Leftovers

ECS 164 Final Project

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ABSTRACT

This project aims to create a prototype for Leftovers, a platform that allows users to find recipes based on their personal needs and preferences. Over the course of 10 weeks, we have undergone the design process to complete a high-fidelity prototype. The process includes initial research, brainstorming for the idea, user research, creating a low fidelity prototype, conducting user interviews, and creating a high fidelity prototype.

INTRODUCTION

For many individuals and families, cooking can be a struggle. It can be challenging to make healthy food that tastes good. It can also be difficult to plan ahead when shopping for food, and many people end up with excess food that they let go to waste. Inexperienced meal planners may be challenged by having to organize their menu in advance when shopping, and we aim to take that pressure off of our users. Our goal is to create Leftovers, a platform that allows users to input their dietary restrictions, preferences, budget, and what they have available at home (food and appliances) to find recipes they can make.

As society advances, various innovative technologies are developed to help reduce our carbon footprint. However, it is important that we integrate simple behavioral changes into our daily lives as well. Households are the largest contributors to food waste within the food production and consumption pipeline, contributing approximately 61% of the 931 million tons of food waste generated in 2019 (UN Environment Programme, 2021). In turn, this waste turns into greenhouse gas emissions, placing immense pressure on our readily deteriorating environment.

According to the CDC (2020), the prevalence of obesity in the US was reported to be 42.4% in 2018. Nearly half of the population is highly vulnerable to major heart issues and health complications. This percentage can be reduced by eating at home instead of ordering takeout or going to restaurants. Eating out generally costs more and is less healthy (Tiwari et al., 2017) When eating out, there is not always full transparency regarding what is in the food, therefore making it easy to forget about nutritional value. Making one's own food encourages more conscious eating and reflection on nutrients.

BACKGROUND

As college students, being able to provide meals for ourselves in an efficient manner is crucial to our daily lives. We are met with the problems listed above, and Leftovers allows us, and several others, to take steps towards solving them. Our idea is differentiated from the several other websites/apps/companies in the same space, which is why we chose to move forward with it. We have constructed a brief competitor analysis to justify the making of our product.

SuperCook[1] is a website that curates recipes for users based on the ingredients they have selected. Although their website is slightly overwhelming at first, it is fairly easy to use and has a number of attributes needed to find a recipe based on the items in the user's fridge. However, it does not account for allergies, several diet restrictions (they only have a select few), utensils the user has, and a personal budget (which is a crucial factor for college students).

BigOven[2] is a similar website that allows users to select up to three ingredients to see which meals can be made. However, it does not account for any allergies/dietary restrictions, utensils the user has, personal budget, cuisine preference, and more.

SuperCook and BigOven are examples of services for users to make meals based on the ingredients they already have. However, the two websites lack inclusivity and personalization - which we plan on incorporating into our website by adding the aspects that were missed.

PROPOSED SOLUTION

Our solution is a meal planning website that makes use of what the user already has available to them at home to suggest recipes that fit their needs, likes/dislikes, and budget. Both our mid-fidelity prototype and the final version of our site were implemented in Figma. The process of using the website is divided into 3 parts: selection, personalization, and generation.

In order to provide the most custom experience for each user, the consumer will begin by taking a short survey (although returning users can bypass this survey by signing

[1] https://www.bigoven.com/
[2] https://supercook.com/#/desktop

into their account). During this onboarding process, users will first be asked to search for foods that they already have. The suggestions beneath the search bar suggest potential matches to their input. Users will then be asked to identify restrictions, preferences, and what kitchen appliances they have. Users will also be able to specify budget and recipe type preferences. They will then be given the option to create an account to save their preferences or to continue as a guest, which will lead them to the main recipes page.

Recipe options will be generated based on the user's survey responses. Each recipe will be presented alongside the time taken to prepare and the ingredients the user is missing. Recipes will be displayed by an image of what it makes and a link to the recipe itself. Recipes can be selected and selected recipes will contribute to a personalized shopping list. Users will have the option to print, email, or text this shopping list once it is complete.

IMPLEMENTATION

Home Page

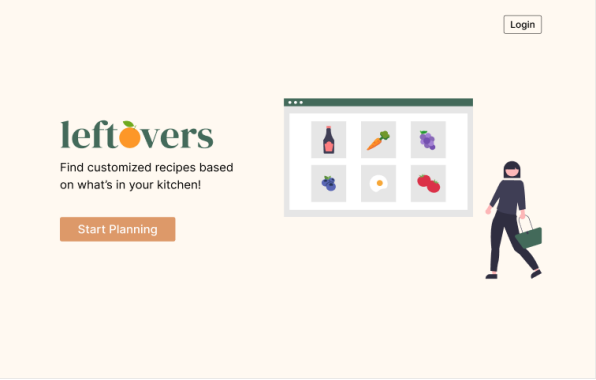

Figure 1: Landing Page

Selection

Figure 2: My Ingredients

Users are able to add everything that they currently have in their pantry. While they can start typing to input their ingredients, they are also able to select the drop-down menu to categorize their ingredients as seen in Figure 2.

Personalization

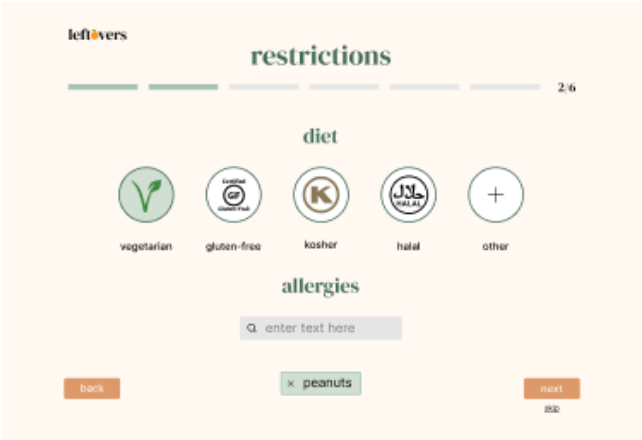

Figure 3: Restrictions

There are a few personalizations that users can identify. Figure 3 above shows restrictions, where users can choose the diet(s) and allergies. Other personalizations include cuisine preferences, kitchen appliances, budget, and recipe filters. With recipe filters, users can further refine their search by time, type (breakfast, brunch, desserts, dinner), or nutrition (amount of calories).

Generation

Figure 4: Recipes

Full implementation is viewable here

Once users have completed the onboarding process and created an account or continued as a guest they are able to see their personalization on the left side of the page as well as the recipes generated for them based on their choices on the right side of the page.

USER TESTING

Surveys

We conducted a survey to gauge the need for this product and to better understand the pain points of our target users. From the results of the survey, we found that:

Budget is a huge factor when deciding what to make. Initially, before our user interviews, we were planning to have the main focus of the platform be what the user had in their fridge. However, after conducting the survey, we found that there are a lot of other, more important aspects that people keep in mind when finding recipes or deciding what to cook.

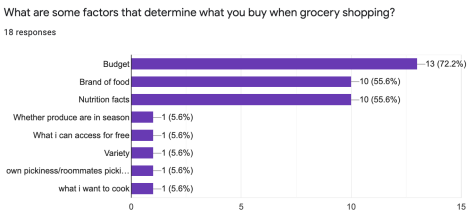

Figure 5: Survey Results; factors that determine what users choose groceries

Another question we asked was “If there was a website to help create recipes for you based on the ingredients you had, what would be some features that would be beneficial to you?”. This helped us better understand what our target audience wanted to see in our product, and if we were on the right track. For example, some users mentioned that they’d like to have an option that allows them to “specify special diet[s], like vegan”, have “cuisine diversity”, be able to “input the spices and sauce I have so that I don't have to buy so many additional ingredients”, “my food likes/dislikes/allergies”, etc. These are all aspects that we planned on having in our product, and it reassured us that these were things other people wanted as well. On the other hand, some users mentioned aspects that we had not considered before such as “under 30-minute recipes” (the time it takes to cook a recipe) and “overall nutrition facts”. We were able to use this question, in particular, to incorporate these factors into our prototypes.

One of our other questions, “If you had to create an account before getting a chance to explore the website, would it drive you away from the site?”, also helped us decide how we wanted users to interact with our platform. Most people said that it would probably, or definitely drive them away if they had to create an account before getting a chance to use the platform. Therefore, we decided that users could continue as a guest or create an account once they inputted their customizations.

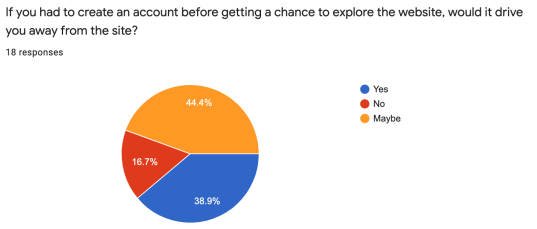

Figure 6: Survey Results; the appeal of creating an account

Prototype Testing

We conducted two rounds of testing on our prototypes: one after creating our mid-fidelity prototype and one during the creation of our high fidelity prototype.

Our first round of testing was to gain initial impressions of the page layout and what the participant’s expectations were for each section of the page.

The main round of testing was conducted during the high fidelity stage and users were exposed to a fully branded, usable prototype that took them through many tasks and pages. From the testing, we extracted our pain points and used this to inform and support any further changes made.

There were five major pain points that were addressed:

1. Previously, we had users’ input ingredients as the last step of the planning process but the testers vocalized that they assumed they would be exposed to this page first because that was the main function of the website. We moved the ingredient input page to be the first screen to appear after clicking ‘Start Planning’.
2. Budget was expressed to be an important factor in how our target audience determined their food consumption. While there was a page to input budget preferences during planning, there were no options to change the budget on the main ‘Recipes; page, as well as no visual signal as to the budget range that each recipe fit into. To improve this, we add the ability to change the

budget from the main page and dollar signs to each of the recipe cards.

3. Testers had a hard time scanning through each recipe card to find how many ingredients they were missing. In order to make it stand out, we highlighted the section on each recipe in orange color.
4. Users have the option to save a recipe or add it to the shopping cart. During testing, users were hesitant about which to choose in order to create a meal plan. The heart icon is used to signal 'saving' was too ambiguous and was changed to a bookmark to help differentiate between the two possible actions.
5. Users expressed that they did not notice the 'Leftovers' logo on the top left of the pages during the planning process. It was blending into the larger page titles and so the logo was changed to include an illustration to make its function more obvious.

DISCUSSION

In making this prototype we learned several lessons. The first was to place less emphasis on the aesthetics of the design in the mid-fidelity prototype, as that should focus more on flow and function. We found that focusing on the aesthetics too much early on ended up being less helpful in the long run and often led to us needing to rework our design slightly.

Another somewhat related challenge we encountered was the impact of typography on the usability of our website. Originally, most of the writing on our prototype was all lower case for aesthetic reasons, but we soon realized through user testing and feedback that this made it less intuitive to use our site. Our test subjects had an easier time with more conventional writing, and we had to adjust in order to show that.

FUTURE WORK

The following are features that could be added to our site in the future:

1. Nutrition labels to recipe cards
2. Amount of ingredients missing

One of the filters we have included to narrow down search results for recipes was nutrition. The addition of nutrition labels on the cards would make the relationship between the filter and the recipes more transparent and would better support our goal of promoting healthier eating.

When the user views the ingredients they need to buy to make their choice of recipes, it doesn't specify how much of each ingredient is needed. The user will need to navigate to the recipe page and view it on their own. To enable a smoother and more convenient user flow, it would be better to retrieve the amounts from the recipe websites and calculate the amount that needs to be bought to display directly on our site.

Due to time constraints and lack of web development experience, we were unable to implement our website via code. However, we would like to move beyond our high fidelity prototype and create a real site in the future.

PEER RATING

Hritvi Sheth: 20%
Yael Berrol: 20%
Rachel Tu: 20%
Urvi Ganorkar: 20%
Ama Dadzie: 20%

For our project we met as a group at least once a week and worked on everything almost exclusively together, so we feel that our project was very evenly worked on. We each contributed highly to each section.

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