

# TheGivingTree

Make your donations go further.

*CS 147 - Winter 2022*

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## OUR TEAM

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## PROBLEM & SOLUTION OVERVIEW

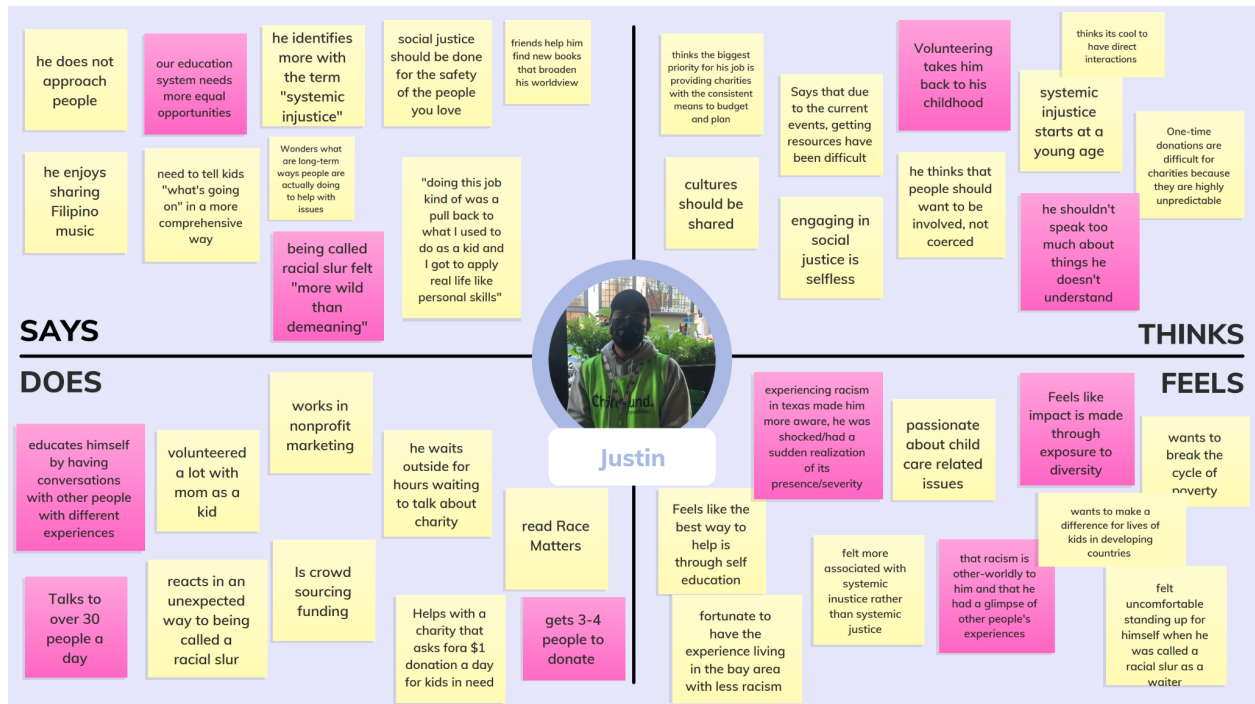
From finding where to donate, to which charities are most in need, and then keeping track of these donations until tax season rolls around, giving is filled with pitfalls for the average donor.

Our mission is to help donors donate easily and effectively to the causes they care about and track their donations over time.

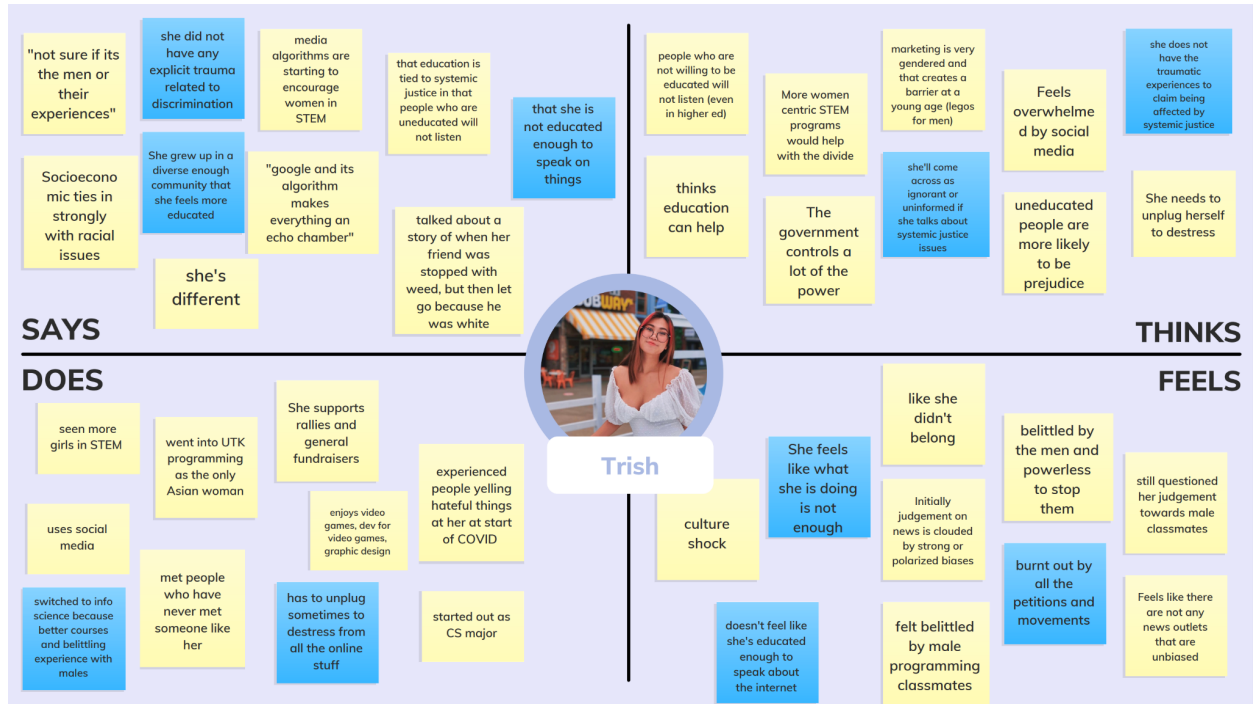
We want to create a platform that takes the guesswork out of donating by automatically identifying high-impact nonprofits that users can donate to, letting them set up recurring donations, and managing donations long-term.

## NEEDFINDING INTERVIEWS

To start, we interviewed a wide variety of people to see what problems they had related to systemic injustice. We met Justin, a middle-aged man who works as a direct marketer for a nonprofit in the Bay Area. As an employee for a charity, he explained that one of the biggest difficulties for his organization is finding consistent donors. Given his involvement in youth organizations, he stressed the importance of being able to provide kids with consistent food, shelter, and education, expenses which are all recurring over long periods of time. Unfortunately, many donors often give one-time lump sums, making it difficult to budget within the organization long-term.



In addition, we interviewed several of our peers at Stanford and at home past the official needfinding process. During this time we found that our peers often knew which causes they wanted to donate towards, but struggled to find an actual organization to support. Given the widespread media coverage of specific movements, the same organizations tend to be reposted on media feeds. This leads to several organizations being overfunded and donations to be improperly used. Across the board, identifying the legitimacy of an organization seemed to be an additional struggle for all the college-age students. \*\*\*



\*\*\* Note: Past our POVs and HMW we identified a different issue and performed additional needfinding. Our collection of students gave the inspiration behind the app and that is why our POVs and HMWs do not match our needfinding.\*\*\*

## POVs & EXPERIENCE PROTOTYPES

Using the insights from our needfinding interviews, we proceeded to generate POV statements for each interview, and brainstormed HMWs from those:

POV 1:	HMWs:
<p>We met Trish who is an undergraduate studying Info Science at UT Knoxville.</p> <p>We were surprised to realize that she changed her major because she felt isolated as the only woman in her CS classes, and belittled when her male counterparts spoke down to her.</p>	<p>How might we create a space dedicated to building support for women in STEM?</p>

<p>We wonder if this means that regardless of her skill set, what drives her choice in major is her environment and peers, specifically how welcoming they are.</p> <p>It would be game-changing to make educational environments welcoming regardless of identity.</p>	
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POV 2:	HMWs:
<p>We met Susan, a 56-year-old conservative Asian immigrant who is a software engineer at Hitachi Energy.</p> <p>We were surprised to realize that she claims racism towards Black people is not a systemic issue, but rather a result of statistics/lived experience while she points out systemic issues towards anti-Asian hate such as lack of media coverage and diversity in education.</p> <p>We wonder if this means that she has developed an unempathetic view of Black people because she was not met enough to see them as people rather than statistics.</p> <p>It would be game-changing to bring people together from different POC groups to share stories and increase perspective and understanding.</p>	<p>How might we encourage people to learn and empathize with issues that do not affect themselves?</p> <p>How might we explain concepts of oppression with more emotion/stories rather than statistics?</p>

POV 3:	HMWs:
<p>We met Amber, a 23-year-old woman from Los Baños, CA who works as a delivery driver for a cannabis dispensary.</p> <p>We were surprised to realize that she said nothing else comes to mind when she thinks of systemic inequity</p>	<p>How might we leverage the internet to create educational spaces outside the classroom</p>

<p>besides the parents someone is born with and the perspectives they provide.</p> <p>We wonder if this means that she is upset at her parents for not offering her diverse perspectives and feels they inhibited her development as an open-minded individual.</p> <p>It would be game-changing to provide children with mentors outside their parents to help offer them new perspectives that their parents cannot.</p>	<p>for children to learn to recognize and develop sensitivity to the needs of people with identities different than their own?</p>
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With these HMWs in mind, we then brainstormed potential solutions to solve these problems. Our top three solutions are listed below, and we then conducted experience prototypes to test a key assumption behind each one.

Solutions	Experience Prototype
<p>Create a platform that allows users to anonymously ask non-politically correct questions they would be uncomfortable asking in person.</p>	<p><b>Asking about Identity Anonymously:</b></p> <p><b>Assumption:</b> People are uncomfortable asking personal questions about racial experiences in person but are willing to anonymously.</p> <p><b>What we did:</b></p> <ul style="list-style-type: none"> <li>• moderated a conversation between two people anonymously through text on Jamboard with guiding questions</li> <li>• discussed racial, cultural, and other identity topics</li> </ul> <p><b>We found:</b> People are more comfortable asking personal questions to strangers than identified individuals, but it is important to know the stranger's background.</p>

<p>Leverage their friends and family; make an educational app that helps guide you through how to talk to a family member/friend about polarizing issues.</p>	<p><b>Polarizing Parley with a Parent:</b>  <b>Assumption:</b> People would find conversations about polarizing issues easier once they have some guidance.</p> <p><b>What we did:</b></p> <ul style="list-style-type: none"> <li>• pre-interview</li> <li>• Guidance Cards</li> <li>• Mock conversation with participant's "parent" about a polarizing issue, experimenter served as the stand-in "parent."</li> <li>• Post-interview</li> </ul> <p><b>We found:</b> The guides allowed people to remove some of their emotions and judgment and acted to encourage people to merely explain their side as opposed to convincing their "parents" otherwise.</p>
<p>Developing an app for cooking cuisine from different cultures which also helps you learn about the story behind dishes.</p>	<p><b>Conversations through Cuisine:</b>  <b>Assumption:</b> People want to learn more about the culture behind the foods they eat</p> <p><b>What we did:</b></p> <ul style="list-style-type: none"> <li>• Give people an ethnic snack and have a conversation about it to see if they'll ask about the culture behind it</li> </ul> <p><b>We found:</b> People do not care about the background or culture of their food. They are more interested in how it is made.</p>

## DESIGN EVOLUTION

From here, we decided to pivot from the problems and solutions explored in the early experience prototypes to our current problem. While interviewing more people, we discovered that donors struggled to find

specific organizations to donate to, even when they have a specific cause in mind. We then remembered our interview with Justin, who expressed that organizations prefer consistent, recurring donations to large, one-time donations for budgeting. We realized that we could solve the intersection of these two problem spaces by building an app that (1) automatically identifies high-impact nonprofits for donors based on cause, and (2) encourages users to donate recurrently to support charities. Armed with this new idea, we then entered the first phase of app design.

We decided that our app should have the following functionality:

## Tasks:

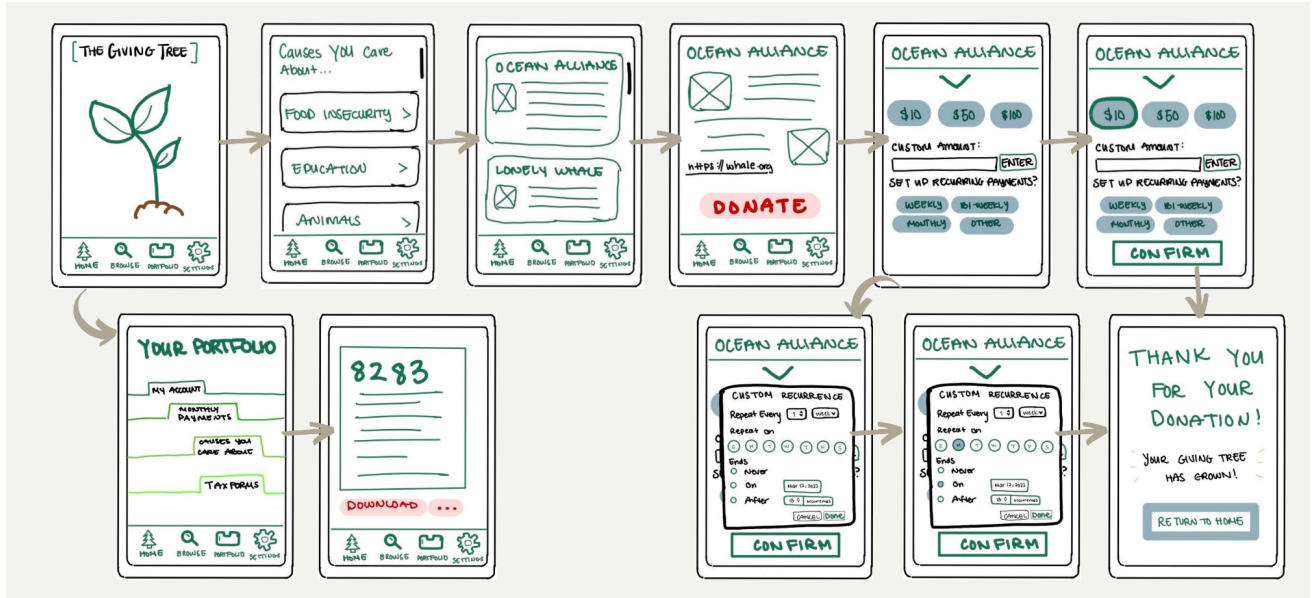
- Simple:
  - Identify a high impact organization based on cause to donate to
  - This was chosen because it is the most basic function of the app and is what every user of the app is present to do
- Medium:
  - Set up recurring donations for different causes or organizations
  - This was chosen since it is expected less users would go on the app to set recurring donations, but it is functionality we want to encourage through the growth of a user's personal giving tree on the home screen
- Complex:
  - See the organizations and amount you've donated to them long-term and retrieve your tax-forms
  - Since retrieving tax-forms is done yearly and there is little reason why someone might go in to check their donations, this was considered the most complex task a user might need

In the first stage of designing, we had three independent designs of the app which allowed for maximum exploration of the solution space. We then aggregated each of these designs into one low-fi, medium-fi, and high-fi prototype. We started with a low-fi prototype, then conducted interviews to aggregate feedback, which formed the basis for a medium-fi prototype. Finally, we presented our medium-fi prototype to our peers for a heuristic evaluation, from which we made a final high-fi prototype.

## Prototypes:

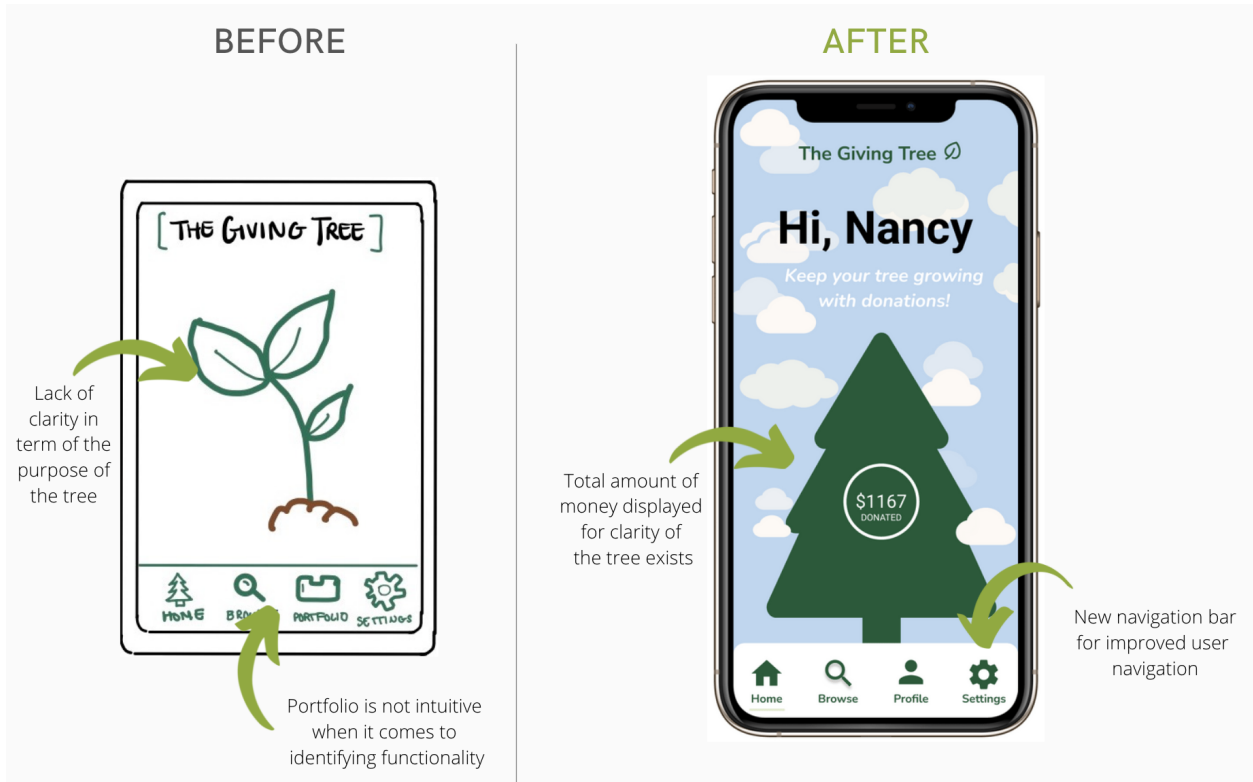
Low-fi



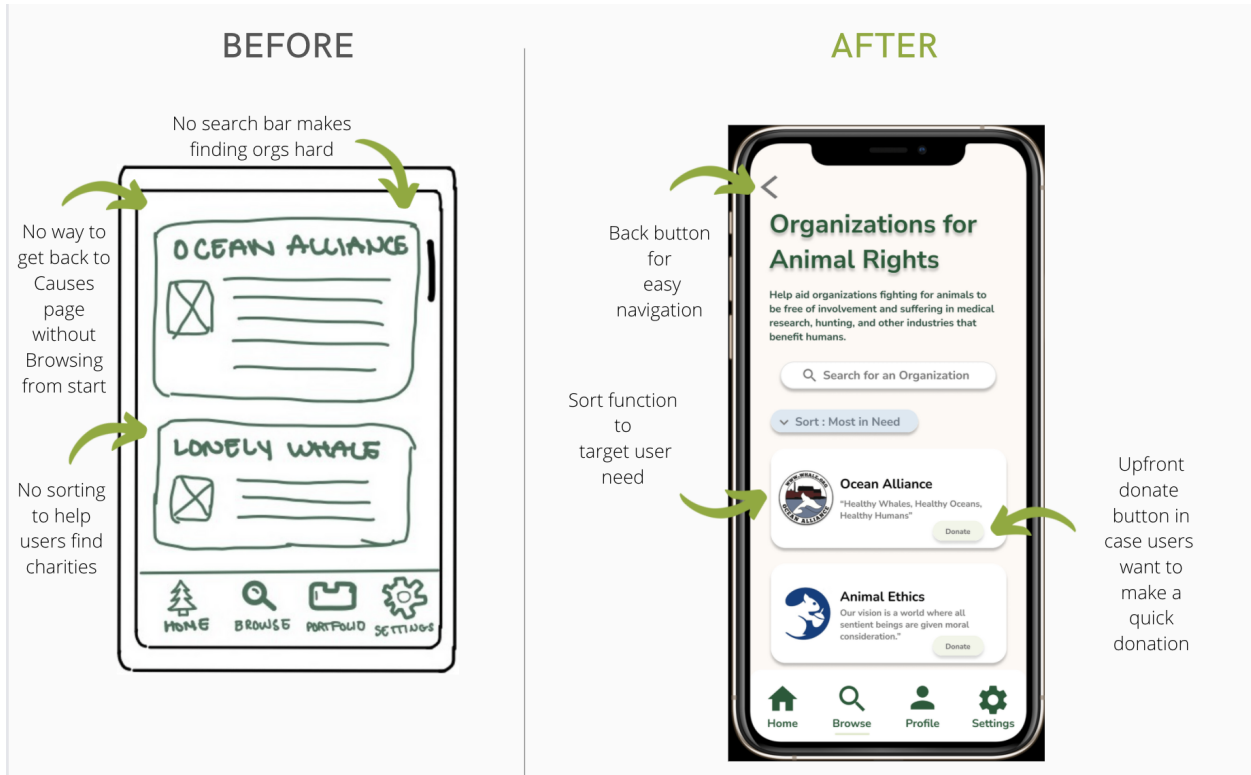


### Medium-fi:

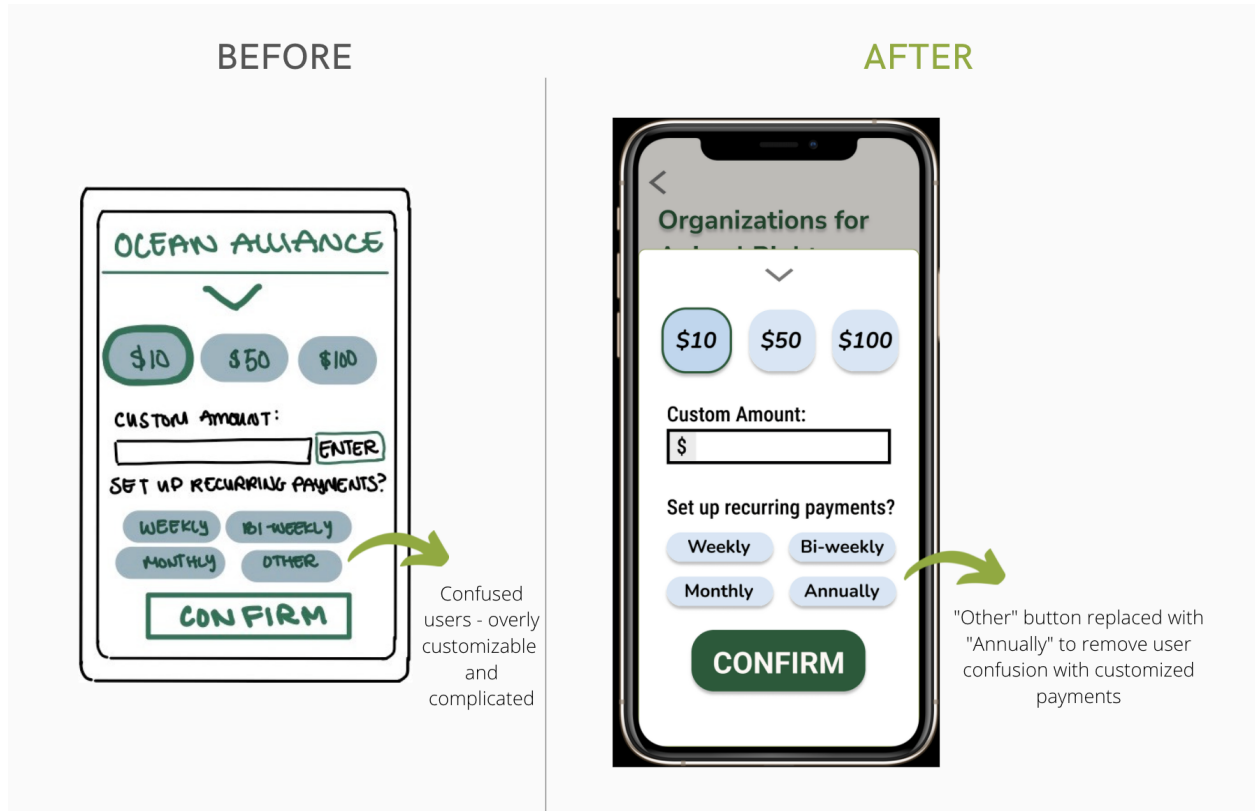
The low-fi prototype was presented to five individuals who varied in age, gender, and background with technology. A script was developed for a tester and each participant was asked to perform each of the tasks. All participants were recorded and the team evaluated the time completion of each task to measure efficiency and mistakes made for robustness. Afterwards, feedback from each participant was requested and changes were made from the low-fi prototype to the medium-fi prototype.



- Changes made:
  - Donation amounts are displayed as the tree grows, showing the user that more donations will stimulate the giving tree's growth.
  - When the user donates, there are little animations to show the tree's growth.
  - The new navigation bar includes a new "Profile" icon instead of the original "Portfolio" icon. The "Profile" icon is more intuitive and familiar for users.



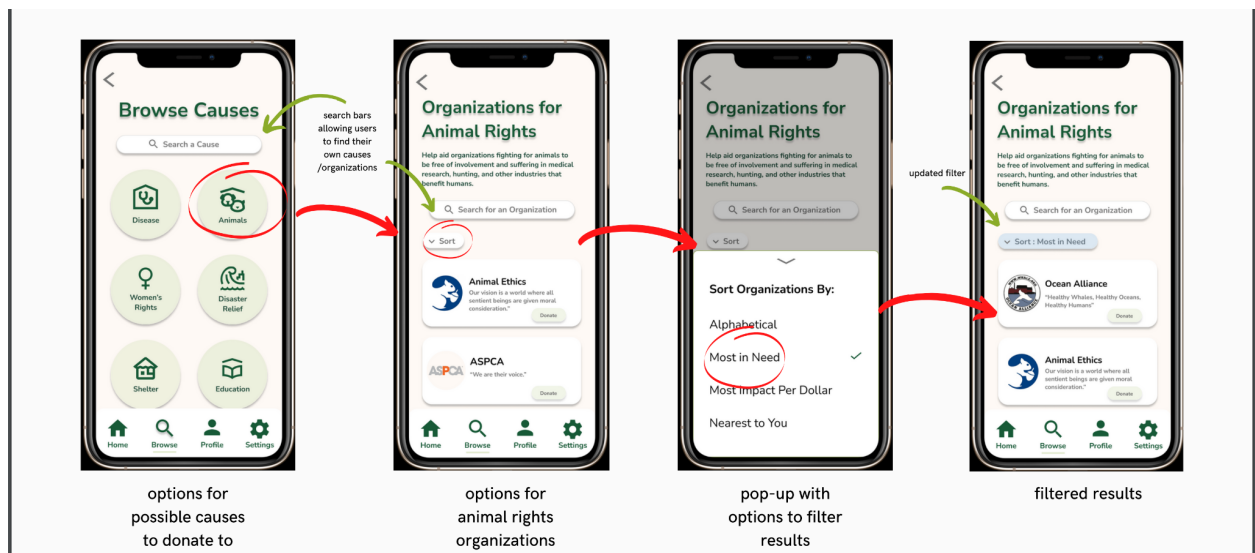
- Changes made:
  - The back button allows the user to easily navigate to the previous page, which is more intuitive than clicking on the navigation bar.
  - The sort function helps us reach our Education and Efficiency value, which presents organizations that are legitimate and worthwhile of the user's money.
  - Upfront donate button allows users to Efficiently donate if they do not want to read excess information.



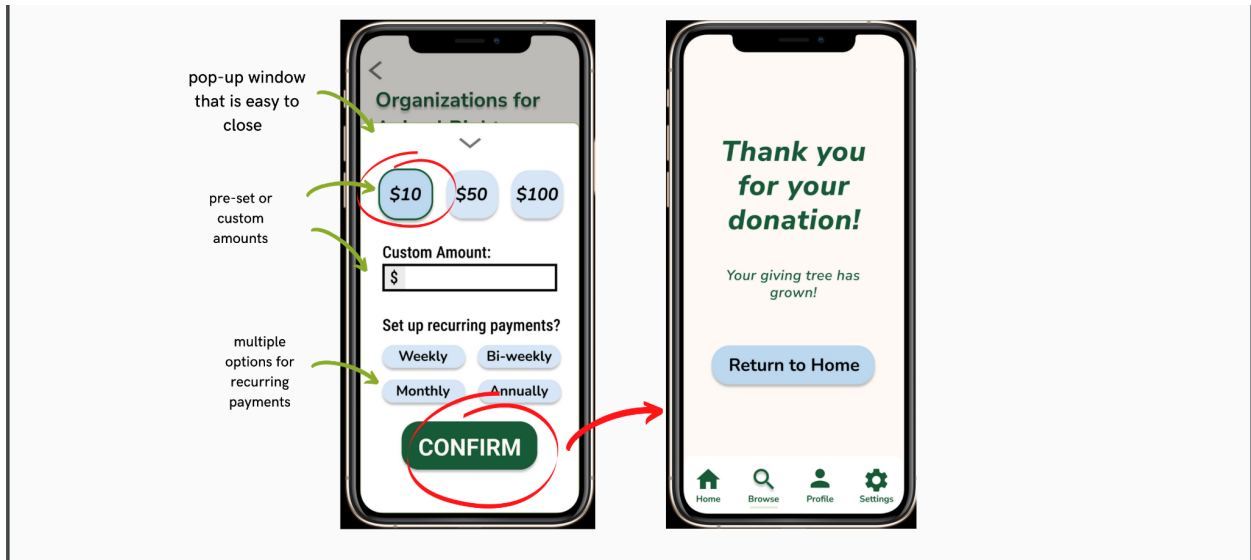
- Changes Made:
  - The "Other" option to set up recurring donations was overly customizable and complicated, which confused users. We replaced this button with another recurring option, "Annually," in order to establish simplicity.

The medium-fi tasks flows are:

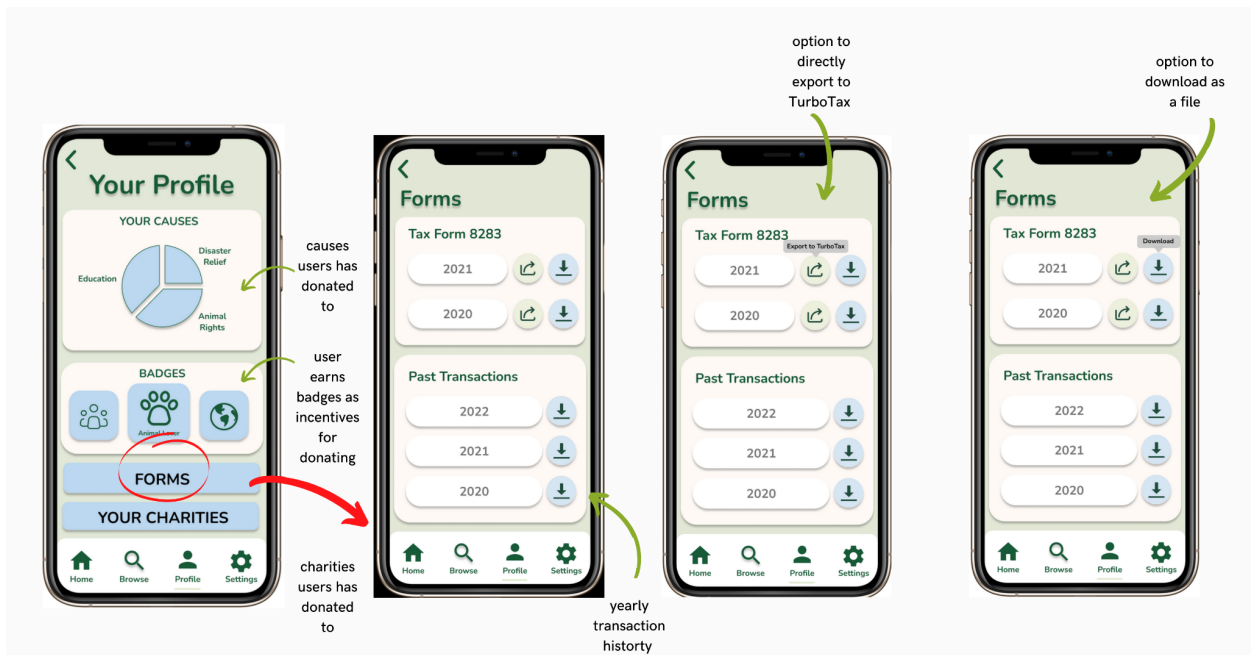
- Simple task



- Medium task



- Complex task



Hi-fi:

The medium-fi prototype was then presented to a team of four other students in the class for heuristic evaluation. Our final solution largely maintains the design scope of our medium-fi prototype, with increased flexibility and educational goals. Based on the evaluation, these were the most notable comments:

- Level 3:
  - H2/12 – Match Between System & World - tree has no progress bar, encourages wealth of donation rather than other metrics like frequency
    - Added progress bar; tree uses frequency of donations rather than donation amount
  - H5 – Error Prevention - unclear if recurring payment is required
    - Added one-time donation option
  - H6 – Fairness and Inclusion - view donation history when donating
    - Unimplemented because clutters UI
  - H10 – Help and Documentation - what is tax form 8283?
    - Add information tooltips that explain tax forms
  - H12 – Fairness and Inclusion - common donation amounts assumes wealth
    - Common donation amounts cover a wider interval
  
- Level 4:
  - H2 - Match Between System & World - unclear what "Most in Need" means
    - Added information about how "most in need" is decided in the app
  - H3 - User Control & Freedom - no way to revert donation
    - Decided not to address, because it is uncommon to revert (added donation confirmation instead)
  - H13 - Value Alignment - no way to view how app makes decisions about research
    - Added information about how the app makes decisions about research
  
- We additionally decided to have a category labeled "current" under causes due to the fluctuation of major world events that become more in need. Under this category we do not sort by popularity in order to minimize donation sinkholes and overfunding of singular organizations.

\*\*\* Note: We planned on addressing several changes through information tabs and pages, but due to time-constraints and limited prior coding experience, were unable to complete them for the hi-fi prototype.. They are

still present in our revised hi-fi Figma designs however, despite not being implemented in the final hi-fi prototype.\*\*\*\*

- Changes Made:

# Revised Design

**H2.** Changed wording to most in need

**H3.** Added progress bar for system status updates

**H4.** Rename to frequency

**H5.** Recurring payments not required

**H6.** More varied amounts

**H8.** Changed background color for aesthetic and accessibility purposes.

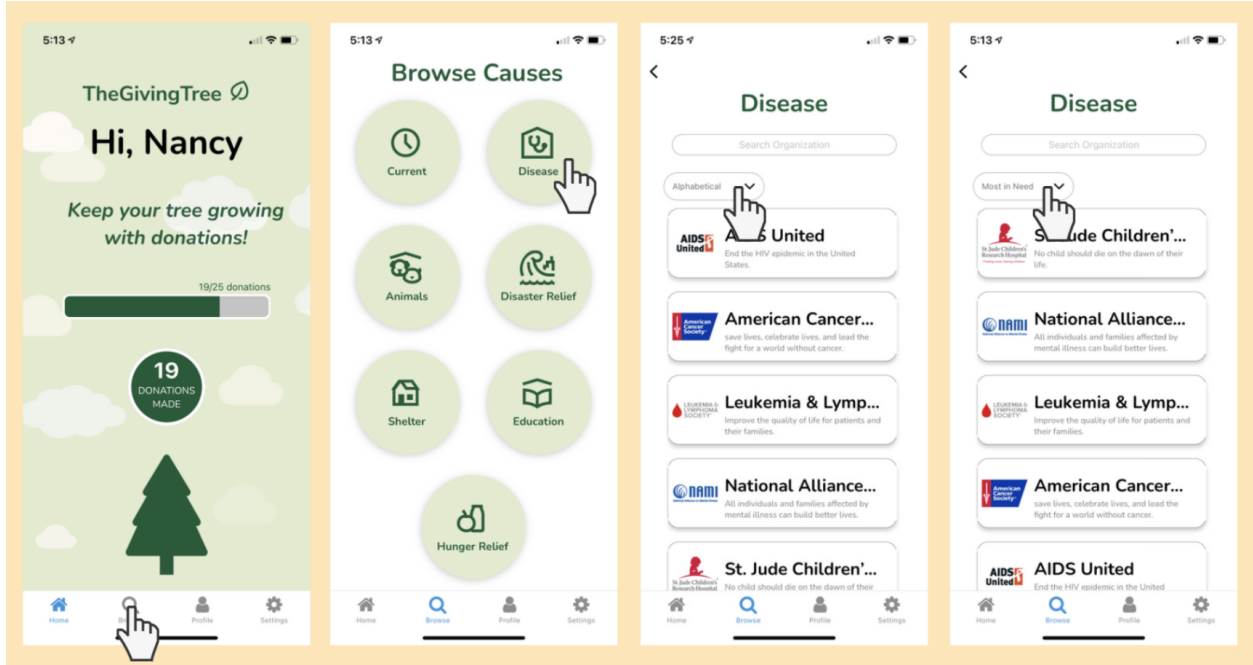
**H10.** Info about tax form 8283 for educational equity (not implemented on app yet)

**H11.** View more information about methodology (not implemented on app yet)

**H12.** Growth by donation to encourage longevity and promote financial equality

The Hi-Fi tasks flows are:

- Simple Task

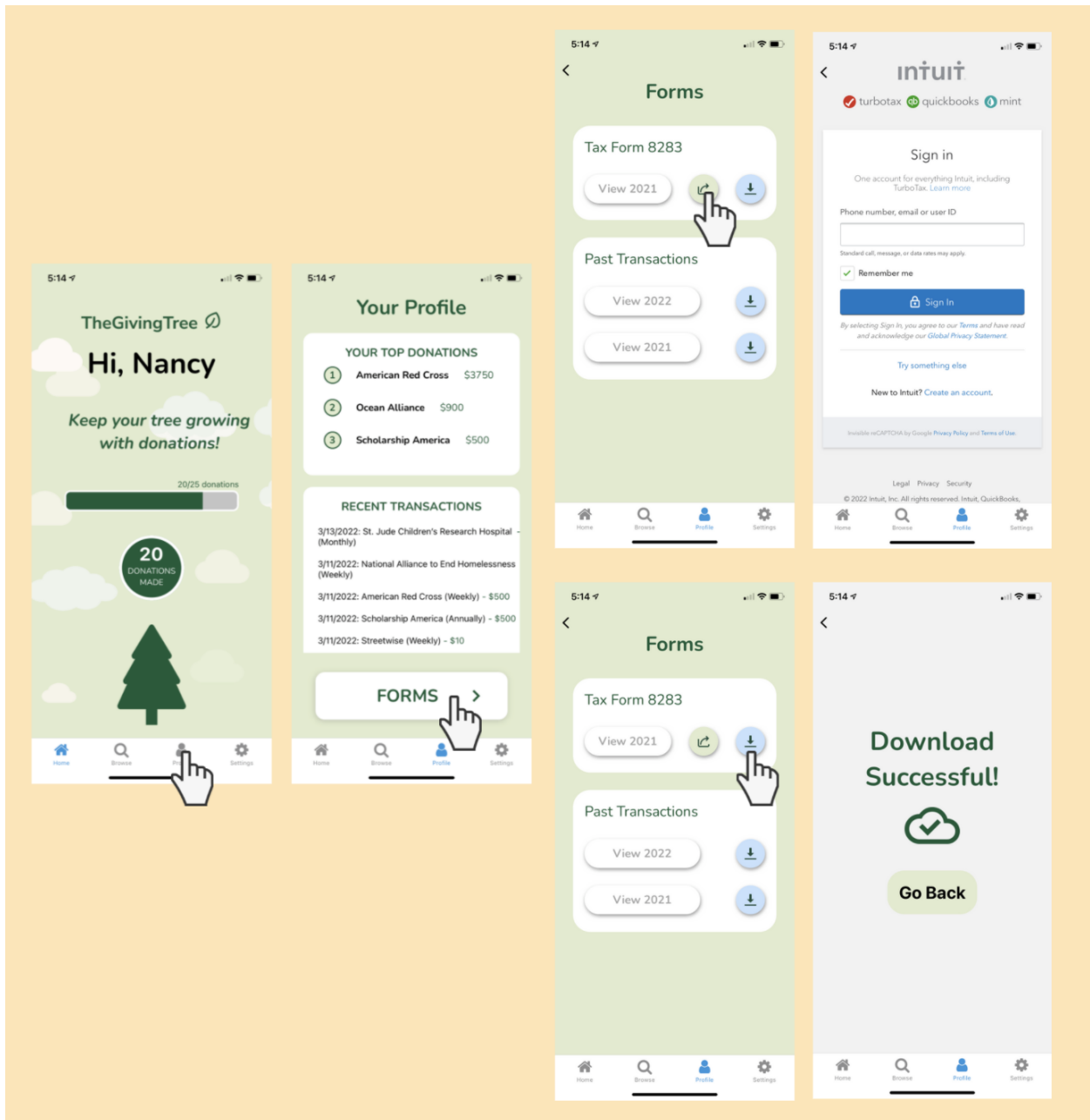




- Medium Task:



- Complex task:



## Values in Design:

We identified several values throughout our design process that we wanted our app to embody. Below are the embedded values in our app, and how they are embedded in our final product:

**Equity:** Financial equity, wealth redistribution, and sharing knowledge

- Display the number of donations as opposed to the amount donated to account for socioeconomic differences
- Provide pre-filled tax-forms which are commonly unused due to lack of awareness and knowledge for users
- Rank charities by most in need as opposed to popularity so that funds for different causes are distributed fairly in different communities

**Efficiency:** Minimizing complexity of donating and help charities that are effectively using donations or are in need of money

- Limit the options when it comes to creating recurring donations so that features are not overly complex
- Sort charities based on need

**Education:** Learning financial benefits of donating and Learning about which organizations are legitimate

- Provided the list of organization based on need and other metrics
- Providing tax-forms for users (and theoretically an info tabs about them if overlays had worked during development)

**Conflicting Values:**

We identified a conflicting value between equity (wealth redistribution) and problems white-savior complex

- We addressed this issue by incorporating the task to provide tax forms, a concept typically only familiar for wealthy communities and taking into consideration that all non-profit organizations must have circulating resources and funding

We also identified a tradeoff between efficiency and education, because the more users have to read and learn to donate, the more educated they will be, but the less efficient the flow will be.

- We addressed this issue by putting educational information about the app in the sidebar, which will not impede efficiency. Information about charities, however, we thought deserved priority even if it decreased efficiency slightly.

## FINAL PROTOTYPE IMPLEMENTATION

In order to first design the UI of our prototype, we relied on Figma. Figma was an effective tool for collaboratively designing that allowed efficient adjustments of any elements within the UI. However, the demo feature had

relatively limited gestural navigation that could affect test results. We also did not fully design the app, only the screens necessary for the tasks to be completed.

To implement our app, we used React Native, Firebase for database storage, Expo as a deployment environment, Visual Studio Code as our code editor, and GitHub for version control and collaboration. These tools allowed for collaboration during the app development, but occasionally caused us to run into merging problems when working on the same file.

In order for the prototype to work, we had to Wizard of Oz the organization-sorting feature that allowed users to sort their organizations by most in need. We also had to hard code the causes and organizations' information included in the app, which were titles, descriptions, logos, etc. Tax forms were also hard coded. The app also currently does not support the ability to login as different users, tree growth past 50 donations, and robust error checking.

## SUMMARY & NEXT STEPS

Throughout the quarter we learned about the process of needfinding, ideating, and making an app in context of social impact. Most notably, our group learned about what it means to set-up a donation app that does not promote the white savior complex and makes donating accessible to everyone. Although solving problems, especially in a system justice context, is great, we really need to design responsibly and consider the far-reaching implications of what our app does and represents in advance.

In terms of design, our main takeaway was the role of color schemes and Gestalt principles, and these ideas affected every iteration of our final product. Through usability testing and heuristic evaluation, we now better understand that design is a dynamic process that cannot ever be "perfected" for every user.

Moving forward, our team would like to add more info pages to explain and educate our user base about the financial implications of donating. We would also like to involve a back-end that evaluates charities internally and allows organizations to request to be on our platform. User login functionality should be implemented, and tree growth should be programmatically generated, instead of hard coded. Our app is currently

designed to be donor oriented and would be made for both the organizational and donor side in future iterations.