we fed Firebase and the app dummy data to ensure that the activity was utilizing the Firebase data the way we wanted it to. We had some other users test it out to see if there were any weak points in the app as well and where users might get confused. Because we were not the ones clicking through the app in these cases we were able to identify issues with the app that we did not find when we were trying to look for issues ourselves.

Usage

Buyer Username: John **Buyer Password: JohnPassword**

Seller Username: Tim **Seller Password: TimPassword**

Create two unique usernames and passwords, registering one as a Buyer, and one as a Seller. This way, you can test the app as each type of user.

Log in as a buyer. Start on the search page and search for products that you may want to buy. Add these items to your cart by clicking add. Use the Navigation bar to switch to “Cart” here you can delete items by pressing on the item, or place the order which will send that information to the Seller. Use the Navigation bar again to access the “Profile” and press “edit” on that page to edit the profile.

Log in as a seller. Start on the orders page. Here you can complete/delete orders by clicking on them. Use the navigation bar to look at end edit the “Profile” and the “Pantry” page to see the items that you are currently selling. To add items to this list press it + button in the corner.

Lessons Learned

The major lesson we learned is to allot more time for development than you think. Towards the end of the development process, we had a handful of unforeseen issues, or functionalities that suddenly stopped working. This ended up with us rushing to fix these issues instead of being able to polish off some other areas of our app. We learned that it is important to factor in extra days/time into the development process for unexpected errors to ensure that we finish everything we want to in the allotted timeframe. We also learned the importance of communication. If one of our team members discovered an error in the app or changed one of the user objects, we needed to make sure we alerted one another of these events. Otherwise, we would be developing on top of a functionality that does not work correctly or is not complete.

Another lesson we learned was that planning the app with the screens and functions of each “screen” for a mobile app is very important. It is helpful to decide these things at the beginning of development with a clear goal in mind so that while building the app, it is clear what the next steps will be. At the beginning of development we learned that it would be really helpful to create a user flow so that we could base the screens and functions off of that. Planning is very important in software development and especially in a partner application development situation. Planning ahead and separating tasks allows both partners to be able to work on parts of the app independently until they are ready to be integrated.

We also learned that the scope of an application is important. For this project we originally planned for some things that we found were going to make the app too complicated so we had to get rid of them. When planning the project we learned that it is good to take a close look at what you want to do for an application at the beginning so you can figure out what is going to be feasible as part of the project.