

Project #2 - Group 7

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Executive Summary

For our development project, our group designed an app called **StockUp**, which built off of the concept of a stock based reward system, hosted through a debit card service, by the startup Apollo. In pursuing the concept, we gathered two focus groups composed of our target audience—people curious about a new method of banking—and surveyed them on the hypothetical system proposed by Apollo. The overall consensus was that while the concept of what Apollo had put forth was intriguing in theory, many were skeptical of earning shares of stocks that they may have little control over, and the concept of stocks as rewards in general due to their volatility.

Nevertheless, taking into account what our focus groups unveiled about what people were looking for in a new banking experience, our team applied given feedback to create a prototype of an application we believed would meet users' needs. This prototype was then put through two rounds of testing for usability, and then further refined to address the common points of confusion users ran into when interacting with the initial UI.

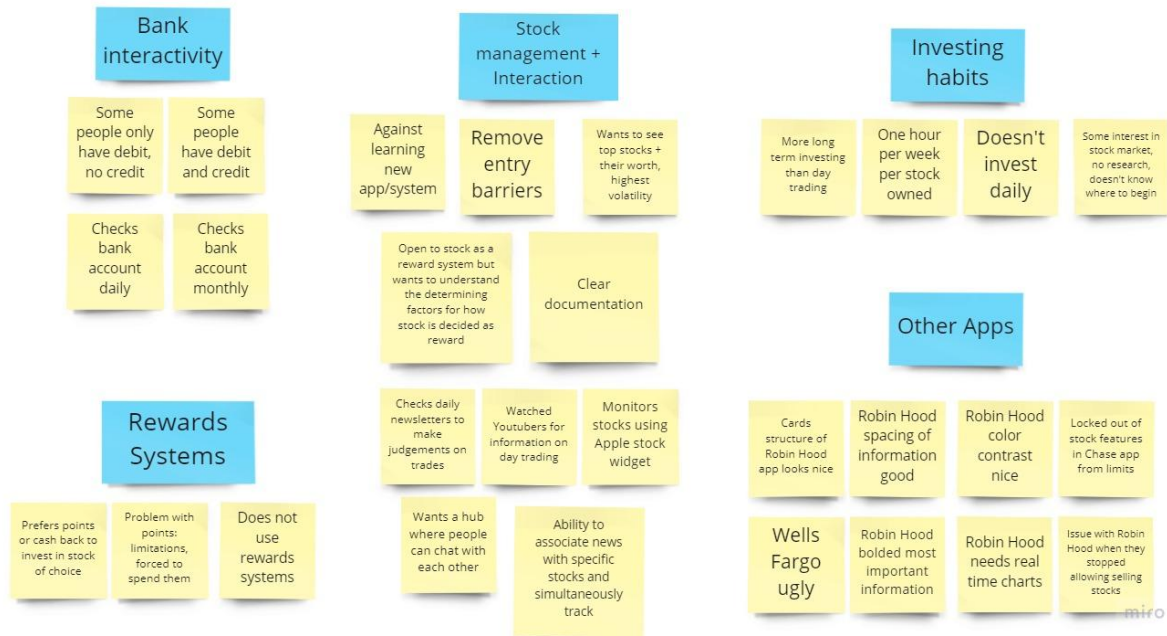
User Research

Our group took an interest in the startup called Apollo (<https://www.withapollo.com/>) which aimed to create a debit card that rewarded users with fractional stocks with each purchase. We broke down a possible research focus as the following: Gauge the likelihood of both new and experienced investors of stocks to move to a forward-thinking platform which rewards them in a creative way in their day-to-day lives.

With a research focus in mind, our group held two focus groups with people who fit our user criteria. The discussion guide we used is available in Appendix A. The notes we took, both during the focus group and after watching Zoom recordings, are in Appendix B.

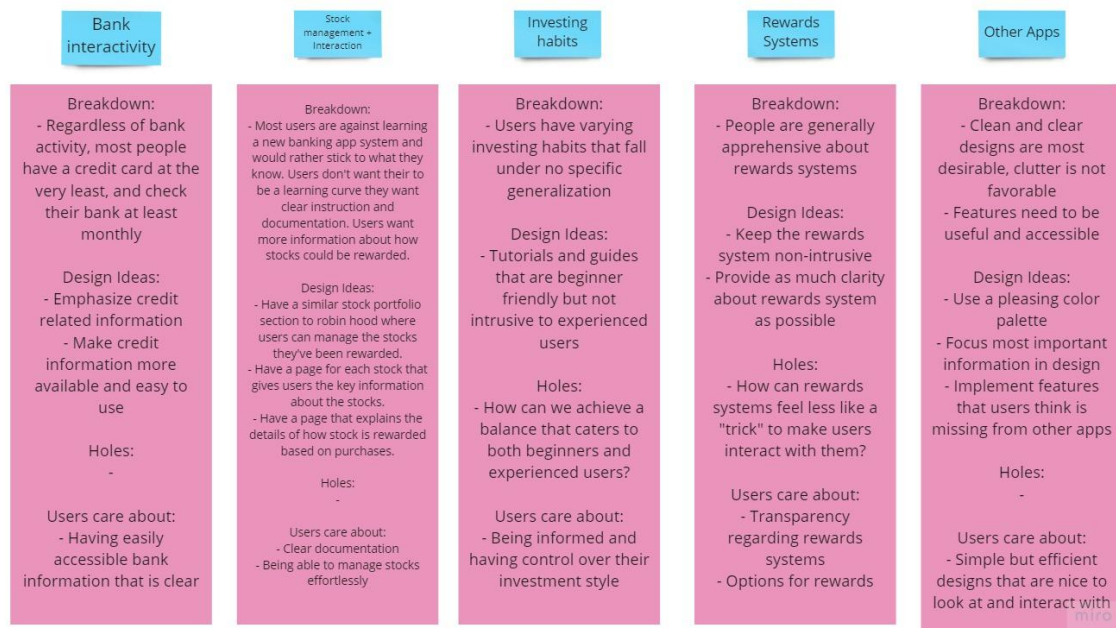
Design Process

After completing our 2 focus groups we were able to gain a lot of valuable insights and were able to get an understanding of the users we should be targeting as well as what those users would like to see in our app. Our first step in the Design Process was to create an affinity diagram. We did this by first posting sticky notes from the notes we took for points that we found to be important. After posting all of our sticky notes we brainstormed some group labels that we thought made sense for the sticky notes and placed each sticky note in its respective group. We managed to come to a conclusion that we needed 5 groups which can be seen below and are Bank interactivity, Stock management and interaction, Investing habits, Rewards systems, and other apps. These turned out to be really good groups that summarized the main idea of the sticky notes within that group.



Affinity diagram, organizing notes from the focus groups

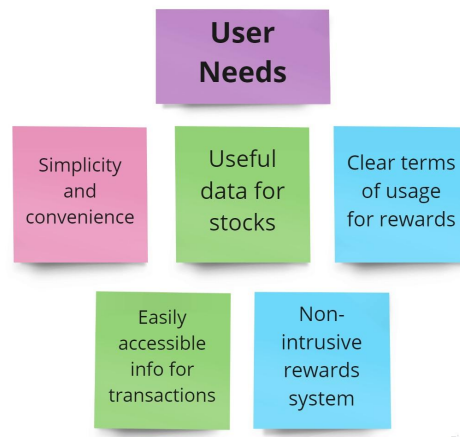
The next step was to create a breakdown of each category identifying the main takeaways that we got from the sticky notes. This included the breakdown itself, some design ideas, some holes that were present in the sticky notes, and some important needs that the users in that group had.



Breakdowns of each affinity diagram grouping

Finally we made a list of all the user cares about items from each of the breakdowns and managed to condense it into a list of what we felt to be the 5 most important user needs that needed to be

considered during the design process. The user needs being, simplicity and convenience as we want to make sure that the app is not complicated and very easy for users to understand and to navigate, useful data for stocks as we also wanted to ensure that users were able to attain some valuable information about the stock they were rewarded so they can make a decision on whether they want to sell or keep the stock, clear terms of usage for rewards so that the users understand exactly what they can do with the rewards and how the rewards system works, easily accessible info for transactions so that users can have access to their transaction history including the date the transaction was made, the amount of the transaction and the reward for the transaction, and non-intrusive rewards system.



User needs, uncovered from affinity diagram

The next step in the design process was to take the information that we got from the focus groups and the affinity diagram to create personas that encompassed the lives and personalities of different user groups that we were targeting to get a better understanding of the features that we needed to incorporate into the design as well as how they would be used.

Bianca Count		
<p>Title: Day trader looking for a new tool</p> <p>Relevant background info: A seasoned day trader who knows her way around the stock market. She is very invested in what she does, and puts in a lot of time researching the news and world events to get a heads up on future stock fluctuations.</p> <p>Tagline: Every second counts User Needs: Simplicity and convenience</p>	<p>Key goals: Bianca is a soon to be graduate who is looking ahead at her future. She has learned how to navigate the stock market well, and is looking for the next tool to bring her stock trading management and interaction to the next level. Bianca knows that every second counts when dealing with stocks, so she wants something that will help her interact with her stocks in a more straightforward way. She also wants something that will help her diversify her portfolio, even if they are small time investments, as she knows the value of holding out on stocks, and knowing the best time to make the</p>	<p>A day in the life: Bianca wakes up bright and early to get a head start on her day trading. She is subscribed to an informational newsletter about which stock trends are expected to be seen during that day, and what stocks to be on the lookout for, and watches youtube videos from stock experts. Bianca is a busy soon to be grad who finds there isn't all the time in the world in a day, and wishes there was a way for her to find all the information she needed on her stocks in one place.</p>

	most value out of them.	
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Justin Thyme		
<p>Title: Grad student</p> <p>Relevant background info: Grad student struggling to pay tuition looking for a way to make some money on the side other than his part time job and has started to do some research on the stock market but doesn't know too much about investing.</p> <p>Tagline: Better late than never but always better on time.</p> <p>User Needs: Useful data for stocks, easily accessible info for transactions</p>	<p>Key goals: Justin is a grad student at UIC who is trying his best to make ends meet and has stumbled upon the stock market. He has done his research but he doesn't think he's ready for full fledged investing. He needs a way to ease into investing. He is looking for something that he can throw a bit of money into and will invest for him very slightly while allowing him to access data about the stocks being invested into so he can analyze the data and learn. The only problem is he doesn't have money to throw into stocks even if they are small investments. If only there was a way for him to be rewarded for the purchases he needs to make anyway with a minor stake in some stocks.</p>	<p>A day in the life: Justin starts off his day by having a nice breakfast and then going to his classes. After he's done attending his classes he hosts office hours as a TA for undergrad classes so he can make some money. Once the office hours are done, Justin goes to the grocery store to purchase some items he needs for his home. He ends the day by having dinner and then doing some research on the stock market.</p>

Rei Ward		
<p>Title: Reward skeptic and ice cream enjoyer</p> <p>Relevant background info: A student who is cautious about rewards systems and uses them sparingly.</p> <p>Tagline: I do what I want.</p> <p>User Needs: Clear terms of usage for rewards, non-intrusive rewards system</p>	<p>Key goals: Rei is a student at UIC. She doesn't mind rewards systems at her favorite ice cream shop or other places she frequents, where she doesn't have to go out of her way to use them. But she draws the line at rewards systems that pressure her to use them! She just can't get over how they are clearly just a dirty tactic to encourage people to put in more than they would get out. The constant notifications about points expiring or reminders to spend them drive her insane.</p>	<p>A day in the life: Rei uses her debit card to buy everything. Including at the ice cream shop she is known to stop by somewhat frequently. She has no problem handing over a little punch card that gets her a free ice cream after a certain amount of purchases, considering she would have come back anyway! Rei is generally skeptical about rewards that try to be sneaky about time limits or are just way too pushy, so she avoids signing up for a lot of them at all of the stores she visits unless she thinks they're alright.</p>

Bianca Count

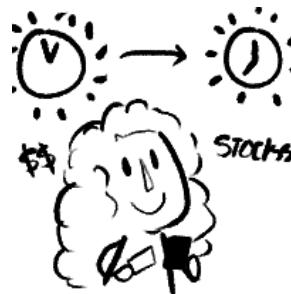
This storyboard focuses on the simplicity and convenience of StockUp from a user perspective. The simple functionality of being able to view information about each owned stock is intended to make the process easier for both new and experienced.



Bianca gets ready to check on her stocks in the morning, having a bunch of tabs open with stock trading information



She sets all of that aside and opens her phone, viewing all her stock information in one place in the StockUp app



As Bianca goes throughout her day, she can make purchases and earn portions of shares



Bianca can check on these new stocks and her existing ones with her app, which she appreciates for being simple and convenient

Justin Thyme

The storyboard shown below encompasses the information from the Justin Thyme persona and see how he would use the app as well as how it would impact his daily life. From the persona and from the storyboard we get an understanding that Justin represents a user who is interested in stocks but doesn't really know too much about stocks and wants to get into it but doesn't have the time to do so. However, we notice that Justin uses his debit card almost everyday and is not gaining anything from this use and this is when he stumbles upon StockUp which now rewards him for his use of his debit card with fractional shares in stocks. This way Justin is starting to get into stocks slowly and is not taking a risk as this is money he would be spending anyway. The user needs that this storyboard covers, are useful data for stocks, easily accessible info for transactions.



Justin realizes that today is grocery day after taking a helpless look in his fridge. He sighs, realizing that he



He decides to try out his new StockUp debit card that his friends were raving about. He's never used it before, so



Justin gathers all his groceries and checks out, using the StockUp debit card to pay (reducing his expenses



When Justin opens up the app, he is able to see not only the information about the stock he received, but

must be responsible with his spending due to an upcoming student loan installment.

why not give it a shot? As he walks in the store, he finds a coupon book - sweet!

with the coupons, of course). He looks at his phone and notices that he received a reward!

also his grocery transactions at a glance. Making money while saving money? A total win!

Rei Ward

The final storyboard involves the rewards system of StockUp. Our user research indicated that users tend to be suspicious of rewards systems, or typically refrain from using them due to unethical tactics, or simply because they are a hassle to use. Rei Ward is one such person, who enjoys the benefits of StockUp's rewards system without feeling as though she is buying into shady practices. This user need was labeled as a non-intrusive rewards system.



Rei has had a long day and really wants a treat.



She decides to buy some ice cream from her favorite shop.



She remembers to bring her new StockUp debit card so she can get some stocks when she buys her dessert.



When she buys her ice cream, she doesn't need to take any extra steps or pay any extra fees to earn her rewards, in either of the systems she's using!

Design Solution: Final

Our initial design wireframes were created using Balsamiq. We created high-fidelity screens based on these low-fidelity wireframes. After sharing this initial prototype design with classmates, we received valuable feedback for considerations for the next design. These changes were mainly aesthetic, however the biggest change involved the functionality of the "Sell" feature. Where initially, the user would have to sell all stocks at once, they can now specify how much they want to sell. The other changes were slight color and formatting alterations, and making the "Home" screen more welcoming and personal.



Annotated wireframes

[View full-sized image of annotated wireframes here.](#)

[The final design solution is available on Invision here.](#)

User Testing: Final

We had two users test our prototype by performing some tasks.

The tasks that each user completed were:

1. Checking the balance and transactions on one of their accounts
2. Selling a stock (navigating to the page that allows them to do this)
3. Changing a notification setting (navigating to the page that allows them to do this)

A success was determined by:

1. Less than two misclicks/clicks leading to incorrect pages
2. Not lingering on a page for longer than 3 seconds

We received the following feedback from the testers:

User 1

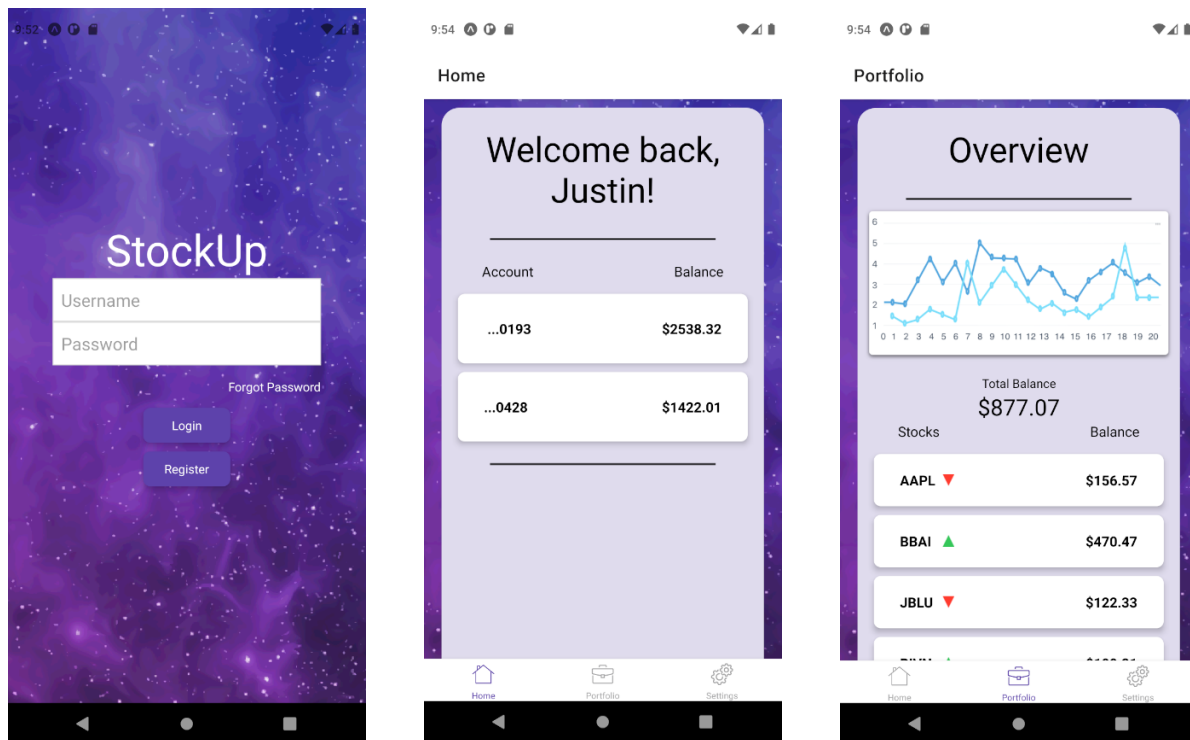
- For task 2: from the account transactions page, they attempted to click on the stocks on the table. They thought they would be able to sell a stock from this page. No issues after navigating to the portfolio page.
- They were able to execute all other tasks with no issues.

User 2

- For task 2: Was confused upon reaching the portfolio page about what step to take to sell a stock. Noted that it was not immediately obvious how one could go about selling or interacting with stocks. Upon clicking a stock, he managed to go through the process of selling a stock without issue.
- Managed all other tasks successfully according to determination guidelines.

UI Implementation

Our UI implementation was done using React Native. Since our project is intended to be a mobile application, we developed it for mobile devices.



A few screens from our UI implementation

Functionality for every button is in place in this implementation (login, register, accounts, stocks, selling, settings). The stock charts have not been implemented and a placeholder image is currently being used. Complete functionality for selling stocks has not been implemented throughout the entire application,

however the implementation visually “sells” the amount of stock on each individual stock page. We also reduced the need for adding multiple pages on screens by allowing the user to scroll down a list.

Appendix A

The following discussion guide was created to run each focus group conducted.

Focus Statement (include research context and target users)	Identify the reasons why users who do not utilize rewards within their current financial institution, or users who do not utilize a financial institution’s services at all, don’t do so. Gauge the likelihood of both new and experienced investors of stocks to move to a forward-thinking platform which rewards them in a creative way in their day-to-day lives.
Discussion Guide	
- Introduction	Hello, we are group 7 from CS 422 and today we are going to conduct a focus group for our in-class project. The purpose of this focus group is to discuss your experiences with debit cards, rewards systems and stocks to get a better understanding of our user base for our project. I will be conducting this focus group while my other group members take notes. Also, as a disclaimer we will be recording the audio from this focus group if that is okay with all of you as a means to get some details that we might have missed in the notes. We encourage you to speak openly and freely about your opinions in order to get useful data. This focus group will take around an hour. If you have any questions before we get started please let me know.
- Key demographic questions	<ol style="list-style-type: none"> 1. What is your name (“Introduce yourselves”) 2. What is your gender identity? 3. How old are you? 4. Do you currently have a bank account (savings or checking)
- Warm-up questions (factual answers)	<ol style="list-style-type: none"> 1. How often do you interact with your bank / banking services? 2. Do you use a card from your bank 3. Do you use any card from your bank which offers rewards (such a cash back, miles, etc.) 4. Do you own any non-bank cards which offer rewards (such as cash back, miles, etc.)
- Main questions (open-ended discussions)	<ol style="list-style-type: none"> 1. Are you interested in investing in the stock market? If so, have you begun doing any research? Do you know where to start? 2. Are you currently investing in the stock market? If so, what apps are you using to do so? 3. Are there any flaws in the apps that you have been using? 4. How are you currently managing your stocks if you own any? 5. How would you feel about stocks as a reward system?
Design Probe(s)	Stocks

	Robinhood App Acorns App Coinbase App Bank Chase Wells Fargo Bank of America Questions: <ul style="list-style-type: none"> • How could your stock management experience have been improved? • How can your rewards management experience be improved? • What could be changed about your banking experience?
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Appendix B

The focus group sessions were recorded on Zoom. Each member took notes on the recordings to further user research.

Focus Group 1 - Abel's Notes

- Some users currently have a system similar to what we have.
- How can we diminish the idea of how hard it would be to get into stocks / get people comfortable with the idea? (Based on Edwards answer - against the idea of stocks as rewards)
- Interesting point about how the stocks usually given as rewards are low-quality stocks - Nahom. How can we guarantee high quality stocks?
- Alex - great point about "forcing someone to invest in something" taking away user's freedoms - opportunity cost about to going through that process means you probably going to lose money
- Need to be able to see stock price exactly / change in price within the day/ stocks with highest volatility would make experience better - good point from Edward
- Robinhood charts are not real-time - need a real time chart when you make trades. - Nahom
- "Unless Mr. Chase came to my house, nothing would incentivize me!" - Alex
- A way to incentivize me to use the rewards would be a conversation - rather just have the money go back straight in my bank account. - Edward
- Points suck because you can "only" use the points on Amazon, or Walmart.
- ****Emerging theme**** - Limitations on points and cash back are not preferred amongst group members.

Focus Group 2 - Abel's Notes

- Checking transactions and making sure nothing is out of check - using chase online
- Utilizing RobinHood/trading a couple thousand with Vanguard and Weebull.
- How could your stock management experience have been improved?
 - Better at trading

- Being able to news with specific stocks - track stock in real time
- Making stock trading social - correlating to real-time changes in the market - creating a network via utility
- AI connected to portfolio - rewards management
- ***Emerging theme*** - All users seem to prefer a cleaner, lighter, uncluttered interface as seen by the almost unanimous favoring of Chase and Robinhood apps.

Focus Group 1 - Diana's Notes

Ed

- Male
- 21 (almost 22)
- Yes
- Less than once a month, unless he purchase something, checked on the same day. But buys something once a month w/ credit and/or debit card
- Has debit card
- Does not use rewards / does not know about them
- **Main questions**
- Would invest in gamestop
- Chase
- Gets locked out of trading stocks of certain prices
- Invested in gamestop, kept track of the stocks, but doesn't keep up anymore.
- Feeling about stocks as a reward system: It would only work for people with knowledge about stocks, would need an account with a broker, would be against the idea for stocks as rewards.

Alex

- Male
- 22
- Yes
- Goes to the bank once a month.
- Has debit card
- Does not use rewards
- **Main questions**
- Use to be big in the stock market w/ research in highschool, has basic understanding of the workings of the stock market. He has some base if he goes into it, but is not involved in it right now. Imagines it will help him to plan a future.
- Doesn't trade stocks
- —
- —
- Feeling about stocks as a reward system: Agrees with Ed,

Nahom

- Male
- 27
- Yes
- Uses almost every day, uses an app, checks online bank every day

- Has card
- —
- **Main questions**
- Has been investing since the last two years, not that involved, but does invest on a daily basis.
- Uses Robinhood and Coinbase and (???)
- Robinhood stopped selling gamestop and dogecoin stocks when they were in prime to purchase
- Feeling about stocks as a reward system: