

CMSC436 Project

Project Team 12

- Natnael Mekonnen
- Kibreab Gebrehiwot
- Shahryar Shagoshtasbi
- Andrey Kuzin

Food Drop

Overview:

Growing up my best friend and I would sometimes sneak out in the evening and take a trip down to the local Dunkin' Donuts at the plaza at the end of the day right when all the leftover donuts were being scrapped and thrown away. And sometimes if we were lucky and the manager was nice we would be given a batch of free donuts, that would otherwise go to waste. Americans are known to be the global leader in food waste. According to rts.com, more than 80 billion lbs of food is wasted in the U.S annually. A large portion of that is food wasted in the Restaurant and Dining industry. As a result, we want to tackle this problem and connect the restaurants and Eateries, such as Dunkin' Donuts with both people and charitable organizations which have the resources for distributing these foods to people in need, instead of throwing it away. Since in many cases the food isn't bad, restaurants just have a high food turnover rate, since they tend to do meal prep every morning.

The high level concept of our app allows restaurants to make food postings of leftover meals that weren't sold throughout the day or good food they just want to get rid of at the end of the day to clean out their kitchen. Which can then be claimed, by an organization or an individual, for pick up at a discounted price or for free. This way we are both contributing to the effort of decreasing the amount of food waste as well as helping local people and businesses. Businesses can use their food donations as write offs for tax purposes at the end of the year because there would be a direct record of all transactions, this way there would be an incentive and a benefit for both parties.

Goals

The primary goal of our app was to create a channel of communication between Restaurants and People to help prevent food waste and offer restaurants an alternative to throwing food away.

User Accounts and Login

- Our very first goal was to create a **SignIn View** and **Create Account view**, this would allow people and restaurants to create and login into their unique, personal accounts. This is significant because it would serve as the base and foundation for the rest of our application, which would allow many users to interact with the app and make unique posts and claims for food items.

Food Posts

- Our next goal was to give users the ability to make food postings by entering required information regarding the business and food and upload them to a persistent database for retrieval. In this case we used Firebase.

Claiming Meal

- Next once our food postings worked we worked on giving organizations/individuals the ability to claim a meal from the universal food postings page. This required us to fetch the data from our database

Include Image with Food Post

- We also wanted to elevate the Food Postings and allow restaurants to post images of the foods, along with posts, this way the user can get a better understanding of what the food is giving them a better judgment of whether they want it or not. Because there are different kinds of recipes and different portions and they say “A picture is worth more than a million words.”

Multiple Tabs

- Add multiple tabs, one for each task, so one for Posting and a separate one for Claiming items, this would be better for overall user usability, separating functionality, making navigating easier with comprehensible layout.

Filter Food Posts

- We changed this to be a stretch goal for us after beginning to work on the milestones. We originally wanted to implement a feature that would have different filters for categorizing food postings by Date, Food Type and Location. However, at the moment we have only implemented a filter for Date, this way the user can more easily access Newer posts and navigate to food posts of interest. During the development process we found the latter filter options to require more complex metadata and that is something we will continue pursuing in our future plans.

Ratings

- Finally we wanted to add a feature that would allow for users to leave a rating after food was picked up, this way restaurants could build up a reputation on the platform as well as receive feedback.

Map Pick Up Location

- This was a stretch goal to implement a map, so Claim Food View shows up displaying the specific locations of each Food listing, this way the user could have a better understanding of where the food is located in proximity to surrounding places. This feature can be improved but we are very happy that we were able to incorporate it even at this stage.

Donations

- This was also a stretch goal, we wanted to allow users to be able to make a donation when claiming a meal, however, as suspected adding this feature was much harder than adding a button and a few input fields. Despite not being able to

process Payments, because it was way outside the scope of this class, we created a Donation Page so as a result we were able to partially implement our goal.

Pick Up Food Window

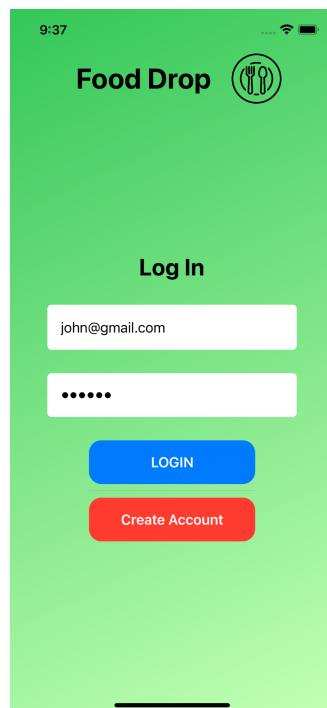
- This was a stretch goal where we wanted a feature that would create a window for pickup/expiry of the food, after which post is either removed, or not valid to be claimed. (Active/Inactive feature) This way we prevent people from claiming outdated posts as well as clean up the users feed from excess. We were unable to accomplish this at the moment, but will pursue in the future.

Expansion

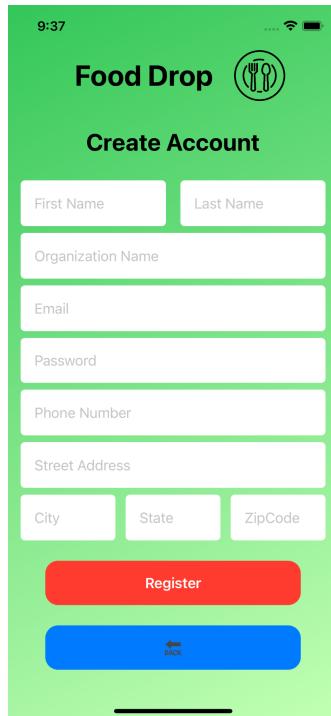
- Two other stretch goals we had were expanding to grocery stores(ex: in-store Bakery) for different types of groceries, as well as partnering up with Uber or Lift to allow for delivery of one's food. However, these were goals for a larger time frame.

User Interaction:

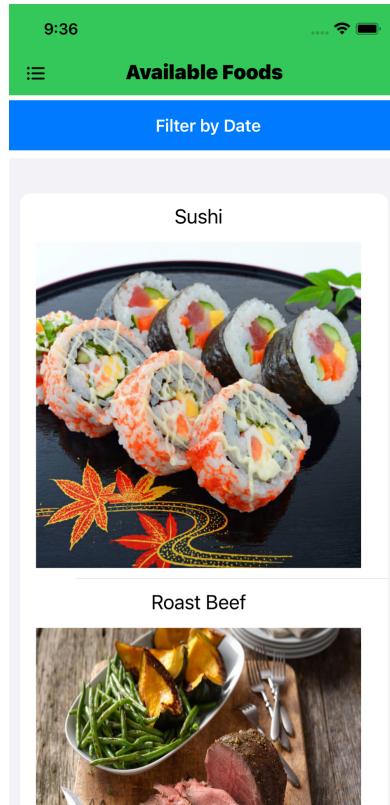
- a. **Sign In** - When you first start the app, you will be greeted by the Sign In menu that gives the user an option to sign in using their email and password fields or press the create an account button that redirects them to a separate view.



- b. **Create An Account** - If the viewer selects to create a new account, they will be taken to this view where they will be prompted to fill out several fields that gather metadata/information about the user, necessary for creating an account and implementing certain functionality within the app. Once created, it returns back to the sign in view and allows one to log in.



- c. Once you log in, you are immediately taken to a view displaying all the currently available food items in the **Available Foods View**. At the top left corner you will see an icon which will allow you to open a **navigation sidebar**.

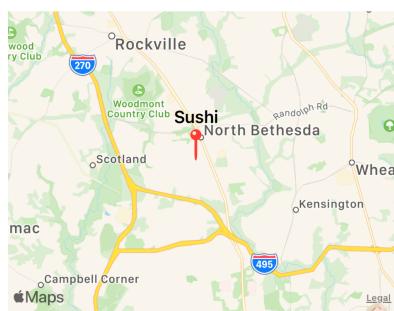


- d. In the **Available Foods View** if you click on an item, it will bring up an item specific **Claim Food View** which will have Food details. Including Name, location, a map with the location pinpointed, the time and date it was made as well as date and time by which it should be picked up and finally a claim food button which would allow one to claim the food to remove it from the available foods page and add it to their Claimed Food Tab so that they can still have access to it.



Food Type: Sushi

Pick up address: 11826 Trade St, Nort...

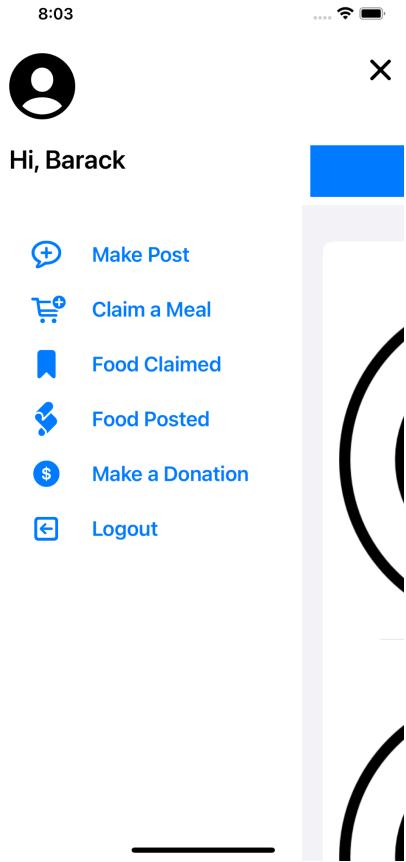


Made on: May 2, 2021, 09:10

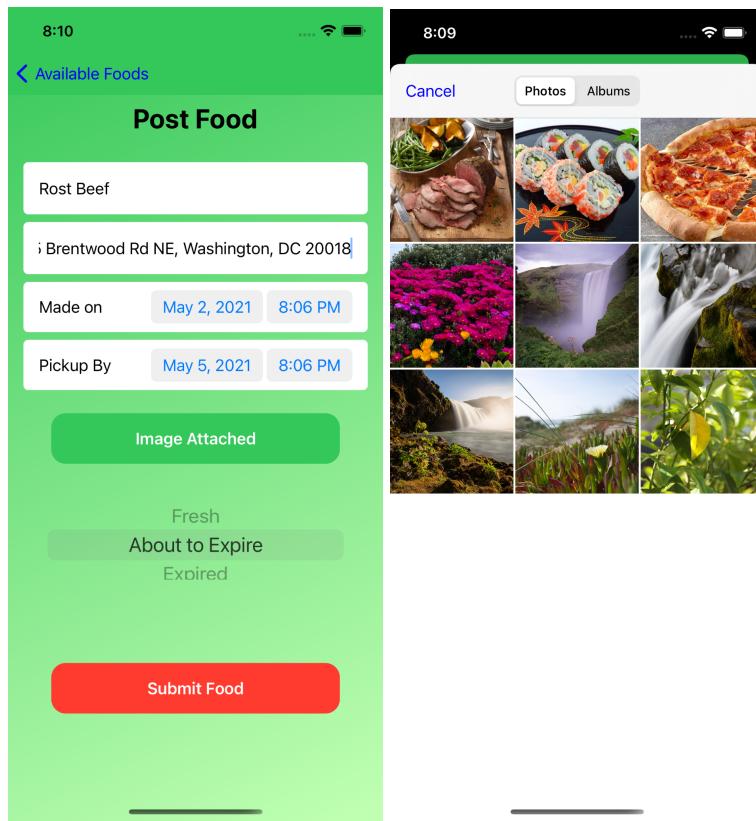
Pick up by: May 3, 2021, 22:00

Claim Food

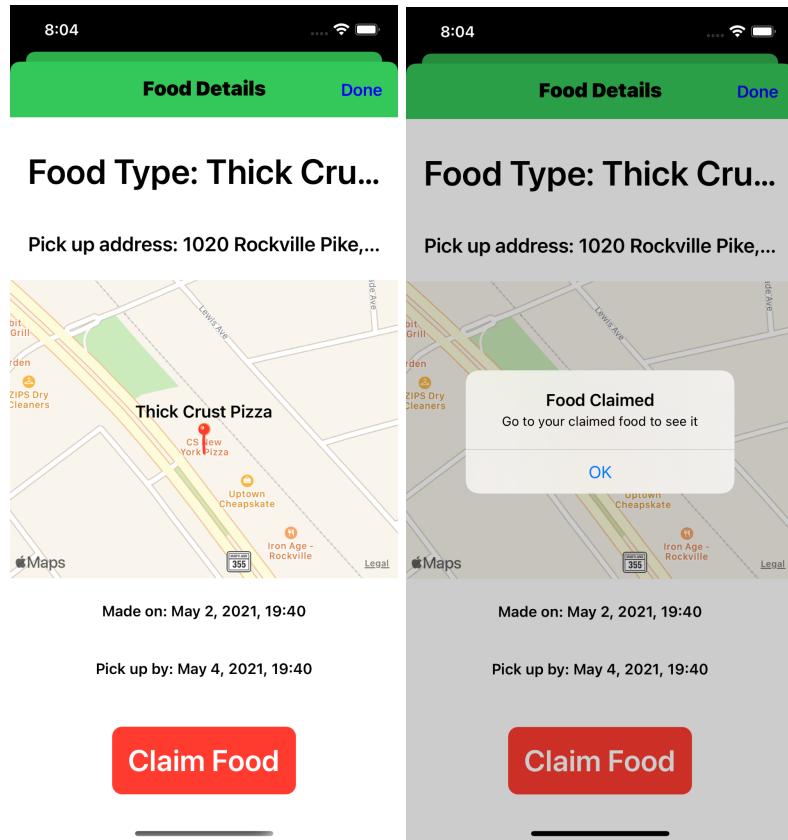
- e. The **Navigation page** reveals the user icon, welcoming the user by their name, as well as a list of options with navigation links for redirection. The list consists of “Make a Post”, “Claim a Meal”, “Food Claimed”, “Food Posted” and a “Log out”.



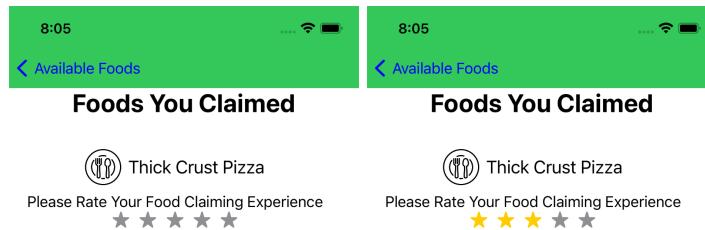
f. **Make a Post View** - as suggested by the name allows the user to create a new post or food listing, the view consists of several text and date fields and a submit button. The user is prompted to enter the Food Type or Name, the PickUp Address. As well as select the dates of when the food item was made and when it should be picked up by. The view also allows the user to select whether the item is: Fresh, About to Expire or Expired. Which is metadata that can later be used for either visualization or sorting.



g. **Claim a Food View** - The Claim Food view displays the information specific to the food item. It includes the Name of the food, Pick Up Address, Map displaying the location, the date the item was Made On, the Pick up Date and a button that allows the user to add it to the users claimed food.



- h. **Foods You Claimed View** - This view gives the user a one stop shop when looking for all the food posts that they have claimed, along with all the food item details at hand, so that they could easily access details like locating the address when ready to pick up the meal or give a rating based on the experience they had.



- i. **Foods You Posted View** - This view shows the user all of the Food Posts that they have personally made, with all the food details. This is so that each user can keep track of all their posts and interactions.



- j. Posted Food Details** - When you select an item from the Food You Posted it will display an item specific view displaying all the Food Details. This view is very similar to the claim food view, except that it is missing the Claim Food button because one cannot Claim their own food.



Food Type: Hamburger

Pick up address: 7997 Tuckerman Ln,
Potomac, MD 20854



Made on: May 3, 2021, 09:19

Pick up by: May 3, 2021, 20:15

- k. Donation View** - Since our app is intended to be a charitable effort, we offer the user an option to donate to organizations which are working on the same cause of eliminating food waste. We have linked several of the largest charities, connecting them to our users and spreading awareness.



Donation

Please support our cause by making some donations to your favorite charity and help us make a better world.

Action Against Hunger

Feeding America

Bread for the World

Food Bank for NY

The Global FoodBanking Network

Meals on Wheels America

Heifer International

The Hunger Project

Thanks!

- l. Demo** - To view the recorded demo of our app please click on the following link,

<https://youtu.be/GNqO8azf2RI>

Development Process

We developed this project outside of class and because we're all students and have other responsibilities, we weren't able to collaborate as much as we may have wanted to throughout the development process due to the pandemic. At the very start we designated and split up tasks amongst group members, so that everyone felt responsible and that their work was important to the success of the project. For example two people were responsible for Database Integration, someone else was responsible for integrating a Navigation Menu, another group member was in charge of creating new views, etc.

As a result most of the work was done independently, occasionally making things difficult because Xcode already has it's weird quirks and faults, but now we are attempting to merge different peoples' work, and as we know different individuals follow different approaches and coding patterns. Putting everything together involved the most collaboration effort. Therefore, a lot of our time involved getting our independent parts to work together. Nonetheless, towards the end we found an efficient branching technique. We would also communicate to each other which files were being worked on and when, making things much smoother and avoiding merging errors.

Despite working independently on tasks we still attempted to meet at least 2 times a week, to review our progress and resolve any issues/bugs, if anyone was struggling. Now in retrospect I believe this was a very good strategy because it required everyone to look into all the moving parts, giving everyone a better understanding of how the overall app functioned.

Looking back the development process was full of both ups and downs, but despite that we were able to stay fairly consistent with our original timeline. Nonetheless, there were a few places that gave us hiccups, such as working with the database integration and retrieving/ storing information. More specifically it was an issue when we were implementing the features allowing users to upload images with the food posts. The images were stored separately from the database in storage and had to be retrieved. As well as their size and the basic tier capabilities of the free version of firebase made some aspects difficult. One other feature that resulted in us innovating was the task of filtering Food Posts. Originally we wanted to filter by Location or Food Type, however, during the development process we realized that at the moment that would not be as

feasible at the moment because extra metadata would be needed. Therefore, because we wanted to keep that feature we decided to improvise and allow it to filter by Made on date.

Future Direction:

Over the past couple of months, we explored and expanded our knowledge in developing IOS apps via participating in this course and experiencing real world app development. After working on this project as our first experience, we believe that turning this into a full fledged functional, ready to hit the App Store app may be a fun summer project that we would want to pursue. This would mean adding additional features like a navigation system, incorporating a GPS, that would display and navigate the user through the fastest route to the pick up location. This would require further integration of the map feature and while being a challenge it would make the App a lot more useful. We may also want to potentially create different types of accounts, for example : Business/Organization Accounts vs. Personal, which would include different privileges and features. That way we could add a functionality where accounts receive notifications when a food they posted was claimed, thereby making the app more interactive and dynamic.

As well as pursue the original stretch goals we had set at the beginning during our proposal which included: adding Donations and partnering with Grocery stores or delivery services. We think this app idea has the potential of having a major impact as a charitable cause which would support the communities around, while mimicking the business models of existing Food Apps. There are many successful apps such as DoorDash and Instacart which have similarities with our app, giving us reason to believe that FoodDrop may very well become a flourishing product. Yet that would require us to not only create a working app but also an outstanding business model.