

# Meal Planning - Design Refinement Report

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## I. Design Changes

Our initial figma prototype was very similar to the paper design that our team created. However, during our paper testing there were changes that needed to be made due to our user feedback. The first change that we made was to include a calendar option where you could view it either by daily, weekly, or monthly instead of only being able to view it by date. After the user logged in the initial design would go straight to the menu option which contains: Meal Plan Calendar, Grocery List, and Recommendations. When the user's task was to add the breakfast item of blueberry pancakes, the user would click on recommendations instead of the calendar option. We changed our app to go directly to the calendar date so that this way they would know to click "add meal" at the bottom. The next changes were to the meal recipes. In our paper prototype we had the ingredients, instructions, and nutritional information all on one screen, however, when it came to the figma design this was not working as the space is limited. The changes were to show the ingredients, but instead add buttons that would take you to the instructions and nutrition. The instructions and nutrition were then reformatted because they were difficult to read. During our design process with the allotted time, we did not implement the ability to view the grocery list, nor did we implement the ability to remove ingredients from the recipe in the event that we already had the ingredients in stock. We hope to add at the very least, one of these options to our final design.

## II. Cognitive Walkthrough

### **Task 1 - Log in with an account**

#### **Step 1.1: Enter username into the "username" text box**

- **Will the user try and achieve the right outcome?** Yes, the input text box is labeled as "username" and the input box is next to it.
- **Will the user notice that the correct action is available to them?** Yes, the user will see that the username stays in the input box and they can move on to creating a password.
- **Will the user associate the correct action with the outcome they expect to achieve?** Yes, the username will show up after it's inputted.
- **If the correct action is performed, will the user see that progress is being made towards their intended outcome?** Yes, they will see that the username is present and they can now move on by adding a password.

#### **Step 1.2: Enter your password into the "password" text box, asterisks will show up in place of the password.**

- **Will the user try and achieve the right outcome?** Yes, there is a label that says "password" with an input box next to it.
- **Will the user notice that the correct action is available to them?** Yes, the input box is visible to the user.

- **Will the user associate the correct action with the outcome they expect to achieve?** Yes, after they input the password, they will see that the “Log In” button will be highlighted, verifying that their task is complete and they can proceed.
- **If the correct action is performed, will the user see that progress is being made towards their intended outcome?** Yes, they will see that the “Log In” button is highlighted allowing them to navigate to the homescreen.

**Step 1.3 - Click the arrow button next to “Make my meals” and it will take you to the home page.**

- **Will the user try and achieve the right outcome?** Yes, the “Log In” button will be highlighted and clickable once the previous two tasks are completed.
- **Will the user notice that the correct action is available to them?** Yes, it will highlight the “Log In” button after both the username and password are inputted.
- **Will the user associate the correct action with the outcome they expect to achieve?** Yes, the button shows up only after the username and password are inputted therefore the user can acknowledge that they have successfully logged in.
- **If the correct action is performed, will the user see that progress is being made towards their intended outcome?** Yes, once the user clicks on the button, they will be taken to the home page.

**Task 2 - Add Blueberry Pancakes for Breakfast to your Meal Planner for the 25th of March**

**Step 2.1 - Select Menu:**

- **Will the user try and achieve the right outcome?** Yes. Following the previous task, the user will select the menu icon.
- **Will the user notice that the correct action is available to them?** Yes. The icon we utilized in our interface includes a well-known symbol for a menu option. The position of the menu icon is also commonly implemented in other interfaces.
- **Will the user associate the correct action with the outcome they expect to achieve?** Yes.
- **If the correct action is performed, will the user see that progress is being made towards their intended outcome?** Yes, after selecting the menu option. The user will be brought to the menu page where they will see the Meal Planner Calendar as an option,

**Step 2.2 - Select Meal Plan Calendar:**

- **Will the user try and achieve the right outcome?** Yes.
- **Will the user notice that the correct action is available to them?** Yes. In the menu slide, an option for selecting the meal plan calendar is in bold.
- **Will the user associate the correct action with the outcome they expect to achieve?** Yes.

- **If the correct action is performed, will the user see that progress is being made towards their intended outcome?** Yes. After selecting the meal plan calendar option, the user will be brought to a month calendar page.

#### **Step 2.3 - Select the Daily Option:**

- **Will the user try and achieve the right outcome?** Yes.
- **Will the user notice that the correct action is available to them?** Yes. In the Daily Options, there is an option for selecting a daily, monthly, or weekly view.
- **Will the user associate the correct action with the outcome they expect to achieve?** Yes.
- **If the correct action is performed, will the user see that progress is being made towards their intended outcome?** Yes. After selecting the meal plan calendar option, the user will be brought to a month calendar page.

#### **Step 2.4 - Select the 25th of March:**

- **Will the user try and achieve the right outcome?** Yes.
- **Will the user notice that the correct action is available to them?** Yes. There will be a plus button for the user to select.
- **Will the user associate the correct action with the outcome they expect to achieve?** Yes.
- **If the correct action is performed, will the user see that progress is being made towards their intended outcome?** Yes. After selecting the date, the user will see the date specified on the calendar with options.

#### **Step 2.5 - Select Add Meal:**

- **Will the user try and achieve the right outcome?** Yes.
- **Will the user notice that the correct action is available to them?** Yes. There will be a plus button for the user to select.
- **Will the user associate the correct action with the outcome they expect to achieve?** Yes.
- **If the correct action is performed, will the user see that progress is being made towards their intended outcome?** Yes. After selecting the add meal, the user will see meals specified in categories "Breakfast, Lunch, Dinner, Snacks, Dessert".

#### **Step 2.6 - Select Breakfast:**

- **Will the user try and achieve the right outcome?** Yes.
- **Will the user notice that the correct action is available to them?** Yes. There will be a plus button for the user to select.
- **Will the user associate the correct action with the outcome they expect to achieve?** No. Some people might think that pancakes are a dessert item.
- **If the correct action is performed, will the user see that progress is being made towards their intended outcome?** Yes. After selecting the add meal, the

user will see meals specified in categories “Breakfast, Lunch, Dinner, Snacks, Dessert”. If they did select dessert, pancakes will not be there and they will have to find the correct item under another category.

- **If the correct action is performed, will the user see that progress is being made towards their intended outcome?** Yes

#### **Step 2.7 - Select Blueberry Pancakes:**

- **Will the user try and achieve the right outcome?** Yes.
- **Will the user notice that the correct action is available to them?** Yes. There will be a plus button for the user to select.
- **Will the user associate the correct action with the outcome they expect to achieve?** Yes.
- **If the correct action is performed, will the user see that progress is being made towards their intended outcome?** Yes.

#### **Step 2.8 - Select Add to Meal Plan:**

- **Will the user try and achieve the right outcome?** Yes.
- **Will the user notice that the correct action is available to them?**  
Yes. There will be a plus button for the user to select.
- **Will the user associate the correct action with the outcome they expect to achieve?** Yes.
- **If the correct action is performed, will the user see that progress is being made towards their intended outcome?** Yes.

### **Task 3 - Add Vietnamese Pho lunch from the Calendar page for the 25th of March**

#### **Step 3.1 - Select Menu:**

- **Will the user try and achieve the right outcome?** Yes. Following the previous task, the user will select the menu icon.
- **Will the user notice that the correct action is available to them?** Yes. The icon we utilized in our interface includes a well-known symbol for a menu option. The position of the menu icon is also commonly implemented in other interfaces.
- **Will the user associate the correct action with the outcome they expect to achieve?** Yes.
- **If the correct action is performed, will the user see that progress is being made towards their intended outcome?** Yes, after selecting the menu option. The user will be brought to the menu page where they will see the Meal Planner Calendar as an option,

#### **Step 3.2 - Select Meal Plan Calendar:**

- **Will the user try and achieve the right outcome?** Yes.
- **Will the user notice that the correct action is available to them?** Yes. In the menu slide, an option for selecting the meal plan calendar is in bold.

- **Will the user associate the correct action with the outcome they expect to achieve? Yes.**
- **If the correct action is performed, will the user see that progress is being made towards their intended outcome? Yes.** After selecting the meal plan calendar option, the user will be brought to a month calendar page.

#### **Step 3.3 - Select the Daily Option:**

- **Will the user try and achieve the right outcome? Yes**
- **Will the user notice that the correct action is available to them? Yes**
- **Will the user associate the correct action with the outcome they expect to achieve? Yes**
- **If the correct action is performed, will the user see that progress is being made towards their intended outcome? Yes**

#### **Step 3.4 - Select the 25th of March:**

- **Will the user try and achieve the right outcome? Yes**
- **Will the user notice that the correct action is available to them? Yes**
- **Will the user associate the correct action with the outcome they expect to achieve? Yes**
- **If the correct action is performed, will the user see that progress is being made towards their intended outcome? Yes**

#### **Step 3.5 - Select Add Meal:**

- **Will the user try and achieve the right outcome? Yes**
- **Will the user notice that the correct action is available to them? Yes**
- **Will the user associate the correct action with the outcome they expect to achieve? Yes**
- **If the correct action is performed, will the user see that progress is being made towards their intended outcome? Yes**

#### **Step 3.6 - Select Lunch:**

- **Will the user try and achieve the right outcome? Yes**
- **Will the user notice that the correct action is available to them? Yes**
- **Will the user associate the correct action with the outcome they expect to achieve? Yes**
- **If the correct action is performed, will the user see that progress is being made towards their intended outcome? Yes**

#### **Step 3.7 - Select Vietnamese Pho**

- **Will the user try and achieve the right outcome? Yes**
- **Will the user notice that the correct action is available to them? Yes**
- **Will the user associate the correct action with the outcome they expect to achieve? Yes**

- If the correct action is performed, will the user see that progress is being made towards their intended outcome? Yes

#### **Step 3.8 - Select Add to Meal Plan:**

- Will the user try and achieve the right outcome? Yes
- Will the user notice that the correct action is available to them? Yes
- Will the user associate the correct action with the outcome they expect to achieve? Yes
- If the correct action is performed, will the user see that progress is being made towards their intended outcome? Yes

### **Task 4 - Filter lunch recipes by time to an hour**

#### **Step 4.1 - There are three options:**

- Click on the button “Add meal” in the main menu
  - Click on the button “Add meal to Calendar” in the calendar menu
  - Click on “Recommendations” in the sidebar menu
- Will the user try and achieve the right outcome? Yes
  - Will the user notice that the correct action is available to them? No. We think that changing “Recommendations” in the sidebar to “View recipes” would allow users to notice the action better.
  - Will the user associate the correct action with the outcome they expect to achieve? Yes
  - If the correct action is performed, will the user see that progress is being made towards their intended outcome? Yes

#### **Step 4.2 - Select the meal type “Lunch”:**

- Will the user try and achieve the right outcome? Yes
- Will the user notice that the correct action is available to them? Yes
- Will the user associate the correct action with the outcome they expect to achieve? Yes
- If the correct action is performed, will the user see that progress is being made towards their intended outcome? Yes

#### **Step 4.3 - Click on the filter icon on the top right corner:**

- Will the user try and achieve the right outcome? Yes
- Will the user notice that the correct action is available to them? Maybe. We suggest adding a label named “Filter” under the filter icon.
- Will the user associate the correct action with the outcome they expect to achieve? Yes
- If the correct action is performed, will the user see that progress is being made towards their intended outcome? Yes

#### **Step 4.4 - Drag the sidebar to select 1 hour:**

- Will the user try and achieve the right outcome? Yes
- Will the user notice that the correct action is available to them? Yes
- Will the user associate the correct action with the outcome they expect to achieve? Yes
- If the correct action is performed, will the user see that progress is being made towards their intended outcome? Yes

**Step 4.5 - Click on the X button to exit out of the filter menu:**

- Will the user try and achieve the right outcome? Yes
- Will the user notice that the correct action is available to them? Yes
- Will the user associate the correct action with the outcome they expect to achieve? Yes
- If the correct action is performed, will the user see that progress is being made towards their intended outcome? No. We suggest adding a “Save” button at the bottom to show that their filtering options were saved. If they don’t click “Save” and then click “X”, there will be no filters applied.

### **III. Prototype**

**Prototype Link:**

<https://www.figma.com/file/84l6cjhIpR0c83HfmvahGG/My-Meal-Planner?node-id=0%3A1&t=4x8Vmzwt654RsFV0-1>

**Prototype Task List:**

1. Log in with an account
2. Add Blueberry Pancakes for Breakfast to your Meal Planner for the 25th of March
3. Add Vietnamese Pho lunch from the Calendar page for the 25th of March
4. Remove Vietnamese Pho
5. Filter lunch recipes by time to less than 40 minutes

### **IV. Heuristic Evaluation Feedback**

**Evaluation By:** Movie Recommender Group

SEVERITY RATING SCHEME	
RATING	DESCRIPTION
0	Don't think this is a usability problem

1	Cosmetic problem
2	Minor usability problem
3	Major usability problem; important to fix
4	Usability catastrophe; imperative to fix

#### [H1 Help and documentation]

- (Severity 1) I could not find the filter option, the 4th task for the life of me. I asked for help, I didn't realize you had to click “add meal” first, then “lunch” or other eating time, then the filter option was available. The filter option also has only an image and there's no text saying it's a filter. The image is a bit confusing, I couldn't tell it was a filter. If you could make it a bit more intuitive than that would fix it, or you possibly add an initial help guide.
- (Severity 3) Did not have an option to select a date to add a meal. Automatically placed on the 25th of March. It looks like the 25th was set but was not immediately obvious, I only knew from clicking the Daily button to see that the day was selected to the 25th. I was also trying to click the date of March 25 but was unsure if I was selecting the day or not. I'm unsure of how it will be implemented in the final product but I suggest either clicking the specific day to add or after clicking the add to meal plan button to specify the day of which to add the meal.
- (Severity 3) Meal preference filter time slider is not detailed enough for me to exactly how long of a meal time preparation I am inputting

#### [H3 Consistency and Standards] (Severity 3)

- The calendar initially is formatted a bit weird, in terms of aesthetic, I think if the calendar doesn't take up the majority of the screen it will look cleaner, and also if you had time of day it would be easier to see. This may be worse on smaller screens.
- Nutritional Formatting: Hard to look at as the values are on the next line, maybe keep the values on the same last as they are representing
- After adding the breakfast meal, I don't know if it is breakfast, I understand it's on top, but there's no time slots, like if a user for example is fasting, and they wanted just lunch, would it show up on the top too as if it were breakfast.
- On the second item I added (Vietnamese pho), the ingredients list was large, and I noticed you made the font smaller to fit all of it at once. Perhaps if you separate it into 2 pages you can click through it'd be easier to see. It would also be nice if you make the formatting consistent across the different meals.



- Unable to log off. Accidentally logged in before creating an account. No option to log off from the main page or from clicking the menu button.

[H7 Flexibility and Efficiency of use] (Severity 2)

- My first initial action to task 2, was to click the day (mar 25). I thought I would click the day, then it would highlight the day, and I could click to add a meal. I believe it would be more flexible for the user if they could click on the day and then click add meal. Or have both options available.
- (Severity 2) Once I got used to the interface of the application, I think a quick add button to meals would be really helpful from the meal selection menu instead of having to click the meal itself and click add to meal plan.

[H8 Aesthetic and minimalist design] (Severity 3)

- My first approach was to click on “add meal” but the task list guided me to click on the side where the calendar listed the 25th of saturday. Adding the next meal was simple, and had the same steps as the first.
- I think there are too many days on the screen at once, since this is a vertical platform, the days are kinda squished, maybe show less days at once, perhaps 3-4.
- After adding the blueberry pancakes, the image of the meal is placed on the calendar, however I think it is quite small and hard to see what it is exactly. I was hoping the name would show up too. This is similar to the previous issue, if you show less days i believe it would be much easier to see.
- The nutritional information page is a bit hard to read. I feel it could use better formatting.
- After adding the Vietnamese pho, I noticed the meal was added near the top just right after the pancakes. I believe if you move it down a bit more, it’d be easier to tell its lunch, not like a second breakfast meal. Because it may seem like I am eating lunch immediately after breakfast.
- After adding the two meals, I viewed the monthly format, and I believe it would be better to state the names of the meals instead of the pictures, as they’re really small, and I could imagine if you had more than 3 meals, it would be squished.

[H9 Help users recognize, diagnose, and recover from errors] (Severity 4)

- Provide clear error messages with specific solutions.
- I did not encounter any error messages, for example when trying to access groceries or recommendations.

[H10 Help and documentation] (Severity 3)

- Related to the above issue, I was unsure how to select a date. Some type of help or tutorial would have been helpful.
- There was no help or info section.




- Fix: I think just adding a simple help window would be enough.

#### Compliments:

1. Login screen is visually pleasing, and functional and intuitive.
2. Although I do like the option to click daily or monthly.
3. I like that when you click on the recipe, it is quite detailed. You have the ingredients, the instructions. The nutrition.
4. I like the drop down menu showing the 3 different functionalities of the app. Very intuitive menu. Good choice of imagery.
5. Nice color scheme, and it remains consistent throughout
6. Overall for the initial hi-fidelity prototype, it looks like a lot of work was done to it and it is nice.

#### V. Powerpoint Presentation

<https://docs.google.com/presentation/d/1rNMKGUbWCj5jSMmLuSpsGsK2XJwVLBa5/edit?usp=sharing&ouid=117750450760312822322&rtpof=true&sd=true>

 <h2>Meal Planning</h2> <p>COMP 135 - Spring 2023</p> <p>By: Miguel Contreras, Santi Gutierrez, Aisha Jones, Marissa Morones, Vy Nguyen</p>	<ul style="list-style-type: none"> <li>I. Our Goals</li> <li>II. Scenarios</li> <li>III. Design of Prototype</li> <li>IV. Demo of Prototype</li> <li>V. Lessons Learned</li> </ul>
<h3>I. Our Goals</h3> <ul style="list-style-type: none"> <li>• Create a beneficial app</li> <li>• Find a balance between features and designs</li> <li>• App is easy and intuitive to use</li> </ul> 	<h3>II. Scenario 1: Meals for the Entire Family</h3> <p><b>Scenario:</b> User 1 is a full-time working <u>parent</u> who meal plans with their spouse. This user meal plans for their <u>entire family</u> and wants a <u>quick &amp; easy</u> way to find simple, healthy meals for the family.</p> <p><b>What do they want?</b></p> <ul style="list-style-type: none"> <li>• Accommodate family's preferences             <ul style="list-style-type: none"> <li>◦ Include variety of preferences                 <ul style="list-style-type: none"> <li>■ Dietary preferences</li> </ul> </li> </ul> </li> <li>• Find time-efficient meals</li> <li>• Find ingredients that are similar to the foods their family prefers</li> </ul> 

## II. Scenario 2: Meals for a Healthy Lifestyle

**Scenario:** User 2 actively works out and enjoys meal planning as part of their diet. Given that this user sticks to a strict nutrition/diet, this individual wants to find new recipes that provide the same benefits as the food they normally eat.

### What do they want?

- Find new meals that match the nutritional benefits of the meals they already eat
- A variety of different ingredients



## II. Scenario 3: Meals for an Undergraduate

**Scenario:** User 3 is an undergraduate student that meal plans as a means of saving time and money.

### What do they want?

- Find cost efficient meals
- Prepare and follow recipes that allow them to prep meals in bulk for the week
- Schedule out their meals to have plenty of energy during busy exam weeks



## Persona 1 – Scott, a Family Meal Planner

### Biography

- Male, 45
- Lives in Williamsport, Ohio
- Automotive Mechanic

### Struggles with Finding

- New simple healthy meals for family
- Alternative ingredients for low carb diet
- Ingredients that can be bought in bulk and used in most recipes like rice



### Current Situation

- Meal plans for family of 4
- Wife and him works from 8am-5pm
- Buys groceries every Sunday
- Cooks dinner daily and prepares breakfast & lunches for the next 2 days
- Switches cooking with wife
- Often looks online for new recipes on websites like Pinterest
- Usually spends around \$175 every week

## Persona 2 – Tina, a Weekly Meal Planner

### Biography

- Female, 25
- Actively exercises

### Meal Planning Resources

25%  
Inventing new meal prep ideas from experience

75%  
Internet and Social Media



### Planning Experience

- Has 2-3 meals a day (1 meal protein shake)
- Does not stray away from meal plan.
- Encourages food tracker application to manage ideas for meal prepping.
- Meal preparations occasionally outsourced by another food service provider.
- Spends \$75-\$100 on food items in one week.

## Persona 3 – Estella, Team Meal Planner

### Biography

- Female, 20
- College student
- Lives in Manteca, CA

### Struggles with Finding

- A source of information that compares the best price ingredients for meals
- Well-balanced meals
- Time-efficient meals given academic responsibilities



### Planning Experience

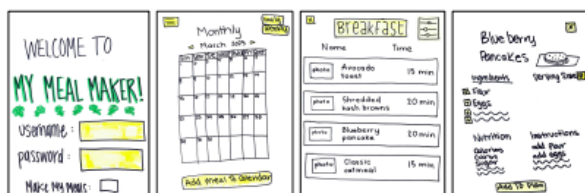
- Buys ingredients weekly
- Wants to maintain a healthy balance of foods
- Values teamwork
- Cooks for one other person whom she meal plans with
- Eats about three meals a day
- Cooks meals that she is familiar with but would like to explore new recipes

## III. Application Design

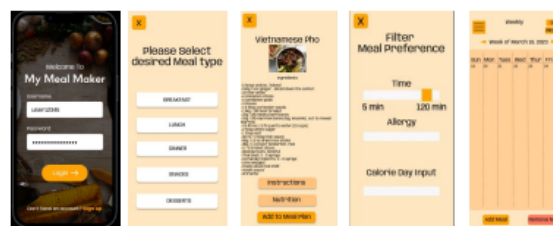
How it started...



## Initial Application Design – Low Fidelity Prototype



## Final Application Design – High Fidelity Prototype



## Changes made from Low Fidelity to High Fidelity

### Visual Aesthetics:

- 1) **Proximity** - grouped together specific categories of food for the user to select easily through the "breakfast, lunch, dinner, desserts, snacks" selections.
- 2) **Alignment** - pictures, texts, and fonts were organized center justified on the meal types. Center justifying was a theme set in place for the whole prototype.
- 3) **Repetition** - added the close and back buttons to every page for the user to easily maneuver throughout the prototype.
- 4) **Contrast** - darkened the action buttons for the user to have easy actions to complete their tasks.

## Changes made from Low Fidelity to High Fidelity continued...

### Shneiderman's "Eight Golden Rules of Interface Design":

- 1) **Strive for consistency** - the low fidelity prototype had multiple buttons that meant the same thing / action. The user was confused. We shorted the paths for error by limiting the prompts and buttons that could potentially mislead the user.
- 2) **Enable frequent users to use shortcuts** - the low fidelity prototype did not have the ability to save or edit the changes to the meal planner calendar. This was added in the high fidelity prototype.
- 3) **Offer informative feedback** - added symbols to notify the user the tasks were completed and the meal was added to their plan.
- 4) **Design dialog to yield closure** - the low fidelity prototype had usability errors with navigating to the next step. This was fixed in the high fidelity prototype by adding a menu button onto every page for easy access.
- 5) **Offer simple error handling** - the low fidelity prototype had usability
- 6) **Permit easy reversal of actions** - added the remove meal button and back button
- 7) **Support internal locus of control** - user had ability to add a meal by themselves by choosing the correct options but had control to choose others.
- 8) **Reduce short-term memory load** - the high fidelity aesthetics are minimal and pleasing to navigate through.

## IV. Demo of Interactive Prototype

### Task List for Prototype:

1. Log in with an account
2. Add Blueberry Pancakes for Breakfast to your Meal Planner for the 25th of March
3. Add Vietnamese Pho lunch from the Calendar page for the 25th of March
4. Remove Vietnamese Pho
5. Filter lunch recipes by time to less than 40 minutes

<https://www.figma.com/file/84l6cjHj0R0c83HfmmvahGG/My-Meal-Planner?node-id=0%3A16t=99P00eUjtJrmYXHj-1>

## V. Biggest Lessons Learned

### Start Simple And Create A List of Ideas:

Start small, then work your way up. Think about which features to have and details before moving on. Remove any features that may not be completed within the allotted time or are too complex.

**Example - 1:** Begin with a basic meal planner for everyone. Gradually incorporate features that cater to your target audience to avoid design confusion.

**Example - 2:** List top 3 features to add to the base model, then add additional features requested by the personas. Calorie count was not accomplished to to complexity of multiple screen additions and scenarios.

**Example - 3:** Our plan for automatic grocery list and remove items on-hand was not yet been implemented because it requires each ingredient to be its own button. We also have not implemented viewing grocery list, which was one of our main points.

## V. Biggest Lessons Learned continued...

### Plan Your Design Prior To Creating The Prototype:

Use organizational charts such as a flow chart of which task should be connected to the corresponding task.

**Example:** The calendar feature in our app was simple, however, became difficult during the figma prototype design. In order to achieve this, we had to duplicate the process many times.

### Test As You Go:

Test your design during the process and not only at the end. This will allow you to see fix any errors before proceeding to the next step. Once you master that, move on to the next step and make sure that it works with the previous step and continue the process.

**Example:** We ran into issues where we could not exit and stuck on the blueberry pancake screen during testing. The nutrition information was difficult to read along with the instructions. We could have tested the app prior to completing the task, to save time in fixing all the screens.