InvestEd

Investing made collaborative

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Problem and Solution

Getting started in investing often requires overcoming barriers, such as social, economic, emotional, and mental. These barriers can be difficult to get past alone and with just a brokerage firm's app and the vast Internet.

We want to show investing is for everyone and anyone by breaking down stigmas. To accomplish this, we propose having people learn from each other's experiences, thereby showing people investing can be for them too.

Needfinding

We interviewed a total of 9 people, spread across the spectrum of investing experience. We did more needfinding than average because we wanted to capture a range of perspectives and habits. These interviewees ranged from undergraduates to graduates, young professionals, blue-collar workers, and older professionals, mostly from within our online and offline social network. We displayed our needfinding results and the most salient or interesting quotes on an empathy map.

From our empathy map, we noticed people could be grouped into three general investor categories: the inexperienced, beginners, and experts. Specifically, the inexperienced did not want to start investing due to monetary and mental barriers (preconceptions). The beginners started investing because they found their personal trusted source of information. Lastly, the experts believed that investing was something as essential as water or a job; it was a big difference in mindset.

Our needsfinding results left us with a situation: beginners could become experts by continuing to discover and use resources; beginners already have some knowledge and motivation. However, how do we move the inexperienced, burdened by inertia, stigma, and lack of knowledge, to be inspired and realize that they too can invest?

Generating POVs and Experience Prototypes

Methodology

From our needfinding interviews and analysis, we generated point of view (POV) statements to distill the important needs and ideal way to satisfy those needs.

For each of the final POV statements, we generated a How Might We statement to start thinking about possible solutions to each of the POV's insights.

From each How Might We, we came up with an idea to realize the solution, then tested each idea's assumptions.

Thread 1

Point of View

WE MET Renato, a gardener in Peru who has never started or considered investing.
WE WERE AMAZED TO REALIZE he had enough money to invest but was deterred by his perception of money and age requirements for investing.
IT WOULD BE GAME-CHANGING TO educate Renato about investing in a way that would remove the stigmas and preconceptions he holds.

How Might We….

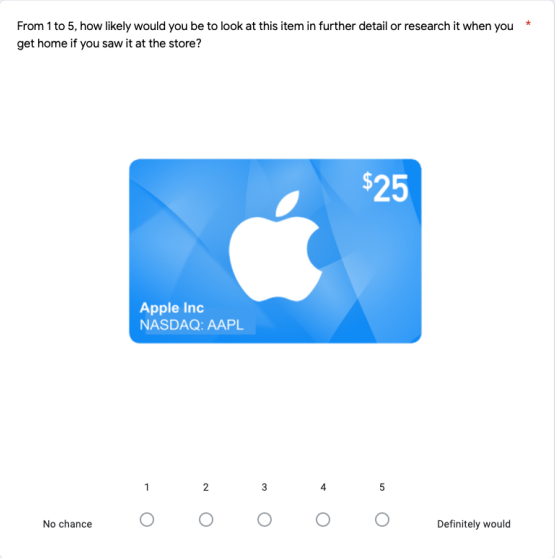
remove stigma around investing as a "rich people" activity?

Idea:

Sell stocks and other investment tools in physical stores.

Experience Prototype

This idea assumes people make unplanned purchases at physical stores, and people would be interested in these items specifically. To test this assumption, we gave people who were unaware of our project a survey simulating making unplanned stock purchases in stores.



We found that people expressed **moderate interest** in making such unplanned purchases and would **be willing to research a little more** if it was interesting enough. If we were to redo this experience prototype, ideally we would make this survey an actual interview and pretend to be at a store to observe users' behaviors.

Thread 2

Point of View

WE MET Jeffrey, a 25 year old, financially irresponsible college student who has never invested but knows about the process and wants to get involved.
WE WERE AMAZED TO REALIZE having something physical and tangible to look at was critical for him to save for anything.
IT WOULD BE GAME-CHANGING TO increase the perceived tangibility or physicality of investing or saving.

How Might We….

make the investing as physical and tangible as buying something from a store?

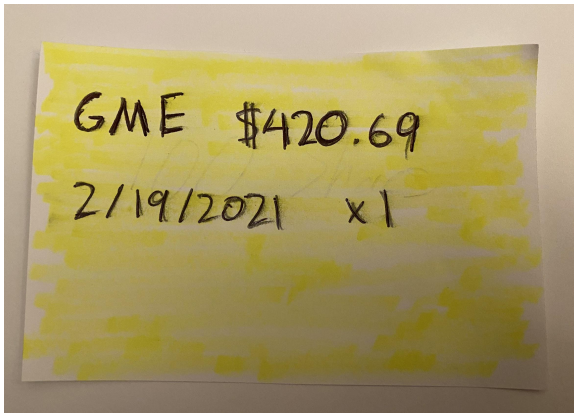
Idea:

Give people physical items after the purchase of stocks/investments.

Experience Prototype

This idea assumes receiving something physical makes people more likely to invest. Will physical items make people purchase more stock given the stock is attached to certain purchases or even just tokens/certificates?

To test this assumption, we created mock physical items and certificates, handed them (virtually) to testers, observed their behavior, and asked for their opinions.



We found that while these physical items or tokens would be nice to receive, they would not move the needle or draw initial interest as much as we assumed. In fact, some users thought the addition of these items was **gimmicky and forced.**

Thread 3

Point of View

WE MET Jerry, a middle aged, financially responsible engineer living in the Bay Area.
WE WERE AMAZED TO REALIZE he thought investing was something as fundamentally basic as paying bills, buying food, or taking out the trash.
IT WOULD BE GAME-CHANGING TO help others adopt the same mindset.

How Might We….

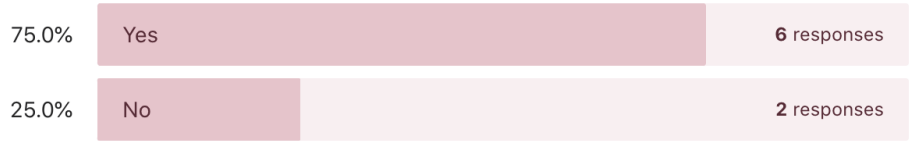
connect individuals who are experts on investing with those who know nothing?

Idea:

Create a pen-pal/mentorship/online community program between investors with different backgrounds and experiences.

Experience Prototype

This idea assumes experts are willing to share their knowledge, and beginners are willing to engage with mentors. In order to test this assumption, we created a survey simulating our platform and asking participants interest questions.



We found that most users expressed moderate interest in signing up for such a platform, and all non-extreme users could see themselves using **a feed of personal finance questions/stories.** Most importantly, another insight we gained from this is that **relatability was just as important, if not more important, than the amount of investing experience.**
Just like the first experience prototype, This experience prototype could have been conducted as a simulation and/or interview, in order to observe participants' behavior in real-time and not solely have to rely on their survey results.

Design evolution

Based on our ideas and assumption testing above, we decided to build a platform to connect users such that they could learn from, be inspired by, and relate to each other. We learned through our interviews and testing results that the only way to break down stigma and mental barriers around the process of investing was making the process fundamentally relatable by connecting people with backgrounds similar to theirs. As such, we initially opted for the following tasks:

- Simple: View and learn more about other users
- Moderate: Meet with / talk to other investors
- Complex: Personalize content by selecting stocks/markets of interest

Low-fidelity prototype

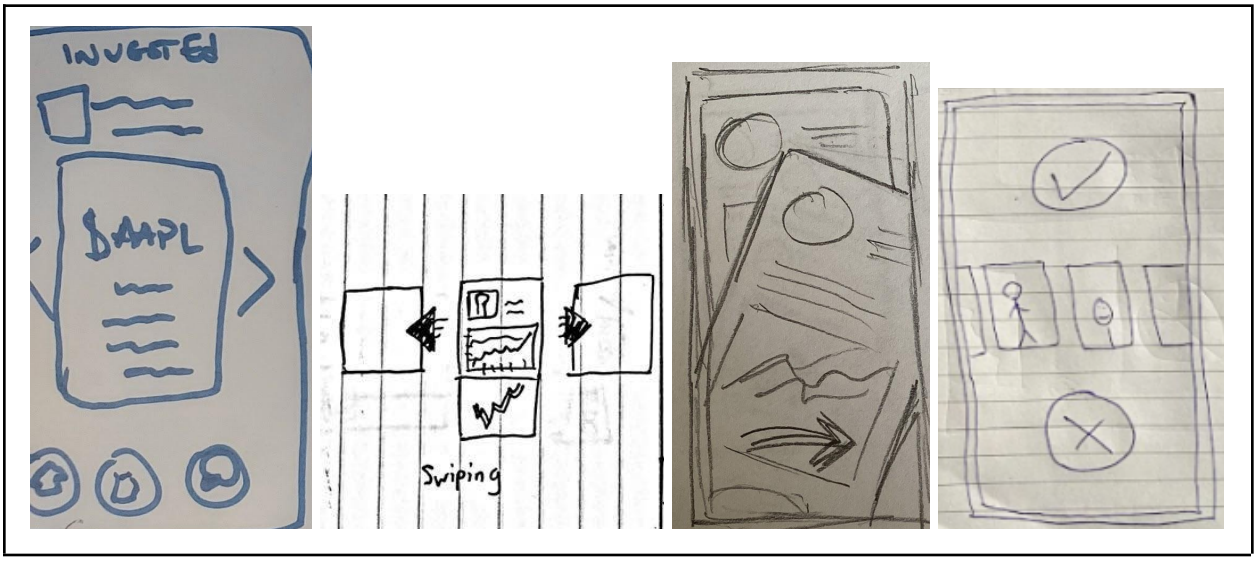


Figure 1: Swipe on potential mentors

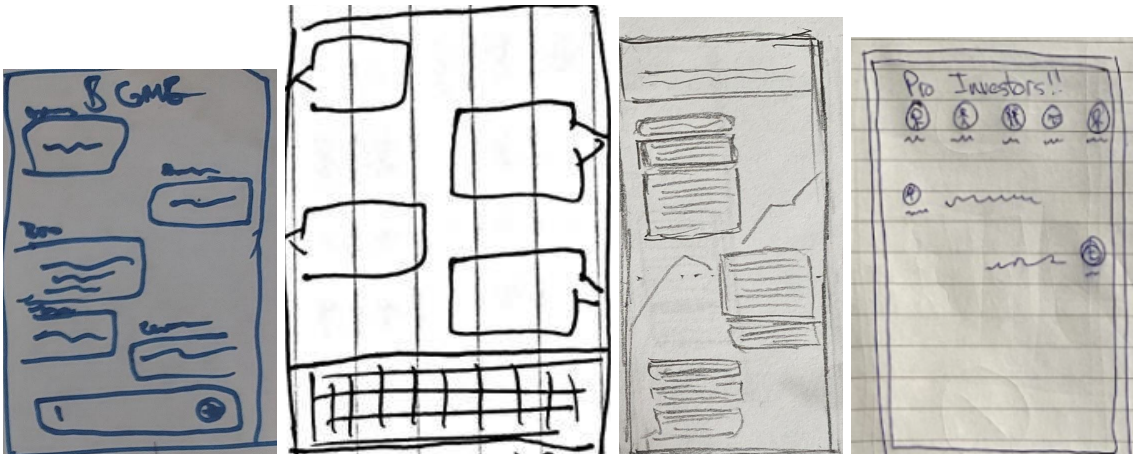


Figure 2: Chat with others

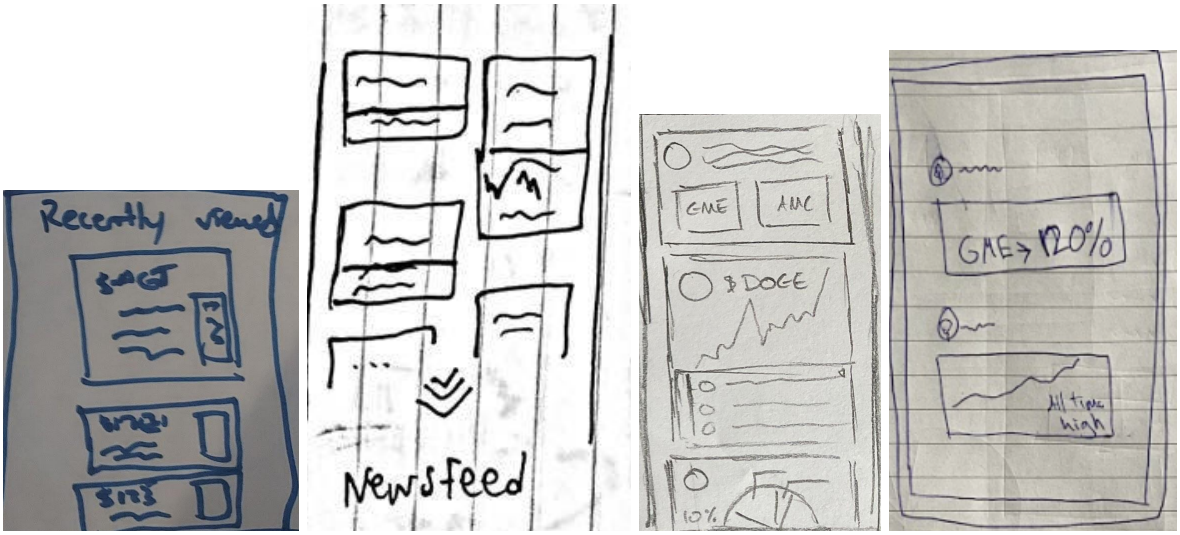
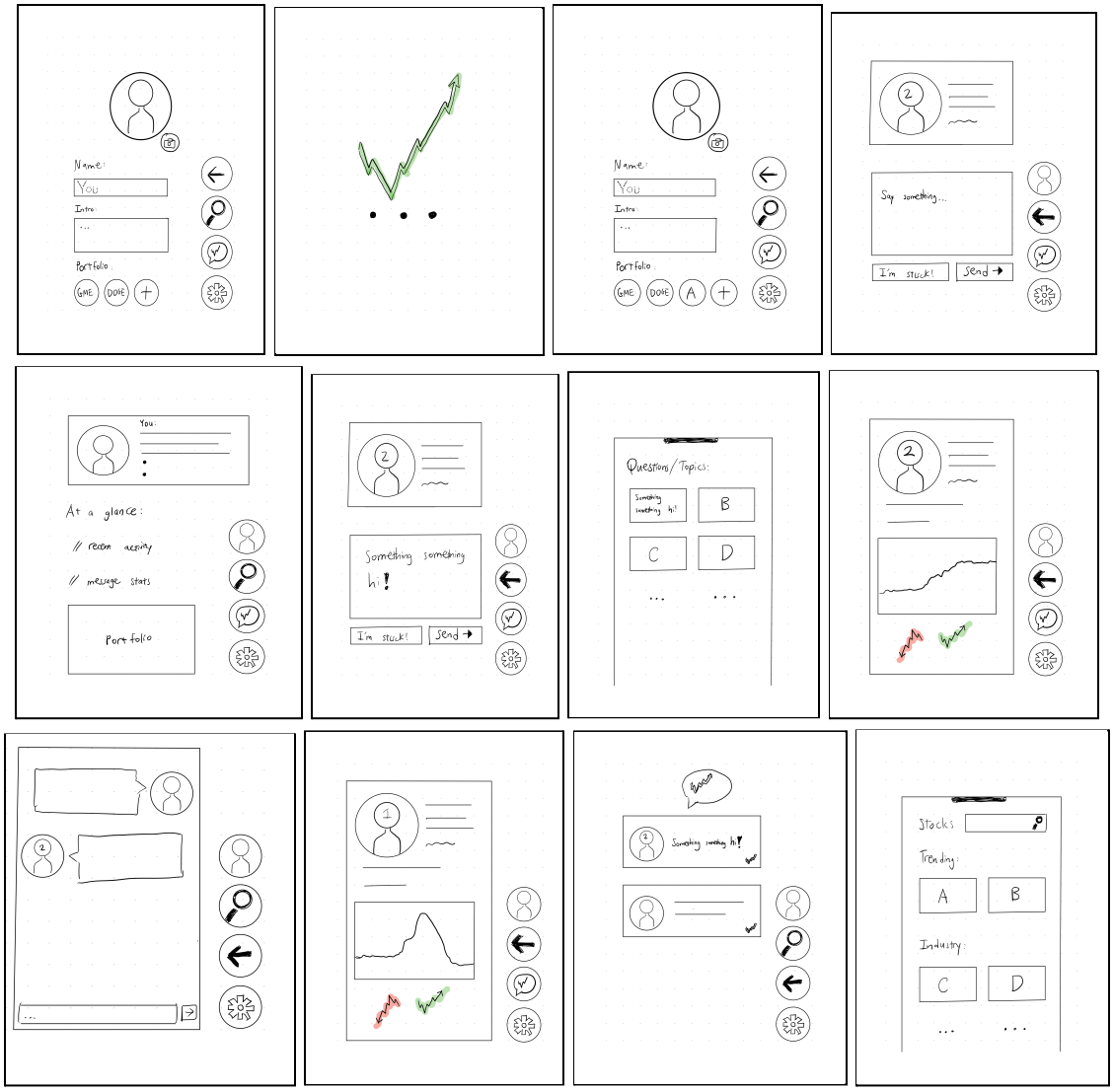


Figure 3: News Feed of stock portfolios/investment stories

Our low-fidelity prototype was centered around the idea of connecting users with potential mentors via a swipe-based user interface. We chose this because we believed that a swipe-based UI would be familiar to most people due to the popularity of apps like Tinder. After being matched with someone, they would gain access to a chat screen where they could message and video call with their mentor. In addition, posts and investment updates made by the match would be added to the user's news feed. We synthesized the sketches above into a low-fidelity prototype show below:



The low fidelity prototype was tested on four different individuals, all members of our target demographic. The participants were all college students who weren't very familiar or experienced with investing. For each participant, we explained what the app was, what the broad value proposition was, and how the basic buttons worked. Participants were asked to complete our three basic task flows and to verbalize their thoughts and actions as they went through the prototype. Due to the COVID pandemic, interviews were conducted over Zoom, and each participant was asked to share their screen to demonstrate what they were doing.

The three tasks we asked our users to complete were:

- Personalize content by selecting stocks/markets of interest
- Meet with / talk to other investors
- View and learn more about other users

The main takeaway from our testing session was that contrary to our assumptions, swiping may not be the most suitable interface. Swiping through the list of potential matches wasn't actually as intuitive to users as we thought it would be - participants were confused on how to meet and talk to other investors. In addition, we also found that the swipe UI's association with dating apps hurt the perceived "seriousness" that an investment app was supposed to have.

Medium-fidelity prototype

When moving to our medium-fidelity prototype, we first began by modifying the tasks we had started with.

Simple Task

Our simple task switched from "view and learn more about other users" to "find a mentor or another investor to learn from." We realized that before even viewing other users and learning about them, you must find these other users. Changing our simple task to a more specific and initial action directed our focus towards the interface design details that would best allow people to connect on our platform.

Moderate Task

Our moderate task switched from "connect with other investors" to "view someone else's investment habits and portfolio." We realized that the objective of our platform isn't to connect with others for the sake of connecting so we modified our tasks to reflect this more accurately. Our new moderate task was based on the fact that, after finding a user but before forming a strong connection, you will likely want to evaluate this user and their investment behavior.

Complex Task

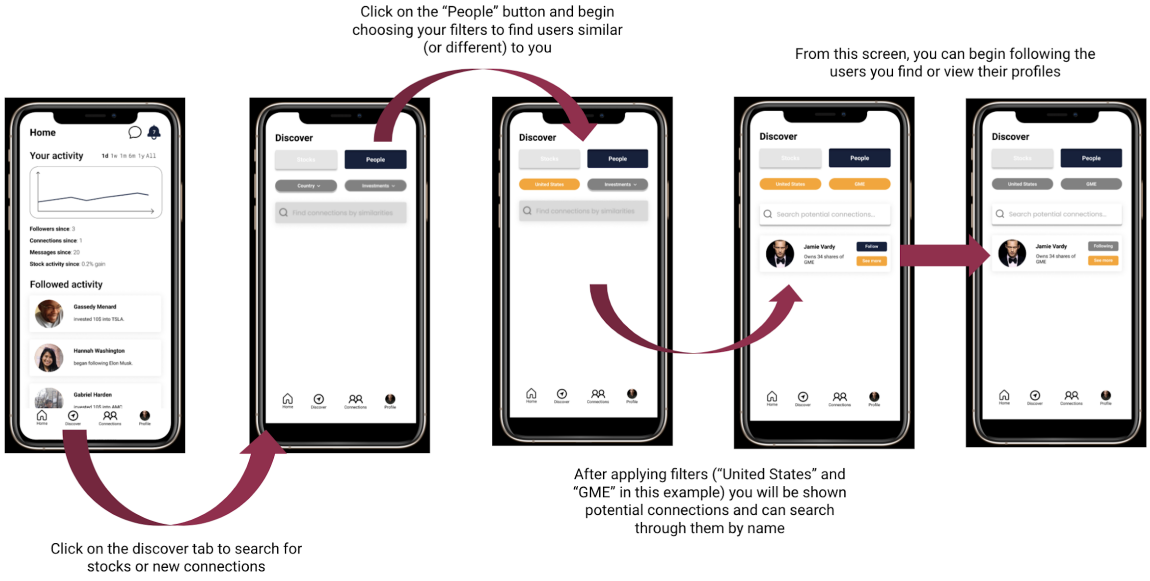
Our complex task switched from "personalize your profile card and choose stocks/markets of interest" to "have a conversation with a mentor and learn about investing." We realized that while creating your own profile is certainly an important part of our application, it's really more of a preliminary step before you begin using the app for its main objective. On the other hand, starting a conversation with a fellow investor is one of the key steps toward achieving the objective of learning and sharing about investing.

After we had modified our tasks, we used those and feedback from our first prototype to begin working on a new user interface. The biggest change we made was the decision

to scrap the idea of swiping through the profiles of other investors to create connections, and instead adopt a unique search system that focuses on similarities between the user and potential connections. To search for new connections, a user first applies filters for country of residence, stocks invested in, risk profile, and more, with the objective of finding other users with whom they can easily connect (or who are different to them in certain aspects) and share ideas. When viewing their existing connections, users will also be recommended new connections based on similarities.

We decided to use Figma to actually construct the prototype. The task flows can be seen below.

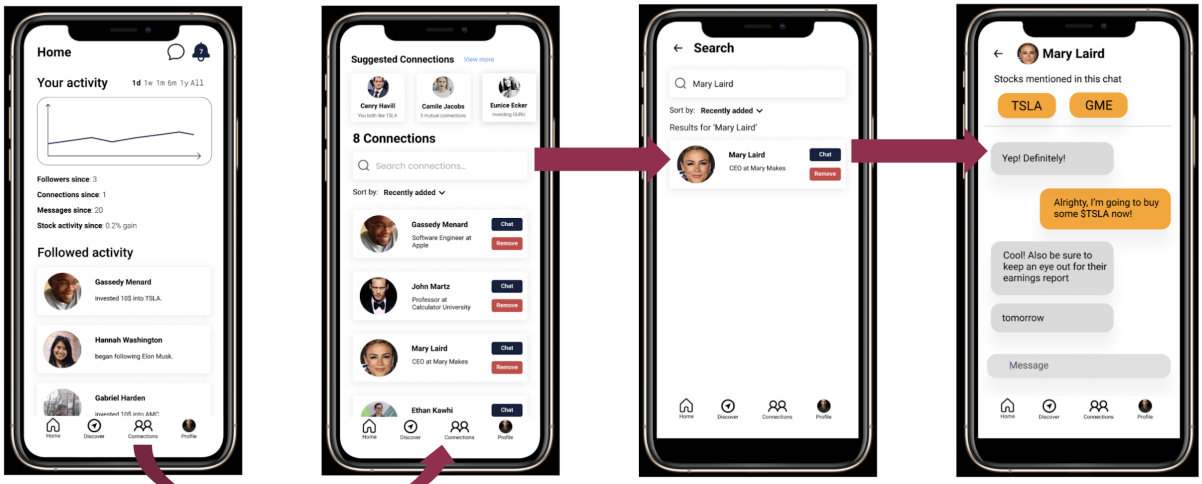
Find a mentor or another investor to learn from



Have a conversation with a mentor and learn about investing

Search amongst your connections by name to find a specific person

Click on the "Chat" button to have a conversation where you can easily direct other users to specific stocks



Click on the "Connections" tab to view and message your existing connections

View someone else's investment habits and portfolio

When looking at a potential new connection, you can choose to view their profile in more detail

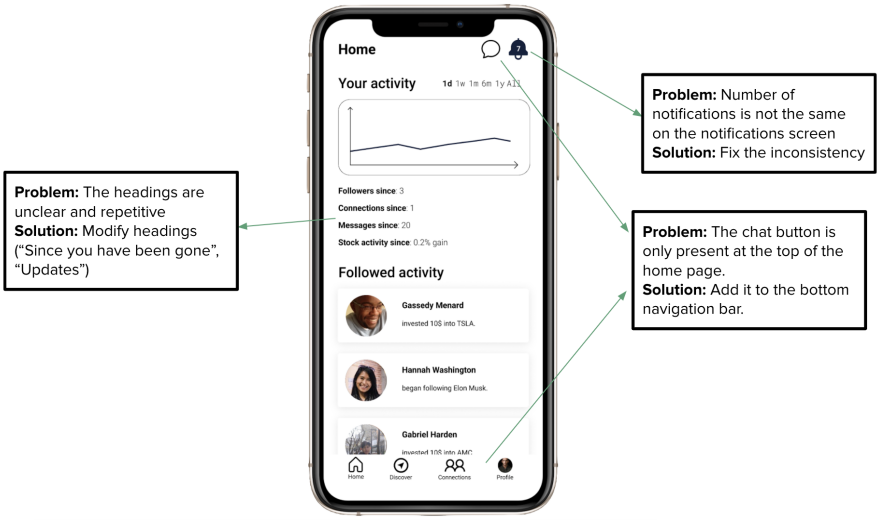
After following someone, you can see information about their investment portfolio (according to the level of privacy they have chosen)

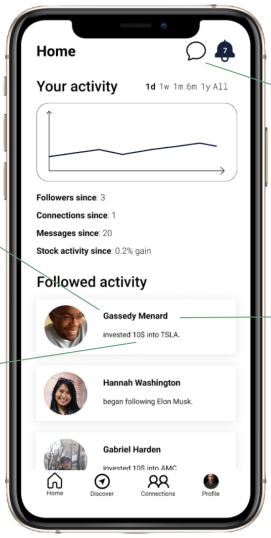
Evaluation and Areas for Improvement

With the objective of improving our medium-fidelity prototype, our classmates in other groups performed a heuristic evaluation of our prototype, comparing the user interface against Nielsen's heuristics. Our evaluators identified parts of our prototype and design which were violations of the heuristics and pointed them out, while also suggesting ways to improve them. Then, everyone who had evaluated our group combined their findings to create a summarized heuristic evaluation of our prototype.

The main findings from the heuristic evaluation of our prototype were that our app design allowed users to accomplish our three tasks effectively and navigating our app felt intuitive, but some of our screens were lacking detail or color to make them more exciting and visually appealing. Some of our app's functionality was also unclear, such as how users searched for other users and the types of relationships users could form on the platform (connections and followers). Additionally, some parts of the financial/investment data that we displayed could have used more information to provide clarity.

From these findings, we identified the most important areas for improvement of our design and proposed specific changes to our interface which we would reevaluate when working on our high-fidelity prototype. We ended up implementing most of these changes for our final prototype but a few were omitted given the limitations we were working with. The following images of our medium-fi user interface summarize all the severity 3 and 4 issues that were pointed out to us and how we planned to fix them.



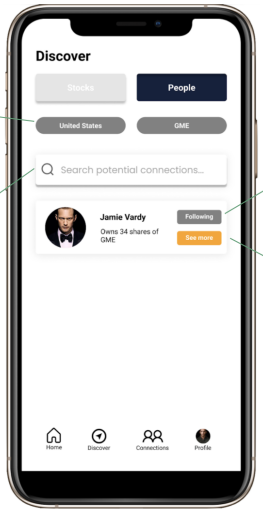


Problem: No help/documentation available
Solution: Add a help page, accessible from the home page

Problem: Profiles in home page feed are not clickable
Solution: Make activity in the feed link to other profiles

Problem: Users want to know if activity they are seeing is from connections or people they follow
Solution: Add a tag identifying other users in the feed

Problem: People may not want to share the exact amounts they're investing
Solution: Add privacy settings so users can modify this

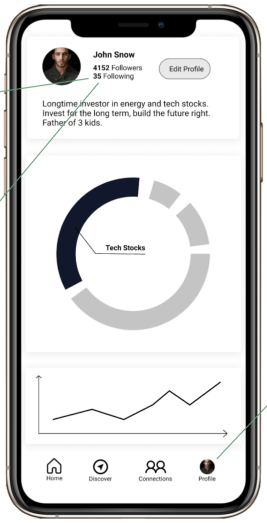


Problem: Initially, unclear that you must pick filters before being shown other users
Solution: Add a message indicating this

Problem: The following button goes from navy to gray when clicked, which is different from other buttons
Solution: Make all button colors consistent

Problem: Initially, presence of search bar is confusing
Solution: Hide search bar until users have chosen filters

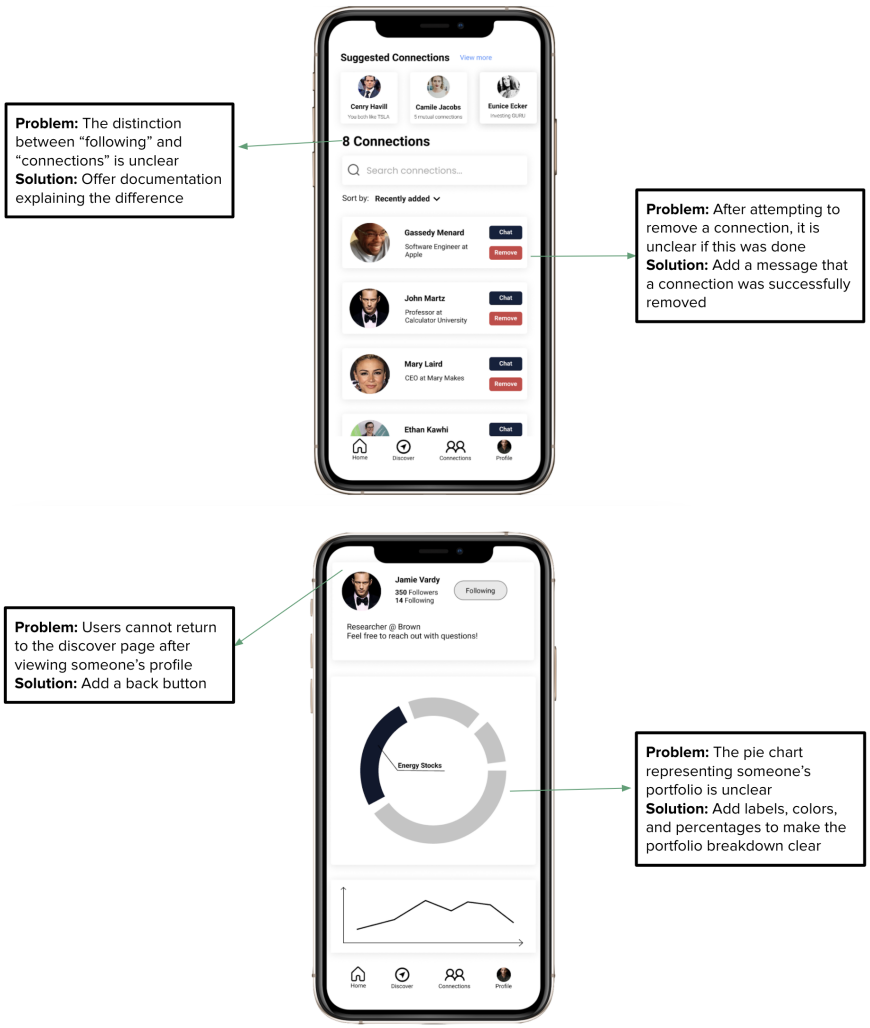
Problem: Users can't unfollow others easily if they accidentally follow them
Solution: Add an unfollow button



Problem: Users can't see who they are following
Solution: Make the "following" information on one's profile clickable, leading to a page where users can see who they follow

Problem: Users can't unfollow other users
Solution: Add an unfollow button on the screen where users can see who they follow

Problem: Users don't know which tab they are on
Solution: On the bottom navigation bar, indicate which tab is currently being viewed with colors or shading

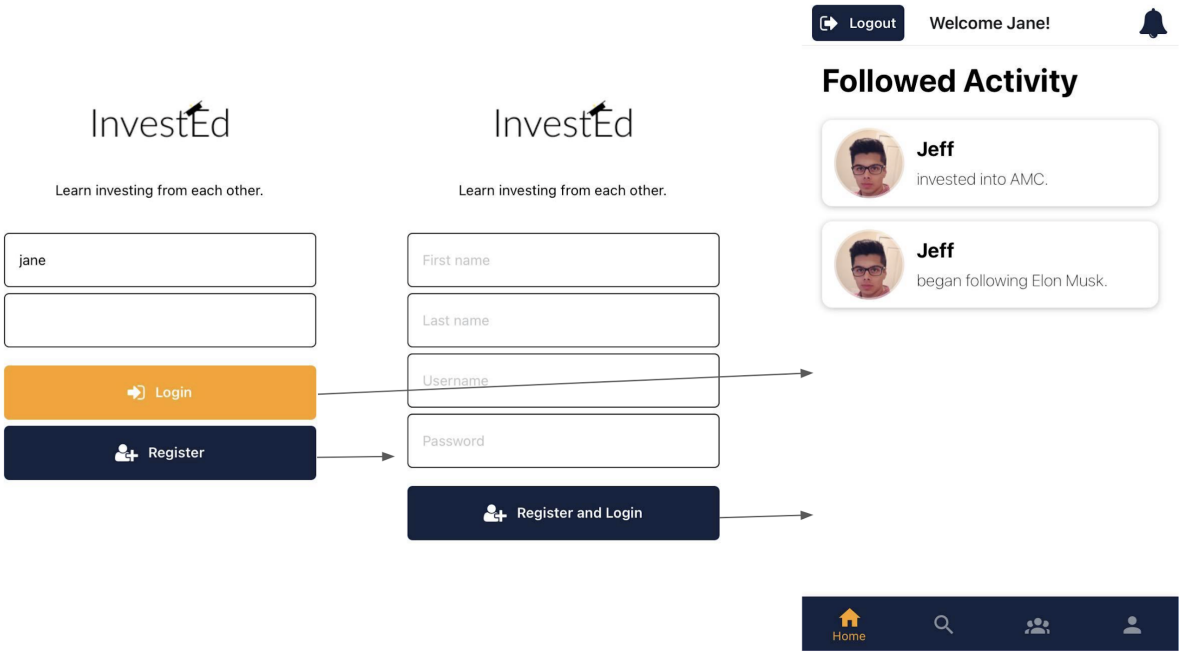


High-fidelity prototype

We built the High Fidelity prototype using React Native. When starting to implement it, we began by considering the biggest heuristic violations we received in our report. In our high-fidelity prototype, we addressed many degree 3 and 4 violations.

Login screen

We added a simple login and register interface that brings you to the home page upon successful login. The home page allows you to log out.

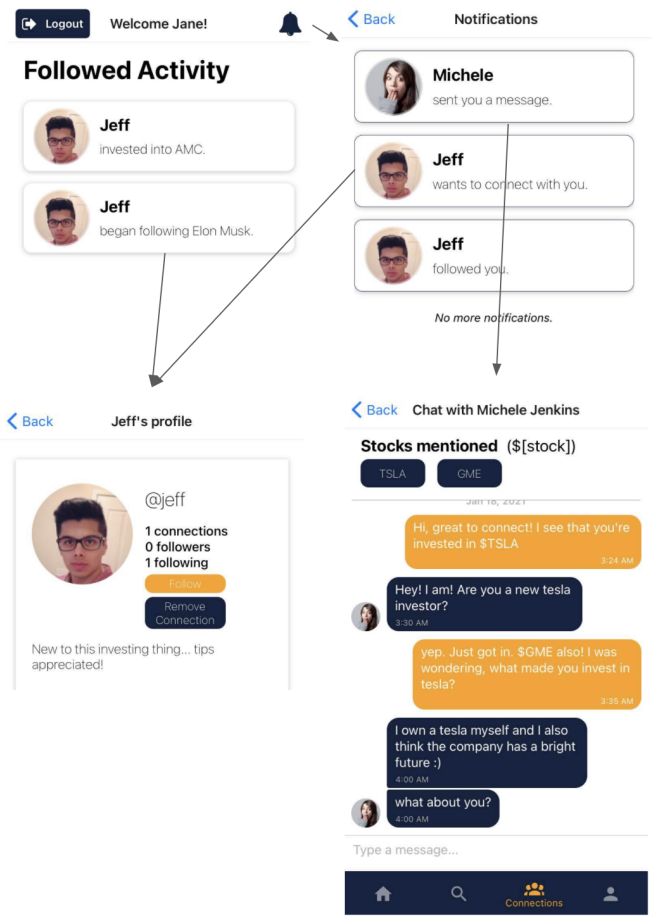


Home screen

For the home screen, we

- highlighted the screen the user is on in the navigation bar at the bottom
- added links to user profiles from the activity feed and from the notifications screen
- Added the number of notifications currently unread (it should show the number next to the bell with a different color. Each unread notification will have an orange dot indicator next to it.
- Clicking on each notification will bring you to the appropriate screen.

- Omitted implementation of a FAQ and ‘Your Recent Activity’ on the home page for this prototype.

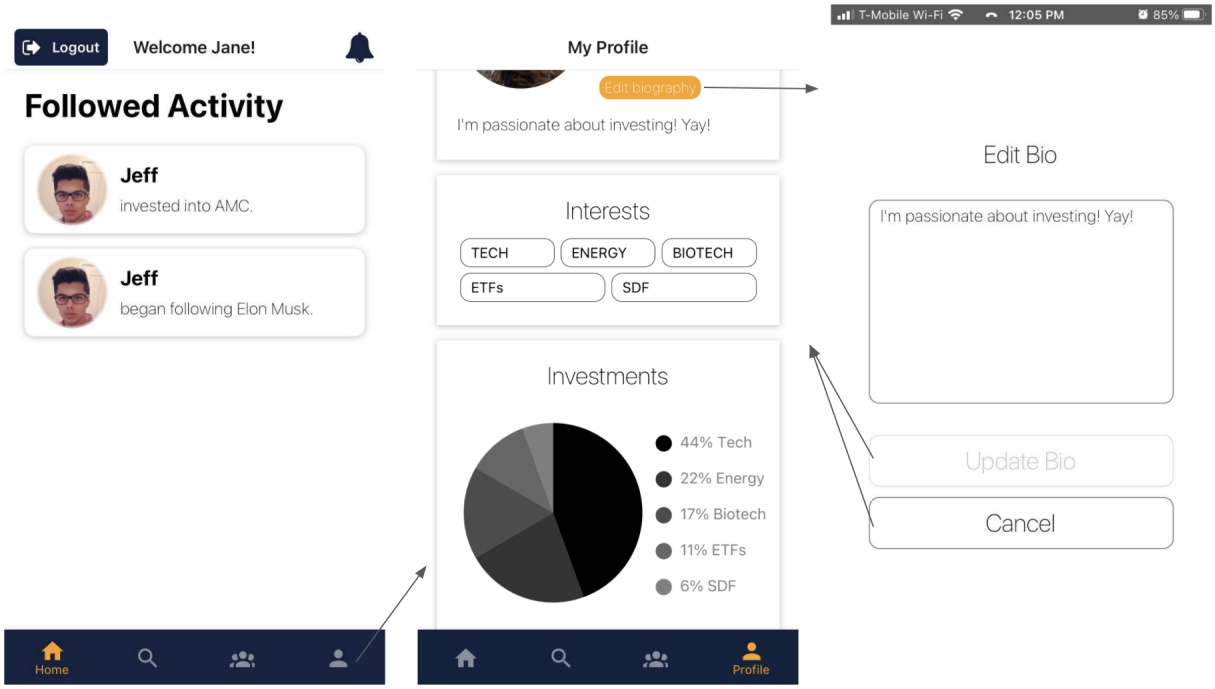


Profile Screen

For the profile page, we:

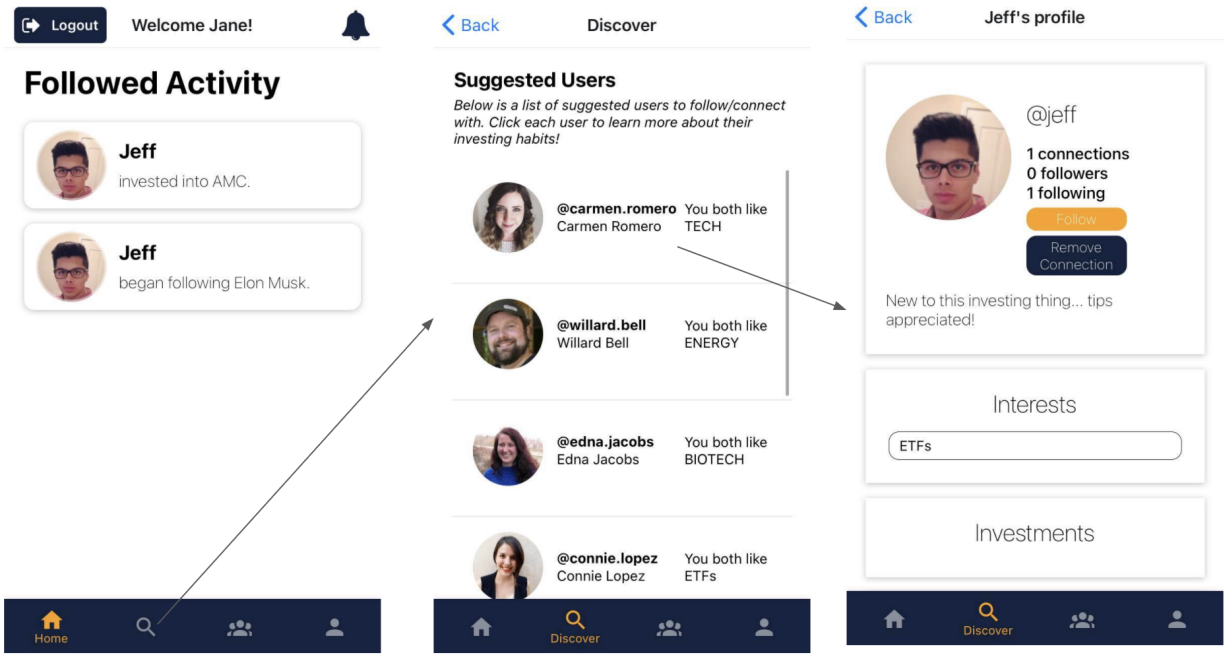
- Made the profile page content dependent on whether it was your profile or another user's profile. For the most part, the look remains the same to guarantee consistency. For your own profile, you can edit/cancel editing your biography. For others, you can follow and/or connect with them.
- Added a clear breakdown of a user's portfolio by segment in the pie chart so that users and visitors could better visualize what they were investing in.

- Omitted adding a way to view users who you are currently following for this prototype.



Discover screen

For the discover screen, we opted to simplify it and make it be backed by an algorithm that suggests users. Users are clickable and will lead to their profile. We omitted any search or filter functionality as well as our side feature of being able to trade stocks.

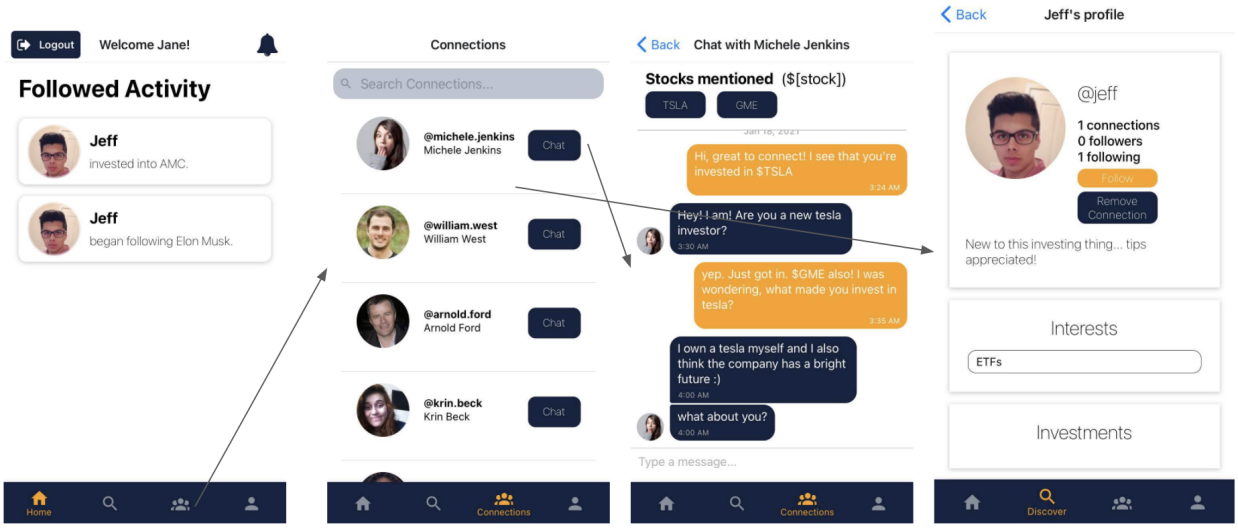


Connections screen

For the connections page, we:

- Added an "all connections" list so that users could see all of the people they were following conveniently.
- Added basic search functionality.
- Added a way to navigate to their profiles by clicking on each card.
- Added a real chat feature.

- Omitted popups or extra FAQ info about connections vs followers.



Final prototype implementation

Tools used
We made use of React Native, Expo, and Github in developing our prototype.

As a cross-platform mobile app framework, React Native allowed members of the development team to create and test the prototype with ease. Its cross platform capabilities allowed for fast development, as we did not need to cater to application requirements specific to the iOS or android platforms. The ready-made UI components that come with React Native also had a significant impact in the ease and speed of our development. Instead of writing code from scratch to implement the various UI features of our application, we were able to use already-made components from React. Examples of this include the scrolling feature seen on several screens of the prototype, the tab navigation feature used to navigate to different screens of the prototype, the Search bar on the Connections screen, and many more. The major limitation that we encountered from using React Native was surprisingly also its cross-platform nature. We found that the finished prototype, while functioning on both iOS and android, looked much better and has less issues on iOS. Since our React Native app shared the same codebase across all devices, it was difficult to create platform-specific modules for android to make the UI for android and iOS look exactly the same.

Expo was critical for testing the prototype as we worked on it, as it allowed us to examine the prototype on our respective devices.

Github was used to allow all members of the development team to simultaneously work on the prototype and to merge our contributions together.

Wizard of Oz and Hard-Coded Data:
The notable wizard of oz technique we used is to have mock users within our app. As our app is one that prioritizes user connection and interaction, we created around 20 mock users to simulate this. They would represent other investors that the user is able to connect with or follow, as well as to chat with.

Summary and next steps

Future Additions:
An idea that we wrestled with for the app was actually to have it be a brokerage with extended social-platform capabilities. While we included things in our UI that suggest

we are also a brokerage, like the Interests and Investments sections on the Profile screen, this idea was not fully explored on the prototype. In the future, this would be something that we could further explore and implement.

Summary

Investing has become increasingly appealing and accessible in recent years, and more people are excited to become involved with it. There are many, however, who face challenges and barriers that prevent them from getting started with investing. InvestEd was designed to solve this by making investing collaborative, as we believe having a social network behind someone can be excellent in helping them surmount barriers. Through InvestEd, people can learn and become exposed to investing from each other's experiences, allowing them to see that they can also get into investing. We appreciate all the takeaways and points of learning from this course about the design thinking process, and we look forward to applying them in our future work.