
CS220 Final Project Report

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Abstract

EatWelles is a mobile application that facilitates the exchange of meal-based services at Wellesley College. Students who cook can create posts inviting others to join them for meals in exchange for assistance collecting ingredients or cleaning up afterward. EatWelles is born out of a campus-wide frustration with the existing alternative, dining halls. Our platform provides additional options for students who find dining hall menus repetitive and boring, are picky eaters, have dietary restrictions, like more culturally diverse food options, or are looking for meal options outside the limited hours of operation. Furthermore, EatWells aims to cultivate a stronger sense of community on campus by making it easier to connect with new and unfamiliar peers over meals. With our network feature, users can easily visualize connections with and between people they have shared a meal with in the past.

Introduction

At Wellesley, students on the meal plan are able to enter the dining hall at any time during the hours of operation and take whatever food or snacks they desire. The meal plan also provides \$75 of Flex Points which students can use at the Leaky Beaker, Emporium, or Collins Cafe. However, despite the seemingly unlimited nature of the meal plan, many students still

struggle with not only finding food options that they like or are able to eat given their dietary restrictions, but also getting food before the majority of dining halls close at 7 pm.

In fact, preliminary user analysis concluded that every student we interviewed was dissatisfied by the dining hall options in some way or another. For example, some users shared that their busy schedules did not allow them to go to the dining halls in time to get dinner, while others shared that even when they are able to go to the dining hall during operating hours, they are often frustrated at the limited options provided.

To address these problems, we created a prototype for EatWelles, a cooking focused exchange platform that allows Wellesley students to receive home cooked meals from other students in exchange for a small chore like washing dishes or bringing a certain ingredient. The main objectives of our application are to:

- provide additional options for bored/unsatisfied dining hall goers
- cater to students who have dietary restrictions or students who need options outside of the hours of operation

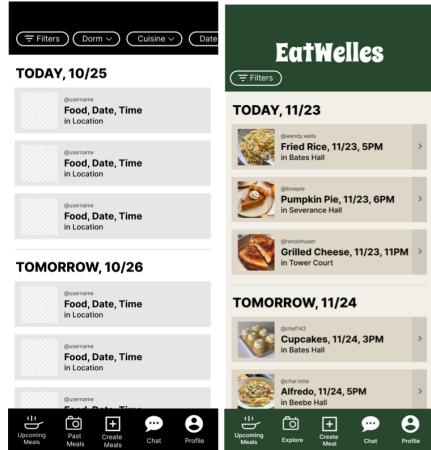


Fig. 1 – Side-by-side wireframe and high-fidelity prototypes displaying Upcoming Meals.

- build a stronger sense of community on campus

Our final design allows users to (1) RSVP for upcoming meals hosted by other students (2) Post pictures of past meals to build community by inspiring other Wellesley students to participate (3) Host meals and indicate requested tasks that other students can fulfill to receive a portion of the cooked food (4) Chat with other students attending the same meals (5) Manage an individual profile with a network feature that allows a user to view the people they have previously had a meal with in a dynamic graph-based display.

We derived this solution through user analysis, persona creation, low and high fidelity prototype creation, and prototype evaluation. In our evaluations, we found that users generally liked to see upcoming meals in a time-based format that can be filtered by dorm, a photo feed that prioritized posted photos in a gallery format resembling other social media platforms, and a creative recipe book design that added delight to the process of creating meals. However, some areas of improvement identified in our platform involve renaming the photo-sharing tab because "Past Meals" and "Explore" are both misleading to users, making group chats more user focused than meal focused, and reworking the network to make finding connections easier.

Methods

The process we employed for this project consisted of seven milestones. The first milestone was a user analysis; we interviewed six prospective users in order to develop personas to base our app around. We asked questions like what would make them more inclined to cook in the dorms, and their satisfaction levels with the dining halls. After the interviews, we took the information we learned from the six interviewees to create our three personas. We had Liz who was frustrated with the dining hall experience, Emma who wanted to find a sense of community on campus, and

Charlotte who needed a sense of control that our app would provide.

In milestone two, which will be further discussed in the design section, we made paper prototypes and presented them for a design critique. In milestone three, we decided on the design direction for our app based on the feedback we got during the design critique. Some of the main critiques were that our design should be location based, which is the direction we ended up going in. We also received feedback that the pages were cluttered with elements, so we split up our main meals page into multiple pages. In milestone four, we created a wireframe and tested it, which is discussed below. We split up the work with Karen focusing on the Upcoming and Past Meals pages, Quinn focusing on the Create Meals and Chat Pages, and Trisha focusing on the Profile. In milestone five, we developed our final high-fidelity prototype, improving on our wireframe. We continued to work on our designated pages. In milestone six, we tested our final prototype, which is discussed below. In milestone seven, we presented our app and all of our findings. We began our presentation with Trisha speaking about the general background of our app, the personas, and our design direction. Then, Karen spoke about our process from wireframe to final prototype, and Quinn did an app demonstration and talked about further improvements to be made.

We tested our prototype iteratively through two rounds of evaluations. Each round started with an introduction (getting to know the user through a warm-up and setting their frame of mind), before asking the user to complete three tasks, and finally concluding with a post-tasks questionnaire. For each test, one member of our group directly interacted with the user and one member took detailed notes. Since EatWelles allows students to find and provide alternative meal options on campus, we conducted testing with Wellesley College students, some of whom primarily eat their meals in

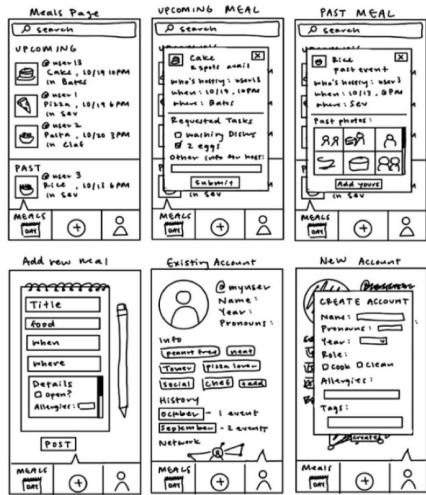


Fig. 2 — Low-fidelity final converged paper prototype displaying initial design direction.



Fig. 3 — Low-fidelity wire frame prototype in Figma

dining halls and some of whom cook frequently in dorm kitchens.

In the first round, we presented an initial wireframe (fig. 1) to three potential users. This low-fidelity prototype displayed the basic layout of each screen necessary for the main actions users could take with the app: creating meals, viewing upcoming and past meals, and viewing their profile. It was navigable between screens and contained basic scrolling functionality. Through observing how users interacted with the basic layout of our app, we aimed to identify aspects of the interface that worked well, aspects of the interface that were problematic, common user errors, design adjustments to be made during the high-fidelity prototype development phase, and ways to improve the evaluation process prior to our second round of evaluations.

The second round of evaluation involved observing how six potential users navigated a high-fidelity prototype (fig. 1). For each task, we measured success with key usability metrics. Task 1 involved timing users as they signed up for a meal, task 2 counted the errors users made as they searched for a friend's account, and task 3 evaluated the user's satisfaction with the design and layout of the Create Meals tab. In this round, users worked with a high-fidelity prototype with fully functional interactions and a robust color scheme. Without the limitations of the low-fidelity wireframe, we were able to focus on points of confusion specific to the design.

Design and implementation

Design and Implementation
To design EatWelles, we started by each drawing 2 paper prototypes, a total of 6 versions, and converged them (fig. 2). What we ended up with was an app with a meals page that, depending on the meal, would show a past meal popup or upcoming meal popup, an add new meal page, and an account page which either displayed one's existing account or prompted the user

to create an account. This low-fidelity prototype was one of two variations. The other was more location-focused, but we moved forward with this time-focused design based on feedback from the design critique.

Still focusing on creating a low-fidelity prototype, but adding more function and solidifying layout ideas, we created a wireframe (fig. 3) in Figma. Our wireframe was grayscale, and all of our core features were clickable/connected in flow, but this prototype lacked the satisfaction elements and smaller details. However, it gave us good insight into what needed to be changed in our high-fidelity prototype.

Our final prototype (fig. 4) has an Upcoming Meals page with a filter bar and a pop-up component for signing up for meals, an Explore page that features all past meals/photos and a function to add photos from meals the user attended, a Create Meal page resembling a recipe book, a Chat, and a Profile with about, hosting, attending, history, and network sections. The Figma itself was organized in the same order previously listed. To keep the workspace clean and all components and frames easy to find, we had the components used in the frames next to said frames, and the order of the frames was top-down by section and left-right by clicking flow. We aimed to descriptively name each frame, component, and element down to the vectors, so that using and viewing our layers was easy and efficient. Some of the icons we used were from the icons library, notably the icons in our tab bar. The tab bar, which was featured on nearly every frame, so that every page was accessible throughout the prototype, used icons and text to display the navigation to other pages to support usability and accessibility, providing a means of presenting the meaning and descriptions of what clicking there would do in multiple ways.

The color palette (fig.5) we chose consisted of #27472E a dark green, #F2EFE9 a light oatmeal, #8B4C4D a

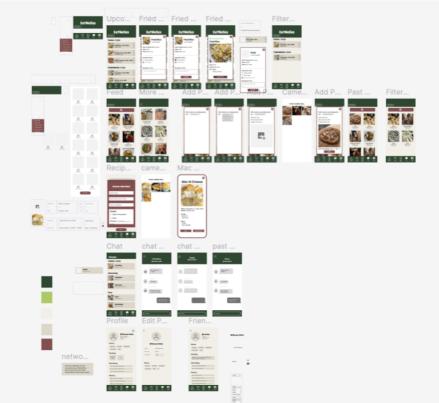


Fig. 4 — High-fidelity final prototype in Figma.



Fig. 5 — Color Palette, #27472E, #F2EFE9, #8B4C4D, #000000, #FFFFFF

muted brick red, and black and white. We chose the green due to its connotations towards freshness and growth, whether that be food or community connections, and the oatmeal is calming and not as harsh of a contrast as stark white. For the accent color, we chose a muted brick red to complement the dark green while maintaining the calming ambience we wanted to evoke. Lastly, our color palette includes black and white since they can make text readable against all of our other colors.

We also made use of animations, variables, and variants for functionality and satisfaction. Some of the animations included slides when back buttons were pushed and fade-ins for helpers. We used variables in the filter bar so that the bulk of the filters would only show up when the filter button was clicked, and so that the post button in Create Meals was only functional when all parts of the form were completed. We used a lot of variants throughout the prototype to show what things could be clicked, filled in with text, or selected.

While our prototype was designed to be highly functional, not everything was fully functional. One example of this was our filter bar; we only made the dorm selection, specifically Bates Hall, filterable because the filter bar had nested components with nested variants. This was challenging to implement, so for simplicity's sake, we demonstrated general use and left the rest to be implemented at another time. We also left adding tags in the Profile and the "see more" on the Upcoming Meals screen not fully implemented since both features weren't important to showing our main functionality.

Results from the P4 evaluations

In the first round of evaluations, we found that users appreciated how the organized layout of the app was easy to navigate. They also noted how relevant details such as food, time, and location were appropriately highlighted in the Upcoming Meals and Past Meals tabs, but wanted filters to be listed in order of importance.

All three of our users found difficulty with the network feature, either misunderstanding its purpose or missing it completely. Similarities in the layout of the Upcoming Meals and Past Meals tab led to confusion in navigation, with one user unsure about whether they had successfully navigated to a different page. The name "Past Meals" also seemed misleading, with some users thinking it would only display the user's personal past meals, rather than displaying all past meals. Lastly, users found the recipe book graphic on the Create Meals tab too small.

This feedback informed several design changes we made to our high-fidelity prototype. We reordered the filters so Dorm, Date, and Time were prioritized over Cuisine, since those were of higher importance to users looking for meals. We renamed "Past Meals" to "Explore," which relies on users' familiarity with the popular social media app Instagram to convey the inclusion of all users' meals. Additionally, we changed the Explore tab's layout to emphasize photos from the event so users would find it easier to distinguish from Upcoming Meals. Our final small changes included enlarging the recipe book graphic to make the text more readable and adding a pop-up screen to explain the network feature.

Results from the P6 evaluations

The second round of evaluation involved testing six users on key usability metrics—time, errors, and satisfaction—as they navigated a high-fidelity prototype. Users were able to understand and navigate most of the features with ease, with the exception of finding a friend in the network. Users took between 15 seconds to two minutes to complete task 1, which involved signing up for a meal. To make this task smoother, users recommended the addition of a tagline to remind them that they need to sign-up for a chore in exchange for the meal. Task 2 was quite unsuccessful, with users averaging two errors while finding a friend from the network. To address this issue, future iterations could either highlight the network at the top

of the profile or add a search feature to the Chat tab that helps users find past communications with friends. Users in both rounds of evaluation found it more intuitive to turn to the Chat in order to complete this task, which shows greater support for the search feature. For the third task, users generally gave positive comments about the design and layout of the create meals tab, indicating high satisfaction.

Given the limitations of only two rounds of evaluation, we identified several remaining usability issues. Users expect to be able to send messages to people directly from their profiles, which is currently unsupported by our prototype. The Chat tab is formatted to look like a calendar of events rather than a list of chats. The "find a friend" task was difficult for users, who tended to instinctively open the Chat or Explore page rather than access the network feature. Lastly, the "Explore" name misled users to think it included both past and upcoming meals, which can be addressed by renaming the tab to "Memories" or "Archive."

Through this process, we learned that our prototype could be more intuitive to navigate if it more closely approximated the functionality of existing popular social media apps. Most of the usability issues our users faced stemmed from confusions about the Chat and Explore tabs looking and behaving differently from apps like Instagram. To remedy this, future work on EatWelles should focus on either differentiating the design completely from Instagram or leaning into the similarities even more. Overall, our design was moderately successful, with metrics showing users achieving a broad range of success. Several changes made between the first and second rounds of evaluation led to new problems. Having future iterations and conducting more tests in each round would allow for a balance to be struck in cases where differing opinions led to changes in two extreme directions.

Future work

In this case study, we presented our process for designing and evaluating a cooking-based exchange prototype to be used by Wellesley students. Preliminary user analysis allowed us to identify needs amongst students who are consistently dissatisfied by the food options on campus. Using a combination of storyboarding and paper prototyping, we arrived at a wireframe prototype which allowed us to conduct user studies on the general layout and functionality of our platform. These studies revealed a need to completely rework the Explore tab of our platform to differentiate it from the Upcoming Meals tab as well as a few smaller revisions to improve learnability and efficiency. Following the creation of an improved interactive prototype, we conducted another round of user testing which demonstrated success in the ability to sign up for meals, view photos of past meals, and create meals. Though, some weaknesses identified revolved around the appearance of the chat and network features. Overall, our prototype was generally well received by users who thought that the idea of a cooking-focused exchange platform is a good idea.

Our next steps are to iterate on our prototype based on the feedback we received in P6 and refine any lingering bugs in functionality. Specifically, we hope to improve the network feature which allows users to find and connect with people who they have shared meals with, and improve transparency regarding allergens, preferences, and cleanliness habits to build trust between meal hosts and attendees.