CSE40424 Intro to HCI
Project Update 2
WhiskList
TP5
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Introduction

Since Update #2, our group has focused on refining and developing our prototype based upon the feedback we received from the prototype demonstration. As opposed to fully building-out our final product, our group decided to continue with the Adobe XD software and develop a more in-depth version of our demonstrated prototype. Following this path allowed our group to dive deep into the overall design and aesthetic appeal of our software. The goal for our project was to ensure that our final product looked and felt like the real deal, even if not all of the features were functioning. The revisions and enhancements added to the prototype were mainly based upon the feedback we received in our initial Update #2 demonstration from other classmates and TP9. Overall, our group was able to successfully develop and produce a working final product with the three main tasks of searching for a recipe, sharing a favorite recipe, and uploading a recipe.

System Overview

As mentioned previously, our prototype is built using the Adobe XD software. The general layout of the system follows that of a typical social media page such as Twitter, Instagram, or Facebook. On the home page, the user is presented with the current page of trending recipes. These are recipes that are meant to be popular among users of the platform and are either viewed or cooked frequently. They also have options to view recommended recipes or recipes based upon who the user follows. The layout of the recipes follows a pattern similar to Pinterest with a staggered block layout. During previous user research, we discovered that users use the home page for entertainment and enjoy a more social layout. So, we settled for a layout similar to Pinterest. Also, in the top right of the screen, there is a series of icons in depicting actions related to a specific user's profile. Throughout the entire system experience, the user is prompted with occasional tasks to complete to gain a sense of usability on the platform. This is meant to simulate the onboarding experience for a new user to the system and is discussed later. The home page is shown below in Figure 1.

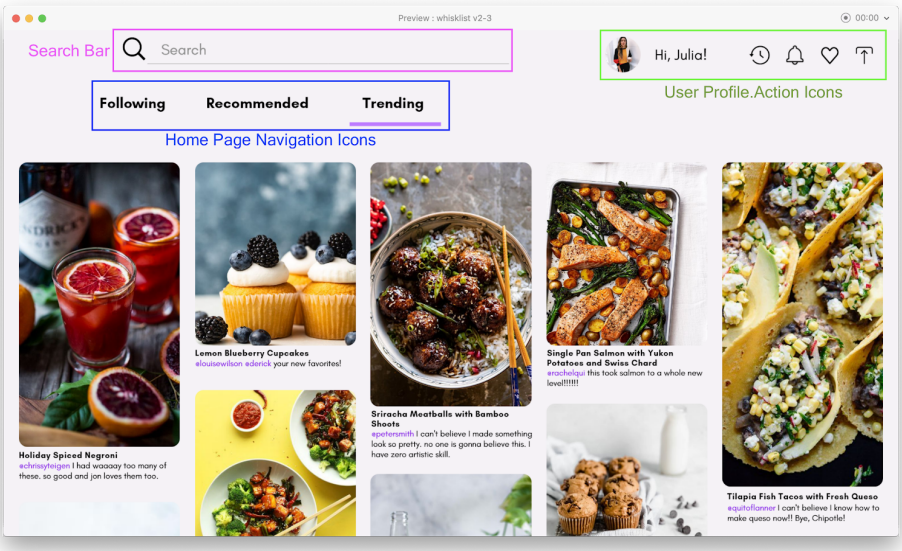

Figure 1. WhiskList HomeScreen

From the search page, the user can navigate to the search bar and search for a specific recipe. In this case, the user searches for banana bread and is presented with a variety of options. It is important to note the different layout of these search results. Our research has suggested that users desire a clean and easy to view layout for recipes when searching because they are looking for something specific. On the home page, they are simply browsing. The experience is slightly different and requires a different layout to simplify a user's mental model. The results from searching for banana bread are displayed below in Figure 2.

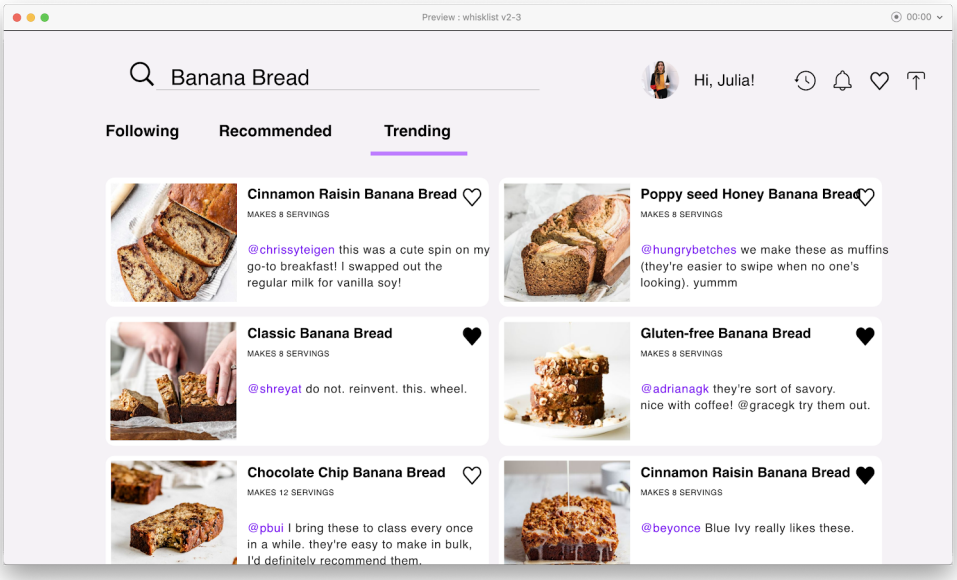

Figure 2. Results of Searching for Banana Bread

To continue, the user can then click on a specified recipe and be presented with an overview of the recipe. They can also filter to see the reviews of the current recipe to see what others have said about the given food. This is demonstrated below in Figure .

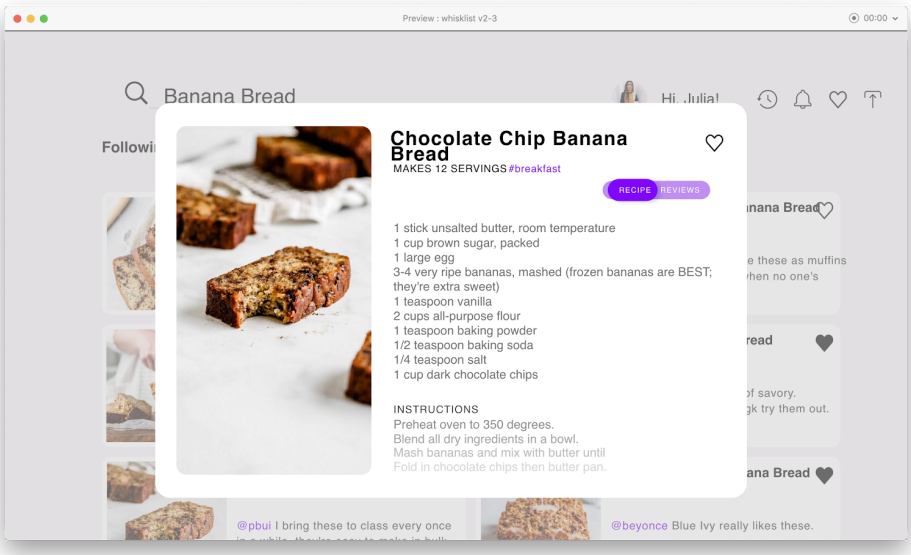

Figure 3. Recipe for a Selected Food

There are a few other main features provided within our final system. First, a user is able to view their saved recipes which is a collection of recipes that a given user can favorite to save for later and keep. This can be completed by clicking the heart icon on a presented recipe. Again, this page follows a block layout similar to searching since the user is most likely looking for a specific recipe and need a concise layout for easy searching. The saved page is illustrated below in Figure 4.

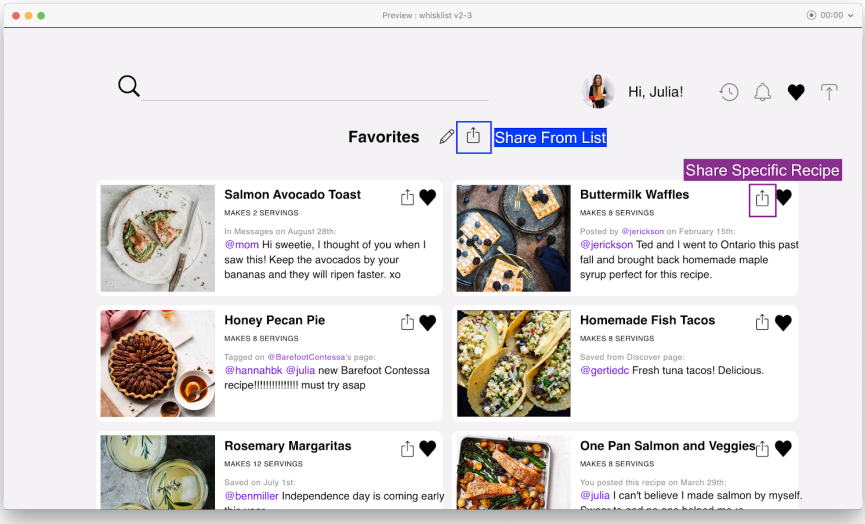

Figure 4. Saved Recipes of a Given User

This page leads into the second other functionality which is the ability to share a recipe. Sharing can occur one of two ways. First a user can click the share icon located at the top of the page in Figure 4 which allows a user to select a recipe from the list of saved ones, then send it. The second option is simply clicking the share icon on a specific recipe which directly brings you to the list of individuals who you can send a recipe too. Once a user is selected, you can simply click send to send them the recipe. This action is depicted below in Figure 5.

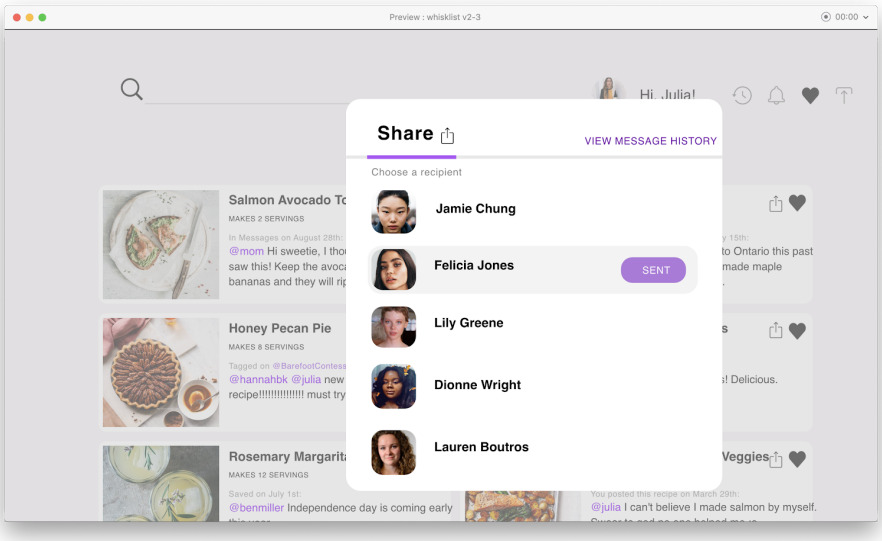

Figure 5. Sharing a Recipe

The final feature of the system is the ability to upload a post. This feature follows the layout similar to the popular social media platform Instagram. A user can add a title, description, image, and any tags they wish. They can upload a recipe from a text file or input the recipe on their own. The process is meant to be extremely simple and straightforward to allow for an easy uploading process. The uploading page can be accessed using the upload icon as a part of the user's profile icons shown in Figure 1. The upload page is displayed below in Figure 6.

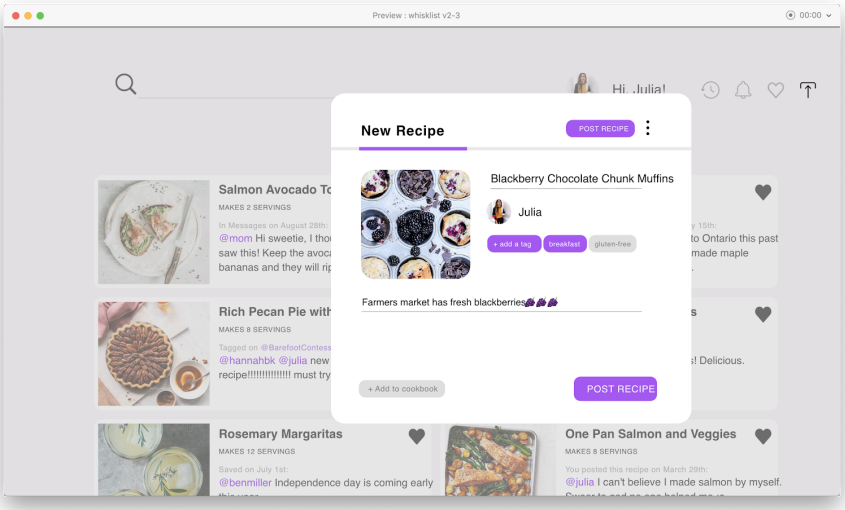

Figure 6. Uploading a Recipe

Overall the system layout of WhiskList is very straightforward and simple. The system follows the layout of other popular social media platforms to ensure that a user's mental model is in line with their previous experience and the mappings of the icons are similar too.

Since Update #2, there have been a few major changes implemented into our final design based upon our user feedback. First, we changed the overall size of the text of the system. One of the major concerns of users was that they were unable to view the descriptions, titles, usernames, etc. since the text size was too small. This was an easy fix and we updated our text size to 16pt which is standard for the size of body text. Second, users noticed an issue with the text and background image on certain pages. For example, in our Update #2 prototype, the background image for a given recipe was the specific food and text was placed on top of this image. Our group was able to fix this issue by changing the given background for a specific recipe. We added a plain white background to make the text pop on the screen while also keeping a picture of the recipe. Third, was the different home page tabs. Initially, we had them labeled as "New," "Tried," and "Discover." Users came across an issue with these tabs as they were unsure what each page was and how they were different. So, we decided to add more clarification with these pages and changed them to "Following," "Recommended," and "Trending." We thought these updated page names would clearly separate the pages and create distinct meanings for each page. We also moved the "Tried" page to the profile icons as outlined in Figure 1 and changed it to a clock icon to represent a history of viewed recipes. All in all, these are the main changes we made from our Update #2 prototype as described by feedback of users.

Overall, we added more functionality as described above. Our previous prototype only included the home screen, search page, and recipe view option. Our final prototype included these original features, but added a few more too. We added more depth to original features and then included the ability to save/view saved recipes, share recipes, and upload recipes. These cover the most popular abilities and actions that would need in order to use WhiskList.

Finally, our prototype supports three main tasks: searching for recipes, sharing a recipe, and uploading a recipe. As mentioned previously, we implemented a brief guide page upon

introduction and completion of a task to make the process smooth for the first time user. This is similar to an onboarding process for new users on new applications. It allows someone to walk through our platform and understand the functionality behind it. This is shown below in Figure 7.

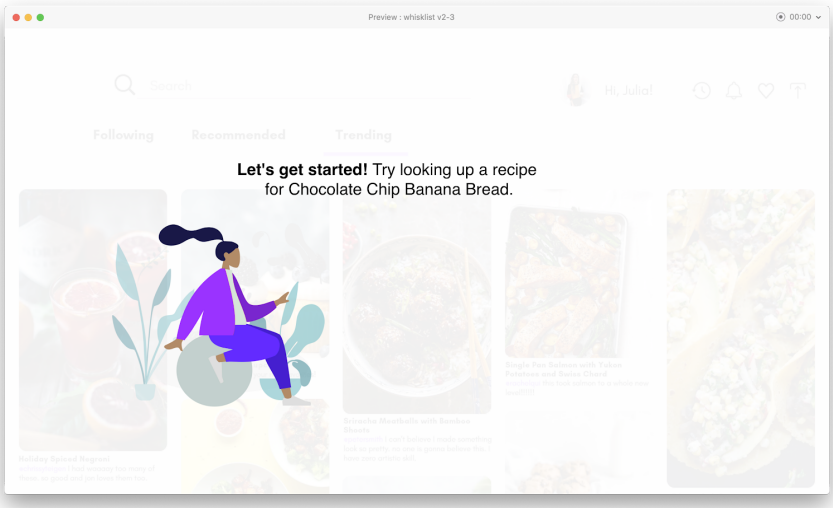

Figure 7. Onboarding Guide Screen

Usability Study

For our usability study, we decided to employ a variation of a think aloud summative assessment. Essentially, we decided to assign three tasks to users to perform with our system. We would use screen capture software to record their mouse movements and actions along with a video camera to record facial expressions and audio. During the performance of the tasks, we encouraged the users to express their thoughts, frustrations, pain points, ideas, etc. during this process as they communicated their actions. This allowed us to develop in the moment insight into a user's experience. Once the tasks have been completed, we will provide the user with a final questionnaire to assess their final thoughts and overall effectiveness of the platform. This debriefing will allow us to develop a full-scale model of a user's experience from their current experience with the platform to their experience after using the system. For a more in depth version of our procedure, please refer to the document titled "Procedure" in the "Usability Testing" folder within our "Final Update" folder.

For the recruitment of participants for the study, we aimed to obtain participants that reflect our five key stakeholders in our system. These stakeholders included both on and off campus students ranging from cooking experience levels of beginner to expert. In our prior research, the participants we selected to study reflected these five key stakeholders. Thankfully, these participants were our friends and roommates, so we were able to recruit these same individuals again for our usability study. This was beneficial for the study since the participants have been a part of the design process from the early stages. Therefore, they already have an idea about the purpose of the platform and possible activities that can be performed. For the study, we recruited a total of five total participants to use during this study.

There were two measures we aimed to collect during our think aloud summative usability study. First, we wanted to measure the overall efficiency of the platform. Using our screen capture footage and face camera, we were able to measure efficiency by the time completion of tasks, the number of errors committed, and the overall completeness of a task. All of these are quantitative measures that can be used for statistical and graphical analysis. These elements could be measured as a result of the in the moment actions committed by the user. The second measure we wanted to analyze was the overall effectiveness of the platform which is a post-task measurement. This is more of a subjective measure that relies on qualitative data from the participant. To determine the overall effectiveness of our platform, we provided the user with a debriefing after the completion of all tasks. This debriefing simply a conversation about the user's overall expectations, experience, thoughts, etc. This was meant to get an understanding of both specific and broad issues within the system.

Finally, there are a couple flaws within our study that we noticed. First, instead of a simple debriefing, our group realized providing a questionnaire to the users about their experience would have been more effective to collect data. We typically just had an informal conversation at the end of the study to receive qualitative information about the user's experience. For the sake of data, it would have been nice to have qualitative data in a more numerical sense to determine trends among satisfaction, expectations, etc. To be quite honest, we found that this was the only major flaw within our study. All other aspects of the study followed the typical think aloud usability assessment format very closely and resulted in useful conclusions about the overall usability and design of our system.

Usability Study Results

As mentioned previously, one of the qualities of our platform we attempted to measure was the overall efficiency. We measured this in the quantitative form of the number of errors committed and the overall time completion for each task. These were the main sources of quantitative data we were able to determine to measure. First, for the number of errors, we simply counted the number of errors committed based upon clicks of the mouse in incorrect areas of the screen. For example, if I am given the task of searching for a recipe and click on the upload icon, then that would be counted as an error. Essentially, if an action was committed that was not a part of the task at hand, then that would be counted as an error. Figure 8 below displays the graph results of the number of errors committed per participant.

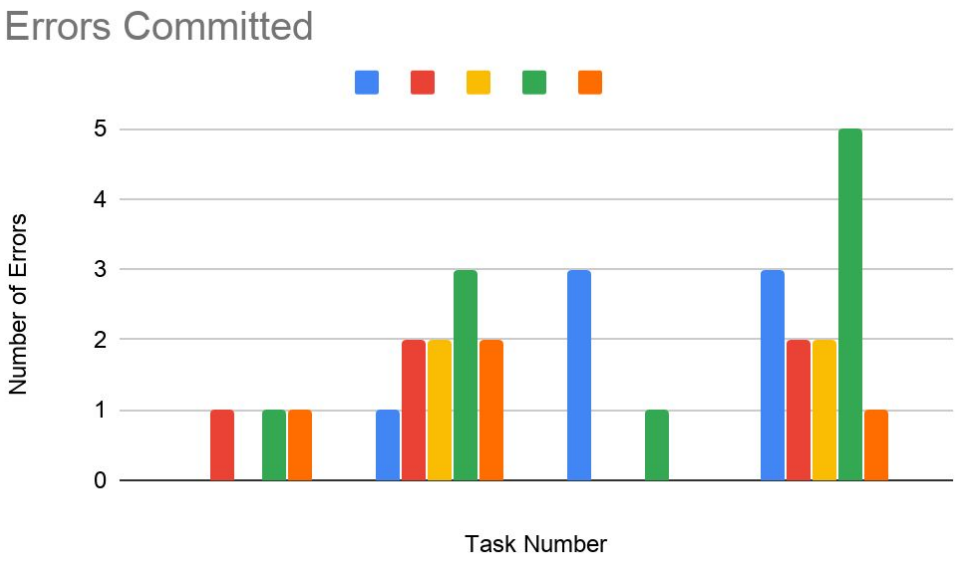

Figure 8. Number of Errors Committed

As seen above, the different clusters represent the different tasks. The first cluster being task #1, second being task #2, and so on. As seen above, the overall number of errors committed is relatively low with the minimum being 0 and the maximum being 7. The average across the board is 1.5 errors being committed with each task. However, task #4 has the highest overall average of errors committed during the performance with a value of 2.6 errors committed. Overall, this value is still relatively low, but this is the greatest of all the tasks. The reason task #4 has a higher average of errors is most likely because participants were unaware of the ordering for posting a recipe as dictated by the Adobe XD software. Participants mainly wanted upload and add upload features in anyway order they wanted. However, there was a specific order they had to follow which was not initially described in the study. Participants had to add a title, image, caption, and tag in that order. So, it is good to know that most of these errors are not a result of our design, but of the Adobe XD software and layout. Overall, the number of errors committed is relatively low which is useful for further development of our product.

The next statistical measurement we collected was the overall completion of each task. It is important to note that the time to complete a task began once the first onboarding screen disappeared and the next one appeared. The measurement is collected with the units of seconds and can be displayed below in Figure 9.

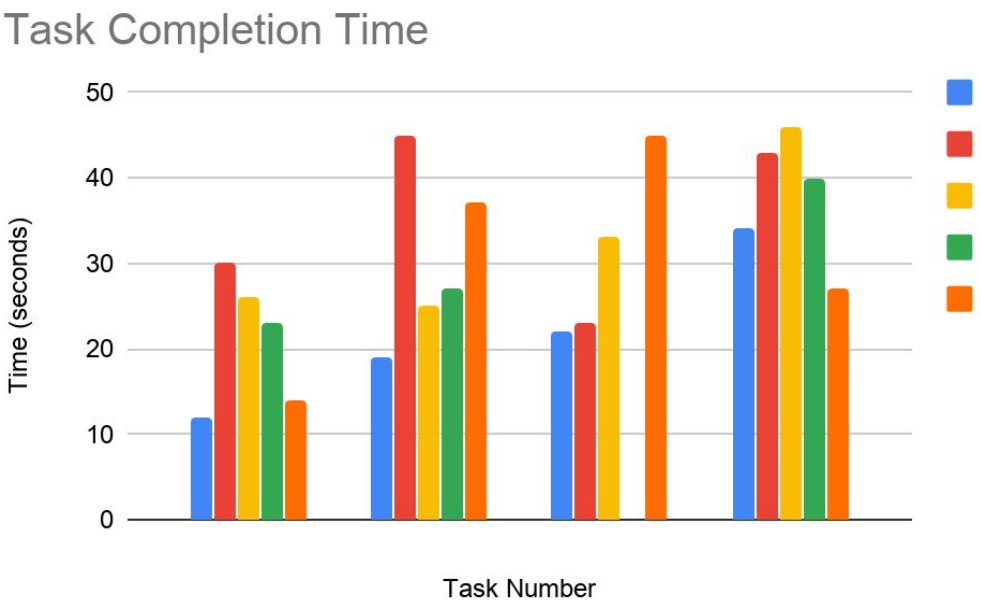

Figure 9. Task Completion Time

Again, as seen above, the different clusters represent the different tasks with the first cluster being task #1, second being task #2, and so on. Overall, the task completion time was moderate to low in time. Some tasks took longer to complete based upon user's voicing their thoughts and walking through the entirety of the screen. In task #3, the green participant did not complete the provided task. They accidently skipped the task and went straight to uploading instead of sharing. With the exemption of that action, the minimum task completion time was 12 seconds while the maximum was 46 seconds. The overall average across the board was 30.05 seconds with task #4 having the longest completion time. Again, this could be a result of the specified order of operations from the format of the software. Because participants had more errors in this section, they spent longer completing the task. The average completion time for task #4 was 38 seconds. For the raw data, statistics, and graphs of the task completion time and number of errors committed, please review the document titled "Measurements" within our "Usability Testing" folder in "Final Update."

As helpful as the above statistical measurements are, the debriefing and comments of the participants helped our group gain the most insight into the issues with out system. One of the main issues that we discovered was with sending a recipe to others. When a user selects another user to send a recipe to, they are presented with a "send" button. Upon pressing this button, the button turns to a lighter shade of purple and changes its text to "sent." We discovered that this caused quite a lot of confusion among users as they were unsure whether or not the the recipe had actually sent. One user mentioned in the debriefing that when an icon typically turns grey, it means that something is loading. So, the participant was unsure whether or not the recipe had actually sent. This issue could be fixed in numerous ways. One of the simplest solutions is to add a checkmark icon upon sending a recipe to visually communicate to the user that the recipe had successfully been delivered with no issues.

Another issue we discovered was that some users were confused by the wording of the initial onboarding guide page when searching for banana bread. They had believed that they were supposed to find the banana bread on the home page, not use the search feature. This could easily be fixed by changing the wording on the initial onboarding guide page to include the use of "search bar" to ensure the user knows to use the search function.

The third and final issue that was discovered was that the upload and share icons are too similar and may need added distinction between them. In one study, the participant referred to both the share and upload icon as the "share" button. Initially, this slip-up was ignored, but upon reviewing the footage and prototype, the two icons do appear to be very similar. Despite this not being a direct comment, the similarity between the two icons may be confusing to certain users. Obviously, they are different icons, but with a quick glance, a user could easily cause an unwanted error. This could be fixed by changing the upload icon to a different image. They share icon we use is pretty universal, so the change would have to occur with the upload icon.

Overall, the participants of the study found the prototype to be extremely usable and follow their mental models of what the platform should be like. As all of the participants engage in the use of social media, they have already been primed to use this layout based upon their previous experience. The usability study performed allowed our group to gain insight into the final flaws that we would correct granted we had more time to work on the project. Nevertheless, we found our final prototype to be very summative and representative of what a possible final product would be.

If We Had More Time

In reviewing the process of the development of WhiskList, there are a few main activities that helped create our final product. As simple as it may seem, the first is the initial meeting we had with our group to determine what we wanted to do for our project and where we wanted to take it. In this first meeting, we did not know each other, different technical backgrounds, and definitely different ideas for projects. However, we grouped together and decided to create a recipe platform for college age students which each group member was excited to work on. Each of us would be and were affected by this idea/problem on differing levels and we decided to run with the idea. Next, was the user research we did regarding rapid prototypes. We knew the general information we wanted display to users based upon research and other current platforms. However, we were unsure how to display the information and create an aesthetic design for our platform. Our rapid prototype interviews allowed our group to develop a deep understanding of how the users viewed, searched, and experienced content. Initially, we had two completely different layouts, but after our research, we decided to combine the two into what we believed was the "best of both worlds." Users loved this idea which became a significant driving factor in how we built our platform. For the rest, we had a very strong sense in how we wanted to design the platform and where we wanted to take it. These two actions throughout the process helped form what WhiskList is today.

Also, looking back on the process, our group wishes we spent more time researching current recipe applications or websites to gain a better sense of current solutions on the market. We did review a couple popular platforms, however, we thought it would have been helpful to put users in front of these platforms to determine their frustrations and ideas about

these variations. Taking their ideas, we could improve upon current recipe applications and develop a better version of our own which fills the gaps these current systems have. Other than these two things, there are not any other parts of the design process our group wishes we had done differently.

On the other hand, if we had more time, there are a few key actions and activities that our group would carry out to further develop this product. First, we would fix the usability errors from the feedback we received during our usability testing. As discussed above, most of the errors were pretty minimal and could be fixed with simple signifier or text changes. Nevertheless, to further refine the prototype, we would first fix these usability errors discovered in our testing. Next, we would take our prototype a step further and build-out the platform. This means transitioning from the Adobe XD software to a full HTML, CSS, and Javascript platform that can be run as an official webpage. This would be quite the heavy task to complete, but in the process of developing WhiskList, it is the final step we can reach to fully complete the project and turn it into a functioning web page. It is completely possible that we lose the integrity of the design during this process, so in order to maintain that, we can always scale back down and just continue to develop the Adobe XD prototype to include more functionality such as viewing history, trending/followed pages, notifications, etc. No matter the route we take, the next major step would be to add more functionality to the platform and continue to develop WhiskList until we are closer to a final product.

Files and Usage

To locate our final prototype, you must first access our group's folder labeled as "TP5_WhiskList(Boutros, Tursi, Merrick)." Within this folder, enter the "Final Update" folder and then the "Final Prototype" folder within that too. In this folder, we have two files. The first file is the actual prototype supported by the Adobe XD software. To access this prototype, ensure you have the Adobe XD software downloaded, download the "whisklist v2.xd" file, and open that file with Adobe XD. The user is presented with an overview of our system's pages and connections. Simply click the play button in the top right to begin the demo. The second file in the folder is video file walk through of our system. So, if you are unable to download the Adobe XD software, watch this video to receive a full walkthrough for functionality of our system.