



TheGivingTree: Final Report

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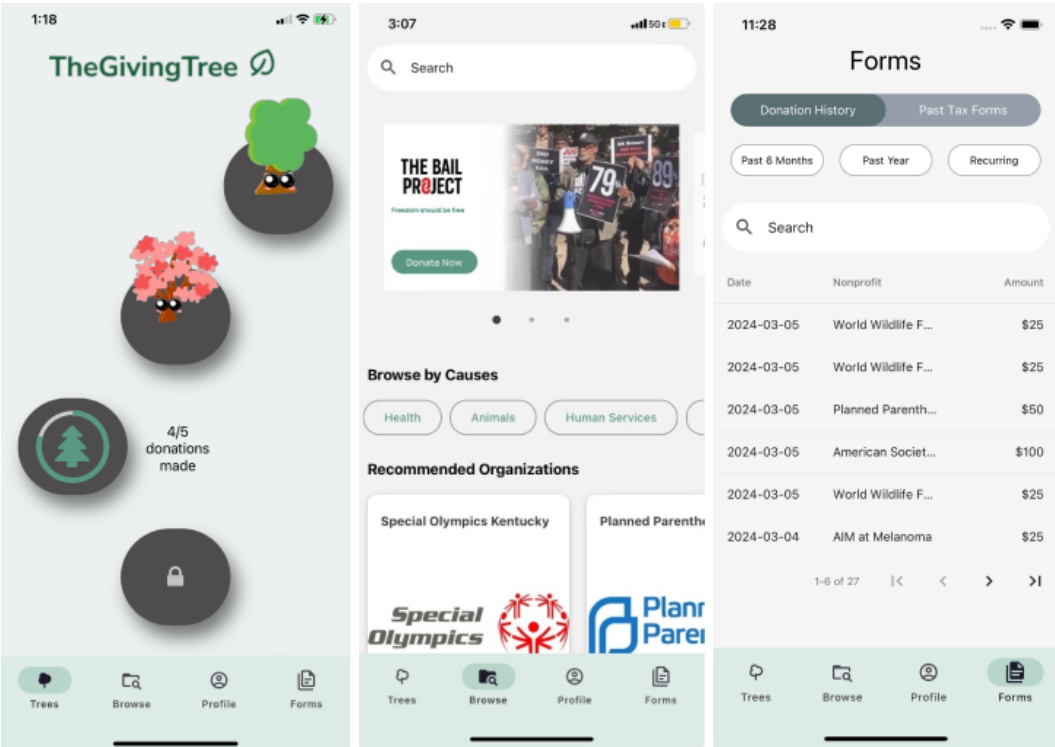
Problem description

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

Solution overview

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. We incentivize users to continue engaging with the app with the added feature of unlocking tree characters as donations are made.



Core screens.

Tasks

Simple Task

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.

Moderate Task

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.

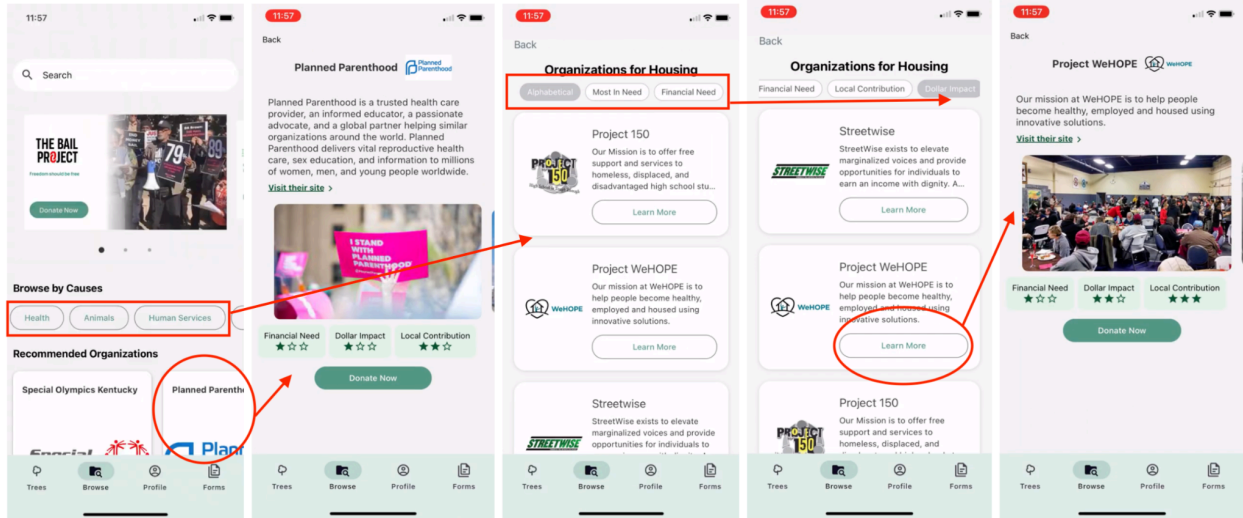
Complex Task

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.

Task flows

Simple Task



Select a cause or recommended org

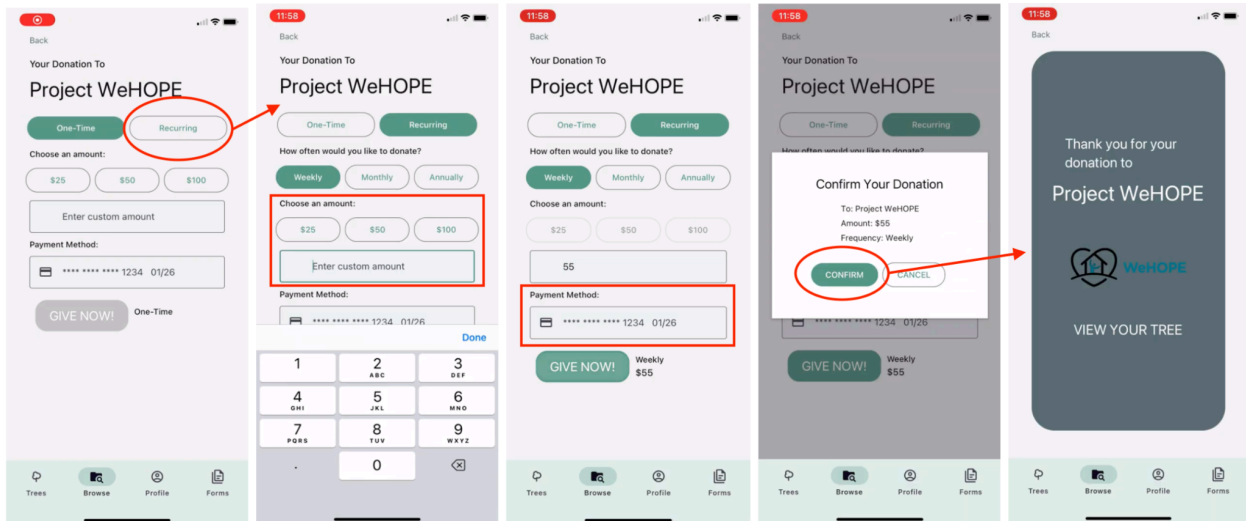
Select and read about a recommended org

Select and view orgs for a cause

Apply filters

Select and read about an org

Moderate Task



Select the donation frequency

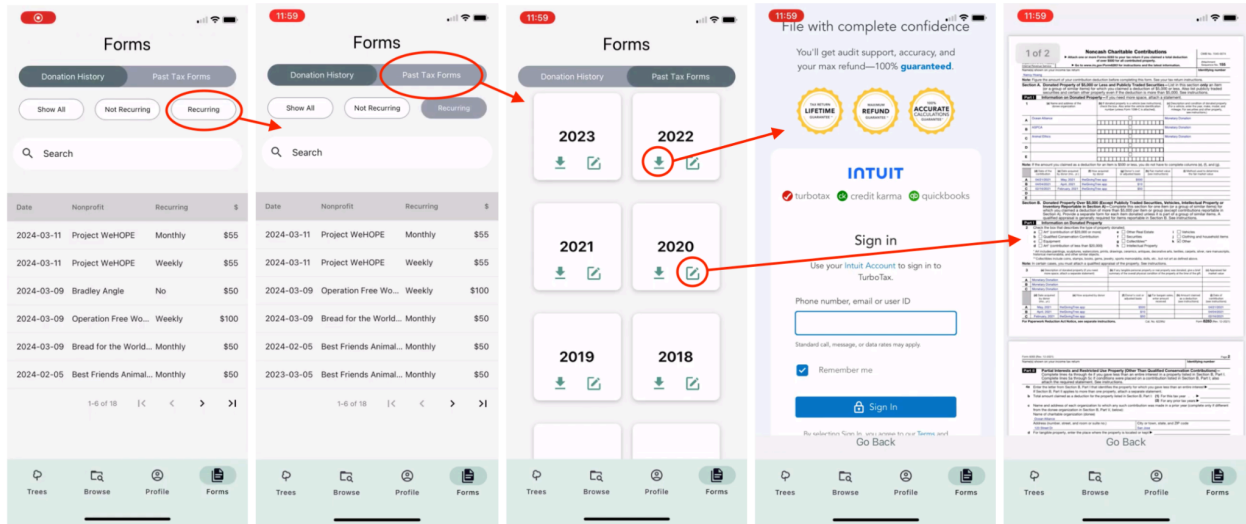
Select or enter a donation amount

View your payment method

Review your donation details

Confirm your donation

Complex Task



View donation history

Apply filters

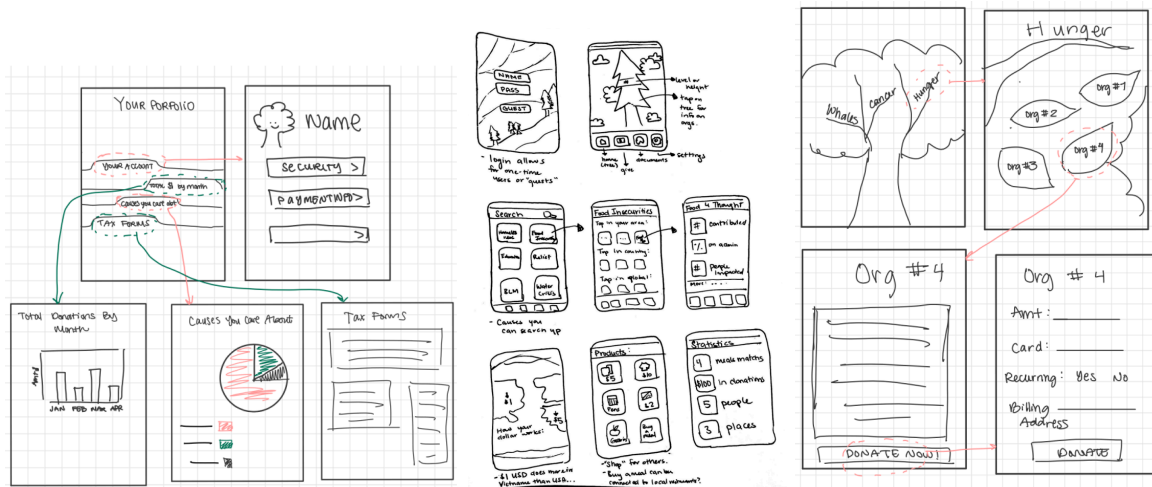
View past tax forms

Download tax forms

Generate auto-filled tax forms

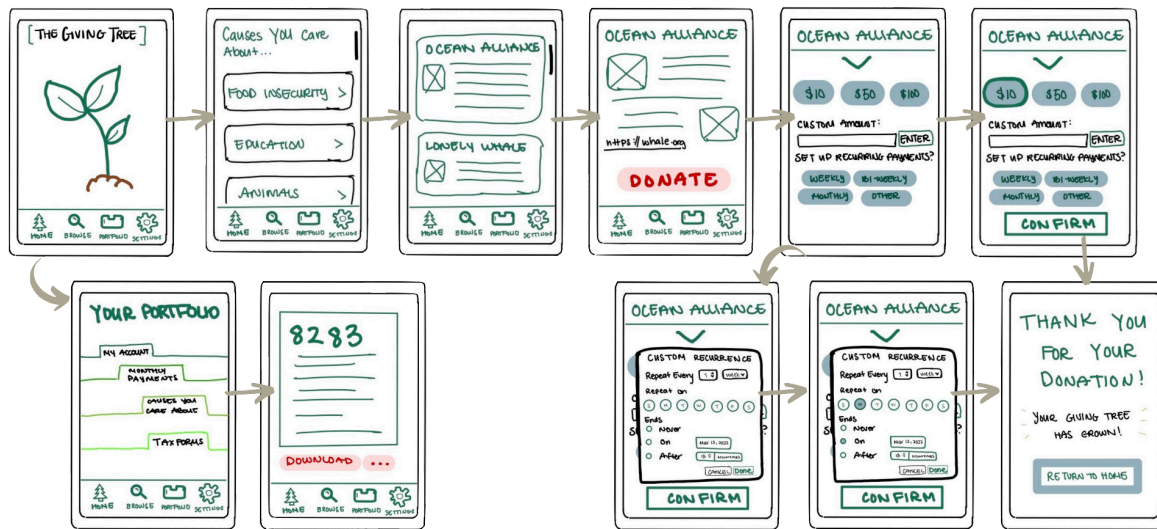
Design evolution

Initial Sketches



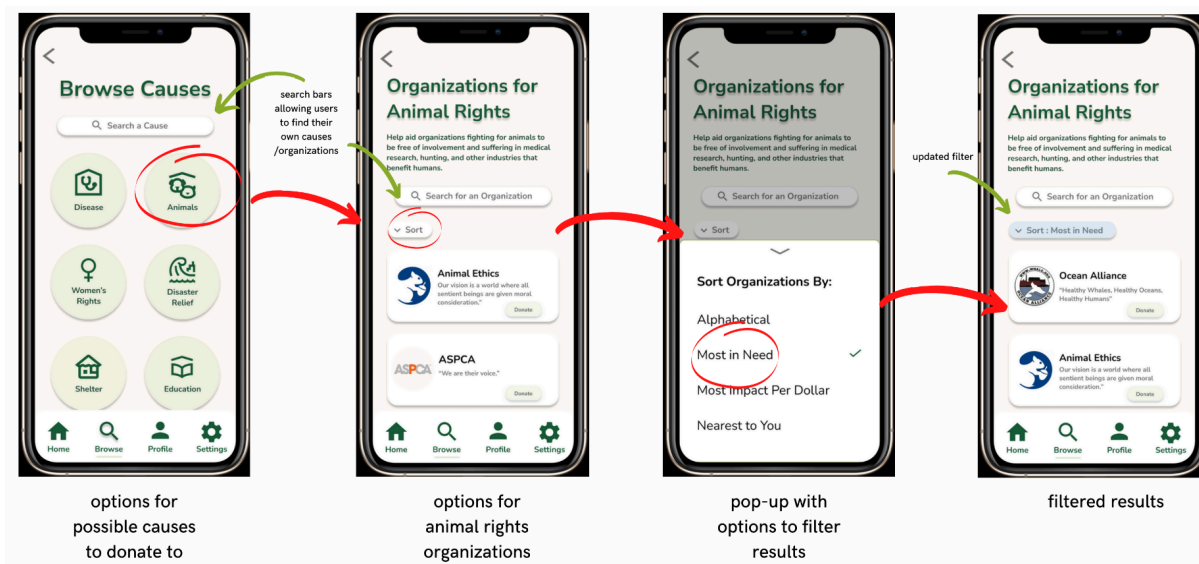
After completing needfinding interviews with a subject expert (a direct marketer for a Bay Area nonprofit) and a number of peers, we developed POVs and began the idea sketching process.

Paper Prototype



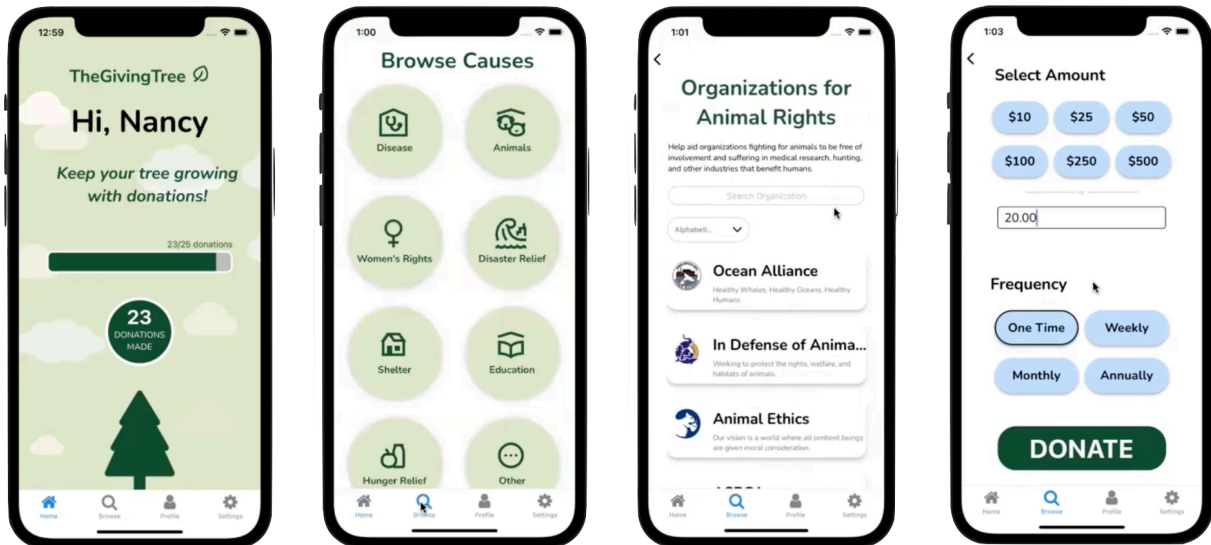
From there, the general concept of TheGivingTree was decided, and the sketches were used to guide the design of our first paper prototype.

Medium-Fi Prototype



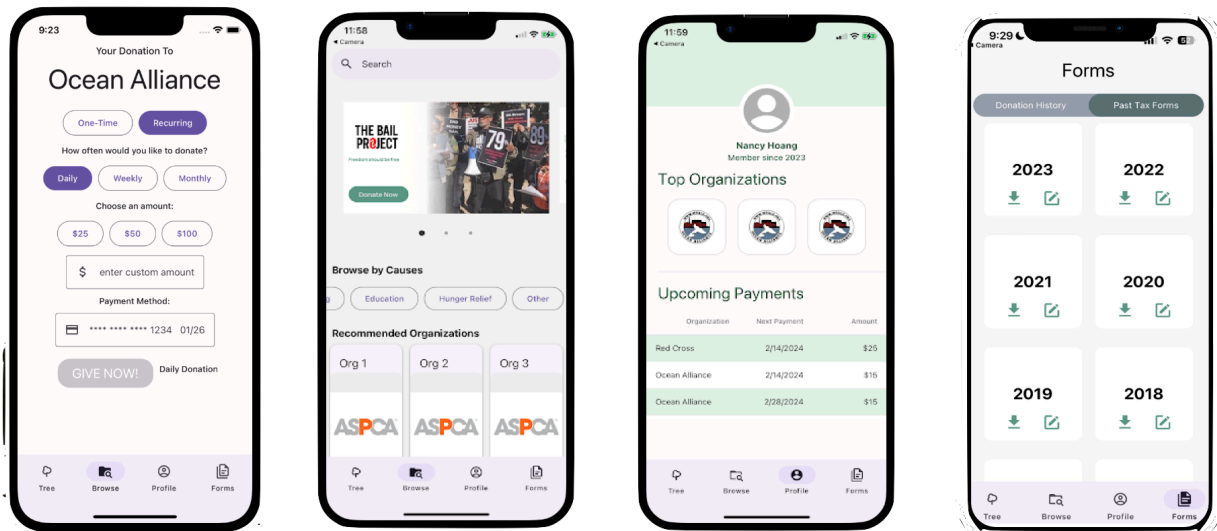
The paper prototype served as a reference point for creating the medium fidelity prototype. Key changes and additions made during this phase included introducing a dynamic tree feature that visually grows as donations are completed, implementing clearer labeling on each screen, replacing the "Portfolio" icon with a "Profile" icon to clarify the page's function, incorporating back buttons to enhance navigation, and integrating filters and search functionality for browsing organizations.

Hi-Fi Prototype V1



The first hi-fi prototype was then developed with code. A database was implemented, and slight styling adjustments were made.

Hi-Fi Prototype V2



The second version of the hi-fi prototype involved a huge redesign of the app, guided by findings from our lab usability study. Participants generally felt that the original UI was intuitive and easy to follow, but they wanted a more helpful and engaging way to browse through organizations. Additionally, users felt that the navigation bar of the original UI did not obviously communicate the workflow of each page. This informed our decision to rename and redesign elements of the navigation bar in order to better represent the pages' contents. The

redesign also moved the app away from the playful vibe of the previous interface, instead embodying a more serious and professional interface.

On the Browse page, we enhanced the ease of adding new categories with the introduction of a carousel layout and enabled users to directly access the organizations they have previously donated to or are recommended to donate to. This made the page more personalized, and decreased the number of clicks required of the user to get to their chosen organization.

On the Donate page, users can now clearly see the organization they are donating to, ensuring transparency in their contributions. We also made it clearer when an option has been selected and made the "donate" button inactive until all required questions are answered. Additionally, users can now view the payment method (credit card) they are using for the donation.

On the Profile page, we streamlined the layout by giving forms its own tab, reducing clutter. The page displays the user's top donations and recurring payments. Users we interviewed mentioned that they would want to see their upcoming payments for recurring donations so that they would not be surprised by them. We also introduced a settings icon, allowing users to edit their profile directly from this page, eliminating the need for a settings icon in the navbar.

For the Forms page, we separated it into its own section and implemented a toggle button for accessing Donation History and Past Tax Forms. This is particularly beneficial for users who prefer managing their taxes or finances differently and need a simple view to track their donations.

Hi-Fi Prototype V3/Final



In previous versions of the prototype, there was a singular tree representing user progress, along with a status bar indicating the number of donations made. However, in the final version, multiple trees are earned and collected based on the number of donations made, following a Duolingo-like path to incentivize users to continue donating through the app.

We also introduced filter tabs for browsing organizations, allowing users to sort through results based on their preferences. Additionally, we display stars to indicate different needs and features of each organization, as well as images from each of their websites, helping foster a deeper connection with the organizations users support. The search bar, at this stage, was also fully implemented. These changes were made because users we interviewed mentioned they wanted to have better ways to sort through organizations within a specific category to help them figure out where to donate.

In order to provide more analytics for the users, we implemented a graph displaying the user's donation history over time, as well as the user's most-donated-to organizations. This stemmed from feedback we had gotten about users wanting to see more data and visualizations of their donations over time on the profile page.

Lastly, consistent styling has been applied throughout the application for a cohesive user experience.

Final user interface

TheGivingTree app provides users with a seamless platform for charitable giving, offering a range of features to simplify the donation process and enhance user engagement. Users can easily search through and find high-impact nonprofits, set up recurring donations to their preferred causes or organizations, and track their donation history over time. Additionally, the app features an innovative incentive system where users can unlock and collect tree characters as they complete more donations, providing a gamified experience to encourage regular giving. Furthermore, users can generate auto-filled tax forms directly within the app, streamlining the process for tax filing purposes.

The user interface design of TheGivingTree app is intuitive and user-friendly. Upon opening the app, users are greeted with a visually appealing home screen featuring their collected trees, which are unlocked as they make more donations. Navigation through the app is facilitated by the navigation bar, allowing users to browse different causes, view recommended organizations, track their donation history, and view their tax forms.

To be implemented

The following features are scheduled for implementation:

1. **Editable tax form PDF:** We plan to utilize a PDF library in React to enable users to write on the PDF directly and display amounts dynamically sourced from the database.
2. **PayPal Implementation:** We plan to securely store credit card information in Firebase and implement necessary security measures to ensure data security, allowing users to directly make donations via our app.
3. **User log-in/profile:** We plan to implement a log-in system that enables users to create accounts, log in securely, and manage their profiles.

Given the time constraints of our project and the complexity of integrating these features in React, we prioritized other essential functionalities to deliver a functional prototype within the given timeframe.

Hard-coded techniques

To showcase how organizations could potentially promote their services on our platform, we hard-coded advertisements for select organizations on the browse page. This allowed us to demonstrate the concept of generating revenue via sponsored content.

In order to illustrate the intended functionality of editable tax form PDFs, we hard-coded sample details into the PDF forms. This allowed users to visualize how the feature would work and understand the process of filling out tax forms within the app.

Finally, we employed hard-coded data to populate the donation history and profile sections of the app. We did this to simulate the user experience of viewing past donations and profile information. This helped users understand the features and functionality of these sections before they were fully implemented.

These hard-coded techniques enabled us to demonstrate the potential functionality of the app and gather feedback from users on their usability and effectiveness. Additionally, they allowed us to showcase key features and concepts in a way that saved time and resources during the development process.

Evaluation Techniques

The evaluation technique that proved most valuable for improving our prototype's usability

was the "Pilot" Field Usability Study. This study involved conducting field tests with our updated prototype. Each of our five participants, representative of our target customers, worked through benchmark tasks while providing feedback.

This technique provided invaluable insights into the usability of our app in real-world settings and gave us a refresher on the current state of the app. Additionally, collecting process data, such as task completion times and critical incidents, allowed us to identify pain points and areas for improvement.

Moreover, integrating video and clickstream logging into our app allowed us to record user interactions and behaviors, further enhancing our understanding of people's experience with our product.

Overall, analyzing the results of the pilot study helped us make informed decisions on design changes and refinements for our app.

Tools

Figma

Figma is a tool used for interface design, prototyping, and collaboration. It allowed our team to create and iterate on app interfaces, collaborate with each other in real-time, and share ideas easily. In the development process, our Figma designs were used as references for implementing UI elements and layouts in code. While Figma is generally easy to use, managing larger design files with numerous components and screens was sometimes overwhelming, requiring careful organization and labeling.

React Native

React Native is a framework for building cross-platform mobile apps using JavaScript and React. React Native allowed us to write code once and deploy it on both iOS and Android platforms, saving time and effort compared to building separate native apps. While React Native generally has great online resources, integrating complex native modules or third-party libraries was sometimes challenging, requiring additional configuration and troubleshooting to ensure compatibility and performance across platforms.

React Native Paper

React Native Paper is a library of pre-designed UI components for React Native apps, following Google's Material Design guidelines. Using React Native Paper components allowed us to quickly build UI elements such as buttons, cards, and navigation bars, maintaining a

consistent design aesthetic throughout our app. While React Native Paper offers a wide variety of components, there were still many cases in which we needed to implement custom solutions, which were sometimes time-consuming and complex.

Expo Go Mobile App

Expo Go is a mobile app that allows developers to preview and test their React Native apps during development. We used Expo Go to quickly view changes made to our app in real-time. While Expo Go provides a convenient method for testing apps on real devices, it requires the configuration of the app on one's mobile device, thereby restricting immediate accessibility to all users.

Realtime Database and Firebase Analytics

Realtime Database is a cloud-hosted database provided by Firebase that allows developers to store and sync data in real-time between users and devices. We used Realtime Database to store app data such as organization details and the user's donation history. We also used Firebase Analytics to track user engagement while conducting user testing.

Realtime Database allowed seamless storing and access of data, and Firebase Analytics provided us with valuable insights into user engagement. The primary challenge with using these platforms was the initial set-up and configuration.

Try the app

View our README and GitHub Repo [here](#).

Access the app via the Expo Go app by scanning one of QR codes below (for Android or iOS):



Android



iOS

Making it real

Team



Alissa Vuillier

DESIGNER/DEVELOPER



Britney Tran

DESIGNER/DEVELOPER



Kayla Patterson

DESIGNER/DEVELOPER



Anna Chang

DESIGNER/DEVELOPER








Alissa Vuillier is a 5th year coterminal master's student in Computer Science on the HCI track, with a Bachelor's in Political Science, from Orlando, Florida. She has past intern experience in public interest technology at the New York Times, CFPB, and Judicial Council of California. On the Giving Tree team, she served as a developer and designer. In her free time, Alissa enjoys playing rugby, spending time with her friends and family, creating digital art, and listening to music.

Anna Chang is a 5th year coterminal master’s student studying Computer Science with a concentration in HCI from San Francisco, California. She has past intern experience in marketing, UX design, and front-end development. On this team, she served as both a designer and front-end developer. In her free time, she enjoys studying foreign languages, listening to music, and playing games.

Britney Tran is a 4th year undergraduate and coterminal master’s student studying Computer Science with a concentration in HCI from Colorado Springs, Colorado. She has past intern experience in software engineering. As one of the team’s original members, Britney has been working on theGivingTree since its preliminary stages. During this quarter, she has continued working on design and implementation of the app. Britney enjoys playing volleyball, hiking with friends, and bullet journaling!

Kayla Patterson is a 2nd year Master’s student studying Computer Science with a concentration in HCI from Robbinsville, New Jersey. Before she came to Stanford University to get her masters, she went to Hampton University, a HBCU in Virginia where she majored in Computer Science with a minor in Mathematics. On this team Kayla helped her teammates with the design as well as the development of the app. Her past work experience has been within backend engineering, data analytics and Machine Learning. In her free time she enjoys hanging out with friends, watching Crime documentaries and spending time with her family.

Business Model

<p>Problem </p> <p>From finding where to donate, to which charities are most in need, giving is filled with pitfalls for the average donor.</p>	<p>Solution </p> <p>We help donors donate easily and effectively to the causes they care about and track their donations over time.</p>	<p>Value Proposition </p> <p>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 automatically populating tax forms.</p>	<p>Unfair Advantage </p> <p>Target demographic would have expendable income</p>	<p>Customer Segments </p> <ul style="list-style-type: none"> Philanthropists People who want to donate Frequent donors People looking to learn more about different nonprofits
<p>Cost Structure </p> <p>As for the cost structures for TheGivingTree, one of the major costs will be paying our developers and designers. In addition to server and data center costs, we also incur a fee for each transaction from our payment integration provider, Paypal.</p>	<p>Revenue Streams </p> <p>A small percentage (3.5%) from each donation made on the platform is deducted. This percentage is a service fee charged for facilitating the transaction, providing a secure payment gateway, and maintaining the platform. We also charge an integrated services fee from external companies (eg. TurboTax) for linking their functionalities to our donation platform. Finally, we also charge credit companies for ads on our payment information portion.</p>			

TheGivingTree operates on a transaction-based revenue model, where a small percentage (3.5%) is deducted from each donation made on the platform. This fee serves as a service charge for facilitating secure transactions, maintaining the platform, and providing a reliable payment gateway. We also generate revenue through integrated services fees from external companies, such as TurboTax, who link their functionalities to our donation platform.

Our target customer segments include philanthropists, frequent donors, individuals looking to learn more about nonprofits, and those seeking convenient donation solutions. Given the platform's ability to simplify the donation process and cater to individuals with expendable income, the market opportunity is substantial. The long-term impact of our product lies in fostering a culture of philanthropy, making charitable giving accessible to a wider audience, and ultimately contributing to positive social change.

Summary

TheGivingTree aims to simplify the donation process and enhance donor engagement. By automatically identifying high-impact nonprofits, facilitating recurring donations, and providing long-term donation management, we streamline the giving experience for users. Furthermore, we motivate users to maintain regular donation habits through a unique feature where they can unlock and collect tree people or characters as they complete more donations. The incorporation of features such as organization recommendations, clear donation tracking, and auto-filled tax forms sets our platform apart, ensuring transparency and ease of use. Our key impact on the world is fostering a culture of philanthropy and making charitable giving accessible to a wider audience. Through incentivizing user engagement and providing tools for effective donation management, we aim to empower individuals to contribute meaningfully to causes they care about.