

Case Study: Vanguard Digital Advisor

by Brooke Elliott

Vanguard Digital Advisor is an online financial platform that streamlines saving and investing by automatically managing a user's portfolio. Beginning investors (and investors with intermediate experience) favor this hands-off approach to investment, as it costs less than a human financial advisor but does not require frequent rebalancing or extensive market knowledge. Based on my early research, I believe that a minimalistic dashboard focused on showing the user quantitative information and educational resources will foster trust with the users that Vanguard seeks to attract.

I based my design on principles used by modern investing websites like Sofi and Robinhood, avoiding overcrowding of panels and options that could confuse users. Since the primary users of Vanguard's Digital Advisor are users with beginning to intermediate investment skills, creating a site that feels visually "clean" makes customers more likely to familiarize themselves with the interface and stay with Vanguard for the long term. I also focused on including elements that increase user trust; interactive graphs, customization options, and goal-setting tools allow the user to feel in control of their finances, even when taking the hands-off approach of using a digital advisor. While designing, I wanted to create a platform with a modern and sophisticated look that remained approachable, user-friendly, and comprehensible for new investors.

Usability Testing: Initial Findings

My initial usability test was conducted on Noah Powell, a 21-year-old undergraduate student at the University of North Carolina at Chapel Hill. He had some past investing experience and an interest in finance, but he was not a hands-on investor. During the usability test, many elements of the website worked and encouraged interaction as intended; however, there were some sticking points.

Issues discovered:

- The website mockup created by Vanguard lacked some key functionality. Noah occasionally “got lost” or mistook one menu option for another with a similar title or name.
- Noah wanted to see adjustable graphs that allowed him to view the user funds at smaller scales of time.
- The overall layout of the website confused him; multiple menu items and drop-down buttons confused him when he attempted to complete multi-step parts of the usability test.
- Noah struggled when he attempted to locate the “investor profile” page. Expecting to find it after clicking the icon symbol in the menu bar, he was confused when that did not work. He also found the title “investor profile” confusing.
 - [Click here](#) for a time-stamped link to this moment in the video of the user test.

While Noah did have some difficulties during the usability test, he liked the look of the Vanguard website and found its overall design appealing. Increased interactivity would make it the kind of investment website he was eager to use for his own finances.

Audience Analysis

Based on my own findings and the findings of my peers in MEJO 581, I developed the following audience analysis:

AGE	The age range for Vanguard Robo Advisor's audience is 18-40 years of age, as this represents the ages at which most people start saving for retirement and other major life purchases. ¹
GENDER	The Robo Advisor is built for all gender identities. That being said, men are slightly more likely to invest using this method. ²
EDUCATION	Most audience members will be pursuing college degrees or higher, with some high school graduates interested in financial literacy included. ³
ETHNICITY	The Vanguard Robo Advisor's user base is diverse, as it will be used by investors in the United States of America (a diverse country). ⁴ Asian and white Americans may be slightly overrepresented. ⁵
ACCESS TO TECHNOLOGY	Potential Vanguard Robo Advisor users will be familiar with technology, computer literate, and capable of navigating websites containing complex financial information. ⁶
INCOME STATUS	While users may have varied levels of income, most will come from middle or upper middle class backgrounds. ⁷ Entry level and early-mid career professionals will make up the bulk of Vanguard Robo Advisor users.
LOCATION	Most of the audience for the Robo Advisor comes from urban and suburban areas of the United States. ⁸
FAMILIARITY WITH INVESTING	There will be mixed levels of experience in the Vanguard Robo Advisor audience. Some users are beginners with little to no investment knowledge, while others may have dabbled in stocks, mutual funds, or retirement accounts. ⁹

1. [Alicia Adamczyk, CNBC](#)

2. [James Early, Forbes](#)

3. [The Global Coalition on Aging](#)

4. [Eric Jensen et. al, United States Census Bureau](#)

5. [Kris Nelson, Russell Investments](#)

6. [G. Samaraweera, Sabaragamuwa University](#)

7. [Moriah Costa, Synchrony Bank](#)

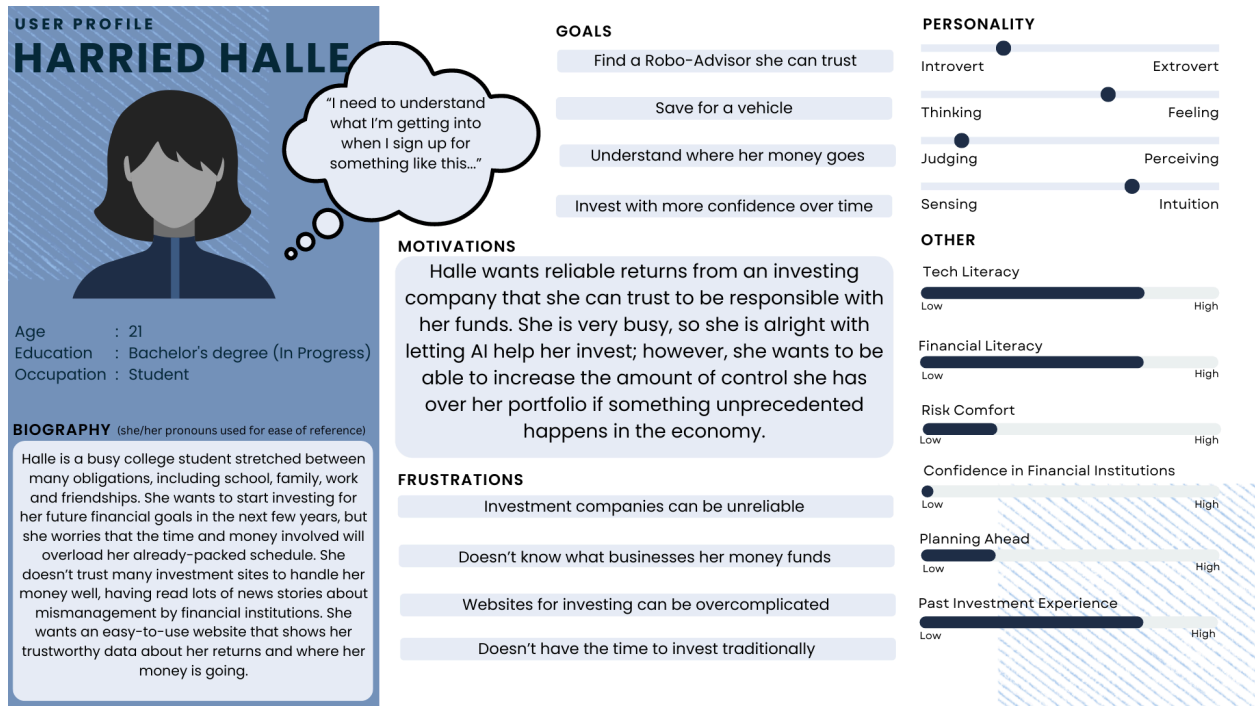
8. [Emily A. Vogels, Pew Research Center](#)

9. [Jack Caporal, Motley Fool](#)

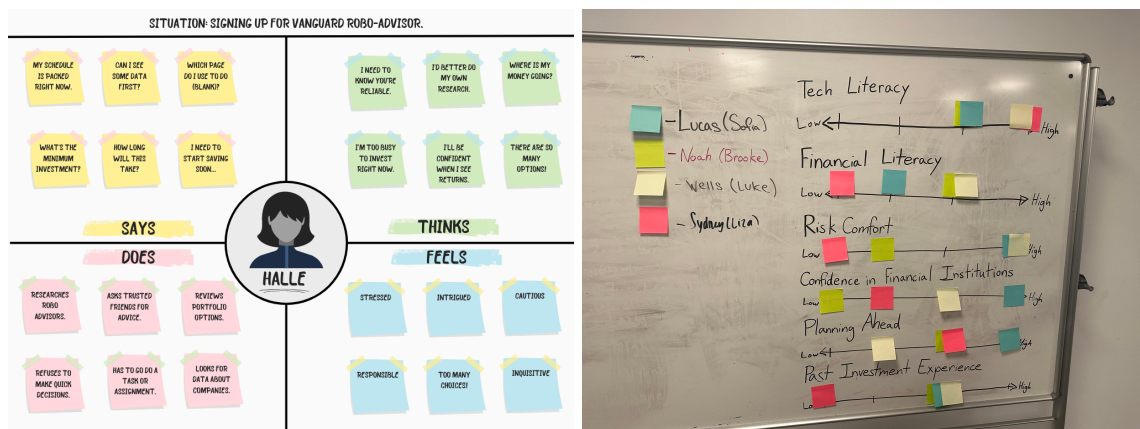
Personas

My team and I then created the following four personas based on the results of our initial usability tests, listening sessions, and audience analysis. The persona for "Halle" was most closely based on Noah's listening session, where he expressed concern about the reliability of large financial institutions and had difficulty navigating parts of the website.

Harried Halle	Halle is a busy college student stretched between many obligations, including school, family, work and friendships. She wants to start investing for her future financial goals in the next few years, but she worries that the time and money involved in starting will overload her already-packed schedule. She doesn't trust many investment sites to handle her money well, having read lots of news stories about mismanagement by financial institutions. She wants an easy-to-use website that shows her trustworthy data about her returns and where her money is going.
Proud Peter	Peter is an undergraduate student studying economics. As such, he's been into investing ever since he was not allowed to invest (seventeen). His father opened and operates his own business, and his family has always been business and economically oriented. Peter hopes to one day make his money work for him. He is confident in financial institutions, is okay with taking risks, especially with how young he is (nineteen), and is planning ahead by investing and planning to open a Roth IRA. He's looking for a way to passively invest and wishes to take more of a back seat as his studies are ramping up.
Freethinking Fred	Fred is in the early years of his college experience. He doesn't think much about saving for the future. He has some stocks his parents helped him set up a while ago, which he checks on occasion. His day-to-day thoughts about money have to do with budgeting for his expenses. He views money as something that allows him to experience new things with the people he loves. He isn't particularly attached to it. He's comfortable with tech and AI and would allow it to manage his money if he deemed it advanced enough.
Beginner Becky	Becky is an undergraduate student studying psychology who hopes to one day have her own practice. She's dependent on her parents for her finances and financial advice, but she hopes to enter the investing realm in the future. She has no prior experience with or knowledge of investing. She typically consults others before making any important decisions. She's a social person when it comes to friends but prefers online interactions when it comes to seeking information as she enjoys the flexibility in the ability to learn. She wants to have plenty of money for retirement so she doesn't have to work and has a positive attitude towards money.



Above is an example of a persona poster, which I created based on our class research and audience analysis. This persona, Harried Halle, was based on my listening session with Noah, in which I dug deeper into his investing habits, personal beliefs, and spending knowledge. Below is an empathy map constructed based on our work in class and listening sessions, as well as the Likert scale that my team and I created to analyze our listening session subjects as a group.



Card Sort

I used large language learning models like [ChatGPT](#), [Gemini](#), [Perplexity](#), and [You AI](#) to create a list of 63 potential elements to exist on Vanguard's dashboard or related pages. After this, I narrowed the list down to 20 cards containing some of the most important and necessary features for the site to create my site structure. For my pilot test, I conducted a closed-sort test with four categories: Navigation and Account Management, Portfolio Management, Informational Elements, and Alerts and Notifications. Below are the results of that first sort.

vanguard-robo-advisor-dashboard-casolysis-2024-03-30_16.12.10.648457 (1)

card_id	card_label	category_id	category_label	user_id
1	Logo/home button and navigation menu	1	Navigation and Account Management	1
2	Button linking to user profile	1	Navigation and Account Management	1
3	Vanguard auto-suggestions for optimizing the user's portfolio based on risk tolerance/investments	2	Alerts and Notifications	1
4	Notifications for any required or important account actions that need to be taken	2	Alerts and Notifications	1
5	Recent deposits, withdrawals, and portfolio rebalancing	2	Alerts and Notifications	1
6	Progress towards each specific goal, with projected outcomes	3	Portfolio Management	1
7	Detailed performance summary and projections (e.g. year-to-date, 1-year, 5-year returns)	3	Portfolio Management	1
8	Section to adjust risk preferences	3	Portfolio Management	1
9	Ability to adjust goals and risk tolerance as needed	3	Portfolio Management	1
10	Tools for tax-loss harvesting or other tax minimization techniques	3	Portfolio Management	1
11	Place to set and see personalized financial goals (e.g., retirement, college savings)	3	Portfolio Management	1
12	Settings for automatic contributions or withdrawals	3	Portfolio Management	1
13	Options to deposit or withdraw funds from account	3	Portfolio Management	1
14	Current asset allocation breakdown	3	Portfolio Management	1
15	Contact information for customer support	4	Informational Elements	1
16	FAQ section	4	Informational Elements	1
17	Link to comprehensive log of all account transactions from opening of account	4	Informational Elements	1
18	Educational resources on investing and Vanguard's approach	4	Informational Elements	1
19	Current funds in portfolio	4	Informational Elements	1
20	Graphs/charts displaying portfolio performance over time	4	Informational Elements	1

After I saw how the categories were distributed in this sort, I refined the categories to the following: Navigation and Account Management, Portfolio Customization, Portfolio Information, Customer Resources, and Alerts and Notifications. I then [conducted eleven card sorts with my classmates and peers](#), which resulted in the distribution of site assets seen on the following page.

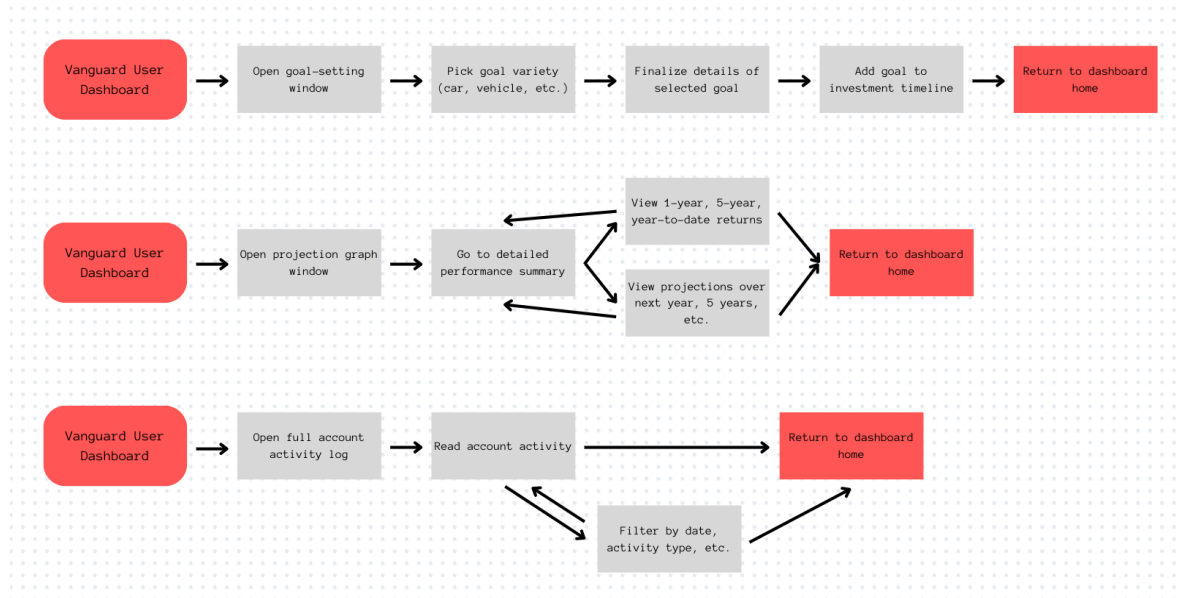
Portfolio Information	Portfolio Customization	Navigation and Account Management	Customer Resources	Alerts and Notifications
<ul style="list-style-type: none"> • Current asset allocation breakdown • Progress towards each specific goal, with projected outcomes • Detailed performance summary and projections (e.g. year-to-date, 1-year, 5-year returns) • Graphs/charts displaying portfolio performance over time • Current funds in portfolio • Link to comprehensive log of all account transactions from opening of account 	<ul style="list-style-type: none"> • Tools for tax-loss harvesting or other tax minimization techniques • Options to deposit or withdraw funds from account • Settings for automatic contributions or withdrawals • Place to set and see personalized financial goals (e.g., retirement, college savings) • Ability to adjust goals and risk tolerance as needed 	<ul style="list-style-type: none"> • Button linking to user profile • Logo/home button and navigation menu 	<ul style="list-style-type: none"> • Privacy policy and statement of commitment to security • Educational resources on investing and Vanguard's approach • FAQ section • Contact information for customer support 	<ul style="list-style-type: none"> • Recent deposits, withdrawals, and portfolio rebalancing • Notifications for any required or important account actions that need to be taken • Vanguard auto-suggestions for optimizing the user's portfolio based on risk tolerance/investments

Site Map, User Flows, and Initial Wireframes

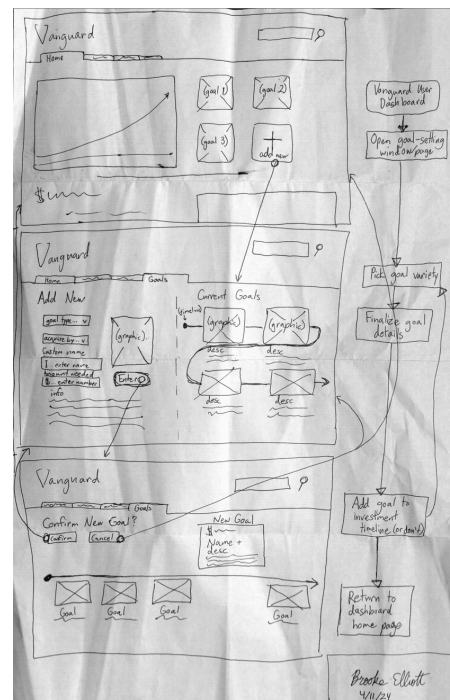
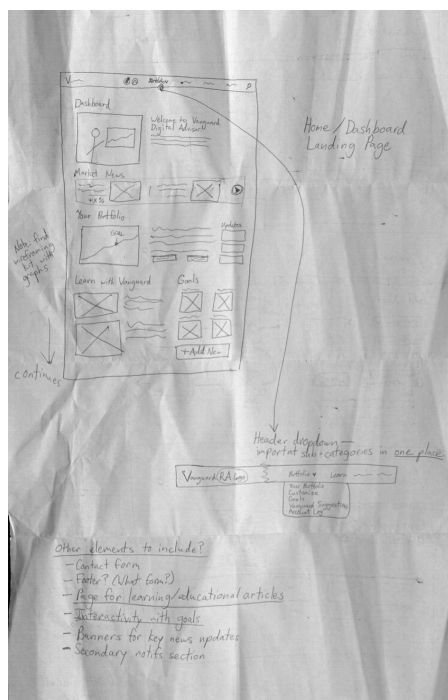
I created a potential site map based on these results, with elements sorted into the categories testers sorted them into most (with some minor alterations based on listening session data and design testing). Creating a sitemap helped me conceptualize my version of Vanguard's website for the wireframing phase of this project. I was also able to build the user flows I wanted testers to attempt to complete in the next phase of my project.

Vanguard Digital Dashboard Site Structure

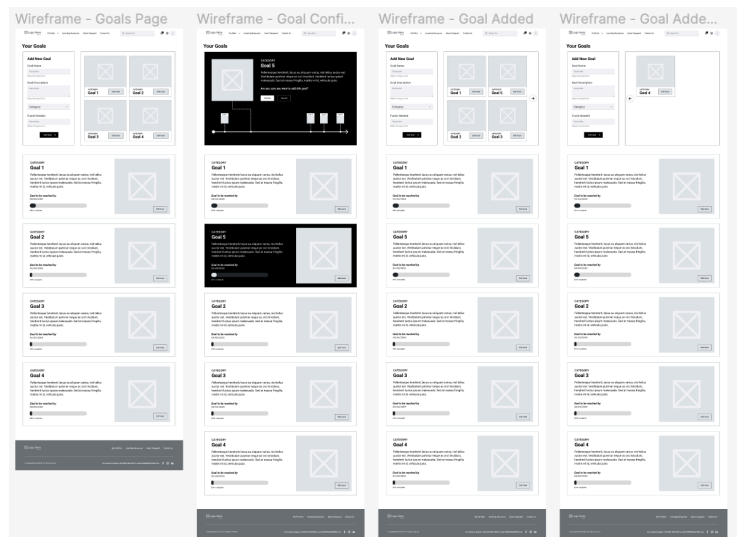
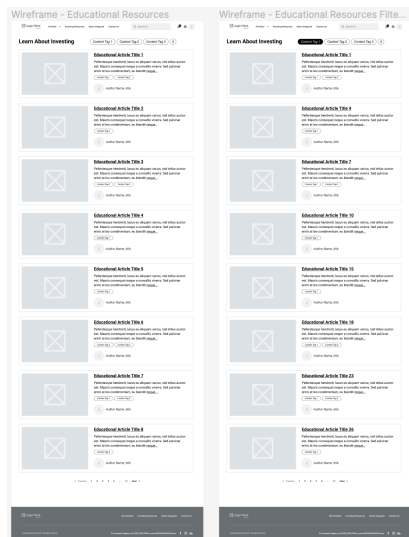
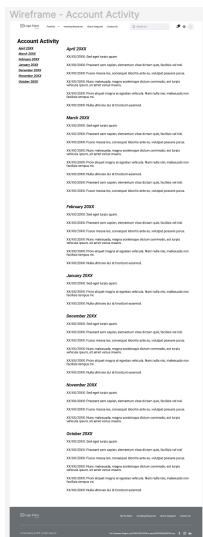
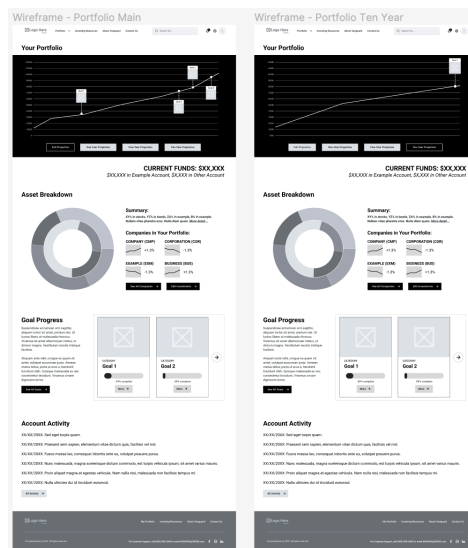
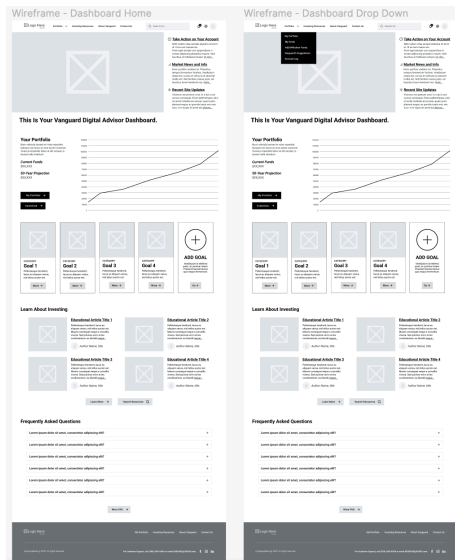
- **Navigation and Account Management**
 - Logo/home button and site menu
 - Button linking to user profile
- **Alerts and Notifications**
 - Notifications for any required or important account actions that need to be taken
 - Recent deposits, withdrawals, and portfolio rebalancing
- **Portfolio Information**
 - Detailed performance summary and projections (e.g., year-to-date, 1-year, 5-year returns)
 - Current funds in portfolio
 - Graphs/charts displaying portfolio performance over time
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- **Portfolio Customization**
 - Place to set and see personalized financial goals (e.g., retirement, college savings)
 - Progress towards each specific goal, with projected outcomes
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 - Vanguard auto-suggestions for optimizing the user's portfolio based on their risk tolerance and investment goals
 - Tools for tax-loss harvesting or other tax minimization techniques
- **Customer Resources**
 - Educational resources on investing and Vanguard's approach
 - FAQ section
 - Contact information for customer support
 - Privacy policy and statement of commitment to security



Below is a wireframe sketch I created to simulate the website based on the first user flow shown above, as well as a wireframe sketch of the home page of the Vanguard Digital Advisor dashboard. These sketches helped me brainstorm and refine my ideas before I created the wireframes that I made in Figma, which can be found [at this link](#).

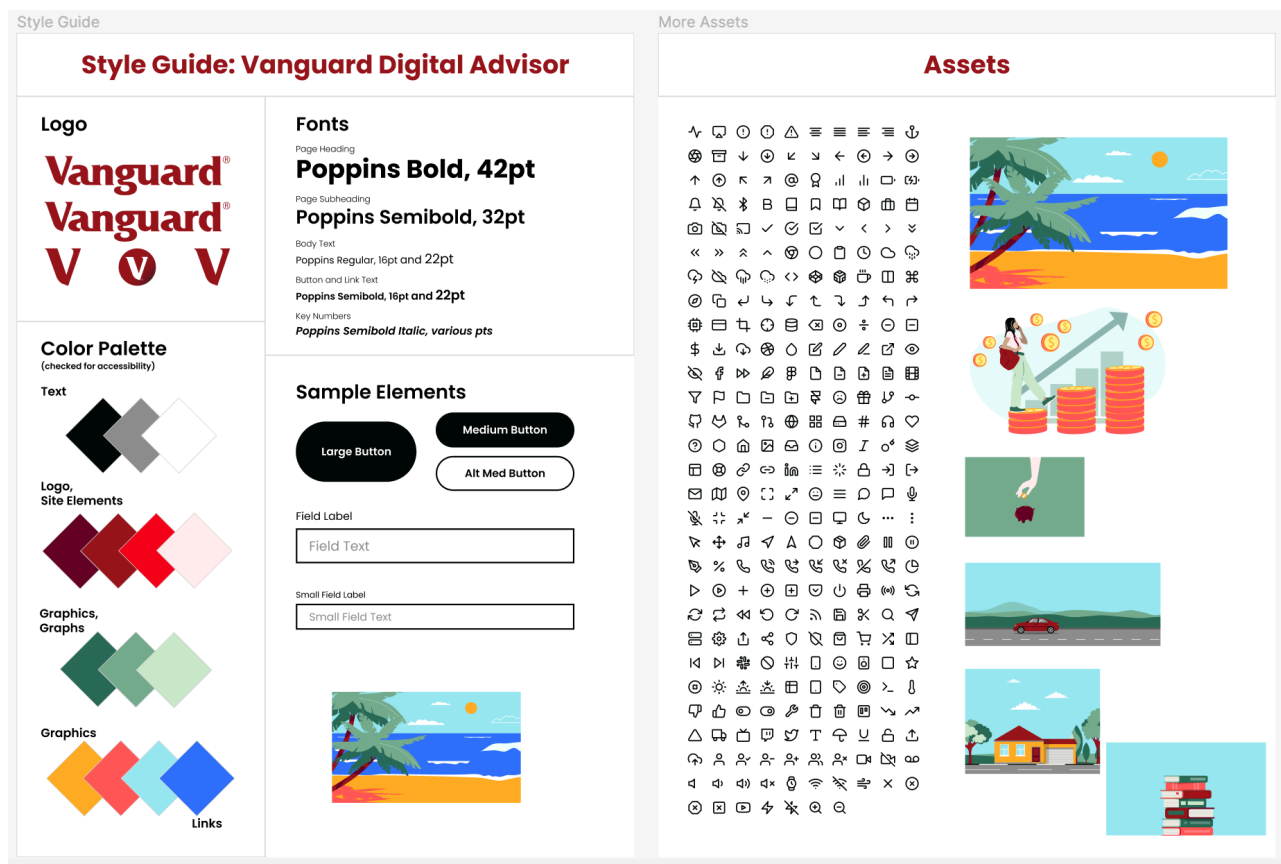


I made my Figma wireframes interactable; below is a map of the many connections that the wireframe version of the site included. I also included several screenshots of my wireframes, grouped by which page of the site each represents. The parts of the site I fleshed out were based on the user flows I wanted my testers to be able to complete.



Vanguard Design Guide

Vanguard's UI is clean and bright, using flat colors (primarily red and green) and simple graphics to create an easy-to-navigate interface that beginner-to-intermediate investors would not find intimidating or difficult-to-use. For this reason, I created the style guide and asset list found below. I used colors found on Vanguard's pre-existing website and made several simple, style guide-consistent graphics in Adobe Illustrate to populate the website.



I made sure the colors used in the site passed accessibility checks using Adobe's inbuilt colorblindness tester, and I used more of the secondary colors from Vanguard's website (the blues, pink, and yellow in the bottom left of the style guide) to make the graphics pop. My icons for the site are from Feathericon, a free digital repository that I found during my research.

Usability Test: High-Fidelity Mockups

[I made a series of high-fidelity mockups](#) based on my initial wireframes, altering them based on feedback on my wireframes and my Vanguard style guide. Testers for the Vanguard Digital Advisor mockup were screened by age, and users 18–40 were accepted; while I considered restricting the test to users in countries in which Vanguard is popular, I decided not to, as there are many reasons that a user in another country might use an investing service popular in America (e.g. dual citizenship, emigration). The test consisted of four multi-step user tasks and four questions about each tester's experience, shown below.

Test plan All the tasks and questions from your test.	Introduction You are a new user of Vanguard's Digital Advisor, an online investing platform that automatically manages your portfolio on your behalf. You've already logged into the site and are currently looking at your user dashboard. You are interested in looking at your projected funds and setting a new financial goal for yourself. Tasks 1. Open your Portfolio page and find the graph of projected funds there. Switch from the graph's full projection view to the ten-year projection view, then switch back to the full projection view. [Success: Yes, No] [5-point rating scale: Very difficult to Very easy] 2. Go to your account activity log. Jump to results from October. Find the date at which your Vanguard Digital Advisor account was created. [Success: Yes, No] [5-point rating scale: Very difficult to Very easy] 3. When was your Vanguard Digital Advisor created, according to the site? (Dates are written in m/d/y format.) [Written response] 4. Open the page containing your financial goals. Create a new goal using the "Add a New Goal" feature and submit it. Return to the home screen after this. [Success: Yes, No] [5-point rating scale: Very difficult to Very easy] 5. Find the section of the website that contains articles that help customers learn more about investing. Filter the articles by articles that contain the content tag "Investment Tips", then revert the page to its default unfiltered state. [Success: Yes, No] [5-point rating scale: Very difficult to Very easy] 6. What do you like about the website's design? What elements do you think need improvement? [Written response] 7. Were any elements present on the dashboard difficult to use or confusing to you? [Written response] 8. Reflect on your completed tasks as a user. Which was the easiest to complete? Which was the most difficult? Explain your answers. [Written response]
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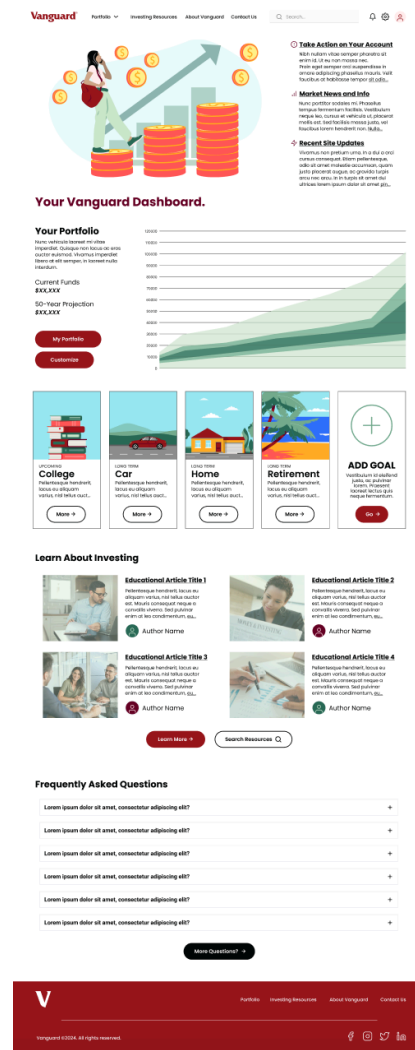
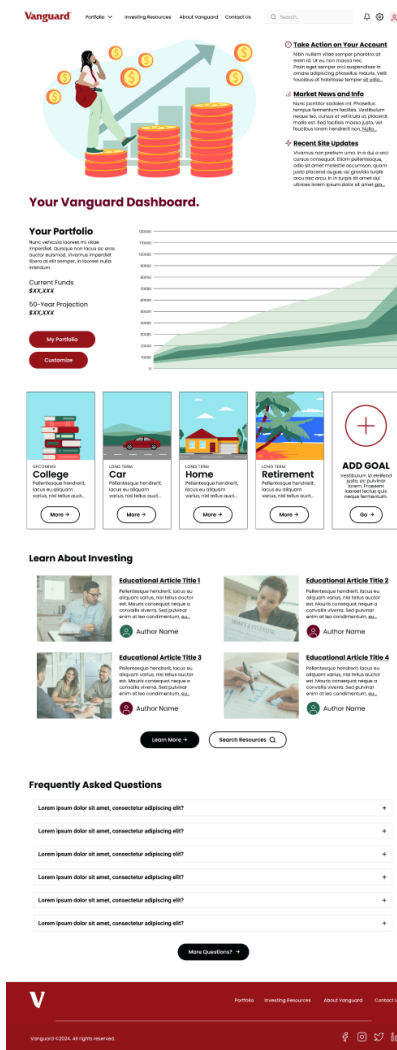
My testers were a [25-year-old woman from Indonesia](#), a [33-year-old woman from the United States](#), and a [27-year-old man from France](#). All were fluent in English, and none of them significantly struggled with the scenario or tasks. In fact, every single task was rated a 5/5 for ease of completion by all three participants. In general, participants praised the clean, minimalist design of the website and the user friendliness of the various features used in the tasks presented to them. In terms of points of improvement, the 25-year-old female participant suggested adding a

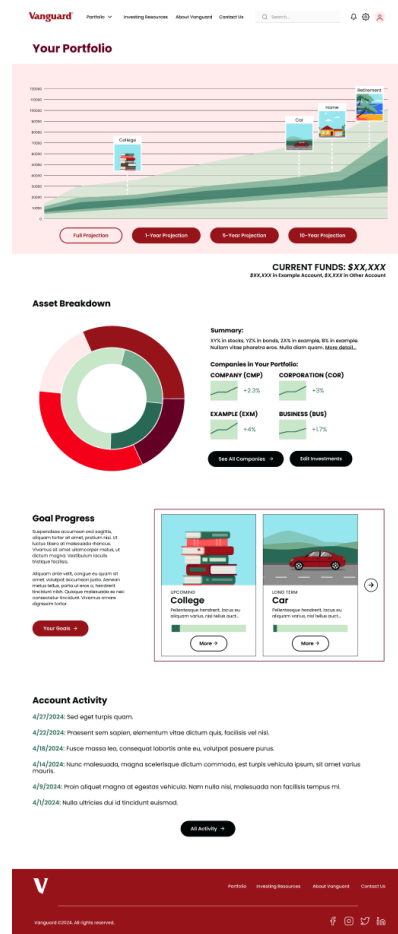
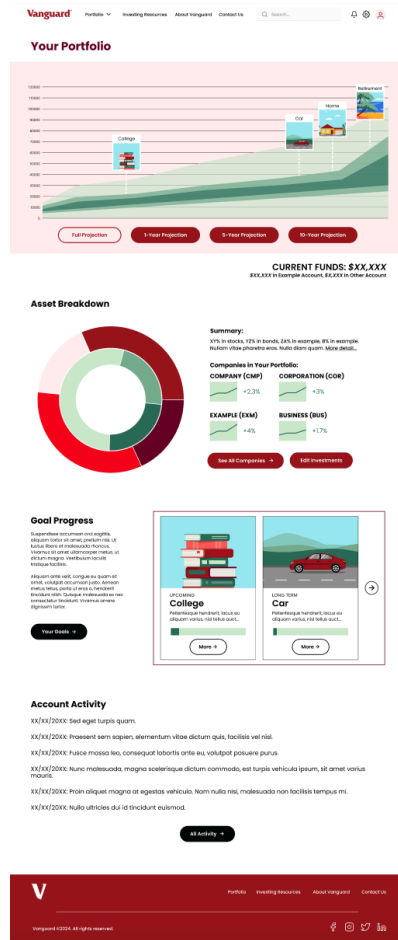
“scroll to top” button to the bottom of several pages, especially the Account Activity Log; the 33-year-old female participant suggested places where color could be used to indicate the importance of specific buttons or areas of the site. The 27-year-old male participant found the Account Activity Log page unappealing to use, as there was not enough differentiation between each log entry. In particular, he said that the other pages on the website had a powerful visual clarity that the Account Activity Log page lacked. The feedback from my usability testers was extremely valuable when I tweaked and improved my mockup, and the detailed answers from the French male participant helped me to resolve any aspects of my design that were still cluttered or unwieldy. While I still had a few alterations to make after I received feedback, I succeeded in my goal of creating a clear and intuitive interface for Vanguard Digital Advisor investors.

Final Mockup with Changes

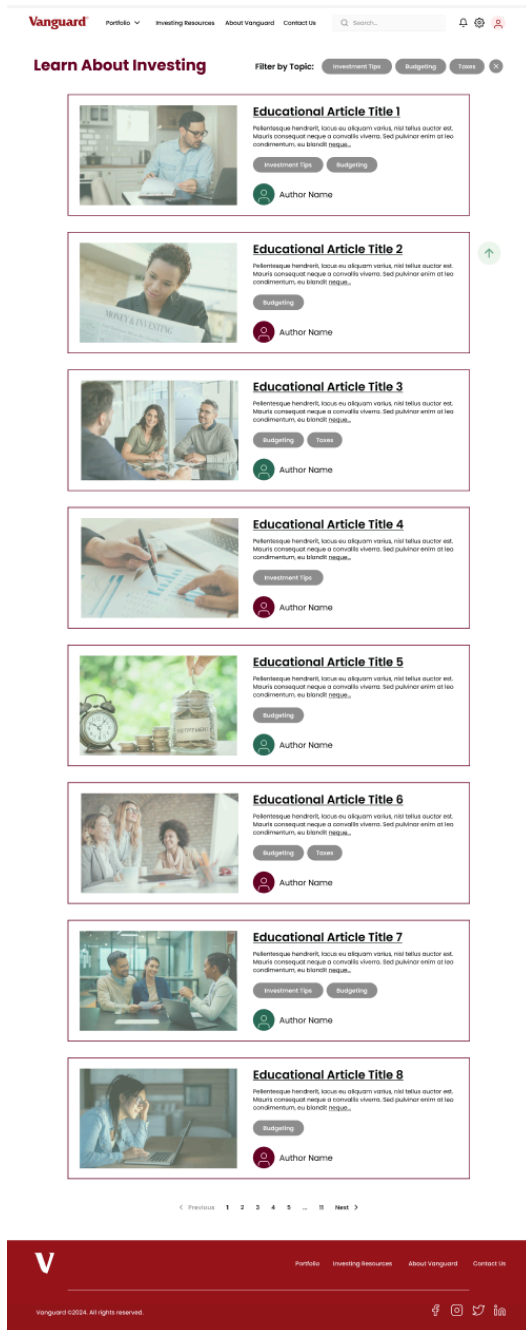
I made several changes based on tester feedback, the most significant of which was the restructuring of the Account Activity Log page. I have included images of some of the changes that I made to the UI/UX design of the site mockup. The image from the original design is on the left, and the revised design based on feedback is on the right.

On several pages, I made alterations to the colors of buttons based on their importance in the final design of the site. Buttons with more importance and interactive qualities are now red with white text, while buttons less important to the function of the website are clear with thin outlines or black with white text. See the comparisons below.





These changes were based on my 33-year-old female tester’s feedback; while relatively subtle, they make navigating the website easier for users looking for the most important pages (like the “My Goals” page). Next, I worked on implementing the changes requested by my other testers, who commented on the functionality and appearance of the Account Activity Log page. Using color and fixed-position elements (such as the index and the “scroll to top” button), I made the Account Activity Log and the page of informational articles easier to read and navigate.



The final version of my project can be found [at this link](#). The changes I made based on user feedback are subtle, but significantly impact the user-friendliness of the site.

Concluding Remarks

In the course of completing this project, I learned to navigate every step of the UX design process. I wouldn't have been able to create this website at all without the feedback and suggestions given to me by my testers, classmates, and peers; in designing Vanguard's Digital Advisor platform, I explored the needs and preferences of a diverse userbase, from initial research and persona development to usability testing and iterative design improvements. I've crafted a final mockup site that balances minimalist design, functionality, and visual appeal. This project equipped me with practical skills in UX design and reinforced the importance of user-centric design processes in creating products that meet the needs of their intended audiences.