

# **Project 2**

## **Robinhood Report**

## **Lightning Demos with Claims Analysis**

### **Introduction**

Lightning Demos are an exercise on the second day of a Design Sprint. A Design Sprint is a unique five-day process for testing, prototyping, and validating ideas to solve big challenges with the help of a group of designated users. The process begins by searching for existing ideas that can potentially be useful in designing the needed solution. These ideas can be borrowed from similar products from other companies or from different products from entirely different categories. Once team members have selected their ideas, they present them to the team. During the presentation, each team member takes turns giving three-minute tours of their chosen solution.

Afterwards, a Claims Analysis is carried out which is a technique for examining the positive (pros) and negative (cons) consequences of each “Big idea”’s design features as they are considered for future use case scenarios related to solving the challenge. A "claim" itself is a statement of the consequences of a specific design feature on users and other stakeholders.

This is not traditionally a part of lightning demos but is a commonly used technique by HCI practitioners at this stage in design when drawing inspiration from existing products. Claims Analysis as an analytical process involves assessing how a “big idea”’s features suggests to users how they do something, how it supports or fails to support those efforts, how it signals progress, and how it prevents confusion, errors, or deadends.

We identified two pros and cons for the implementation of each “Big Idea” into Robinhood below. This helped us to recognize the benefits and drawbacks of applying certain concepts/features/interaction modalities to our own solution.

## **Lightning Demos**

Robinhood is a tool designed to make stock investing easy for individuals by cutting out professional stock traders from the transactions between users and the market.

Unfortunately, this also cuts out the educated advice which professional stock traders are capable of providing. The app is targeted towards young adults who are usually too ignorant and too impulsive to responsibly engage in this activity. Robinhood needs to protect these users from making regretful decisions. We have gathered some example solutions to help us meet this goal.

### **Demo 1: Wikipedia**

Big Idea: Adding an encyclopedia similar to Wikipedia which provides more information about companies and stock trading. Users can learn about the companies available for investment in more detail including its history, controversies, and current key figures. Users can also get a link to the company's main website where they can find information about their last earnings calls, annual reports, Q and A reports, and future prospects in greater detail.

#### Pros:

- More information will be provided to the user to help them make better, informed decisions while trading on the app.
- Users can access the information from a single consolidated source without resorting to multiple external sources.

#### Cons:

- The user may find it difficult to sift through large collections of data when only interested in specific bits of information.

- Since there are no requirements, the user may ignore or skip using the encyclopedia for research if not interested in reading.

Link: [https://youtu.be/M\\_e90\\_Es9I4](https://youtu.be/M_e90_Es9I4)

## **Demo 2: MalwareBytes**

Big Idea: Before every major transaction, an alert window with a warning about the potential risks of the transaction should appear before the user. This would be displayed similarly to an alert window for the MalwareBytes application's browser attachment which presents the user with a warning about the potential dangers of accessing a malicious website. The alert should also provide resources for more external help and should ask the user for confirmation before proceeding.

### Pros:

- Users are given a chance to back out of a transaction and avoid making the wrong decisions that could lead to potential losses.
- Users are given clear information about the risk related to the transaction so they can make informed decisions.

### Cons:

- Users may ignore the warnings and go on to make the wrong decisions.
- Users may misinterpret the warning due to condensed but complex jargon which could lead to confusion, especially among new users.

Link: <https://youtu.be/nyPy63KaOn4>

## **Demo 3: W3Schools**

Big Idea- Offer tutorials that are broken into smaller parts that are easy to understand for a new user, and also allow them to “test” the stock before making a purchase. By offering tutorials broken into small sections it can be easier to read than information all at once.

Pros:

- Users can go through easy to digest tutorials about the different options so that they have a better understanding about what they are doing on the app.
- By letting the user try out a stock with no repercussions it can give them a more informed decision since they will be able to see how the stock behaves and potential losses and gains.

Cons

- Users may not want to go through all the tutorials and just go straight to trading because it is a lot of information to read over.
- Users may rely on the “trying” feature to determine if they should buy a stock and still lose money because they are not informed on why it goes up or down.

Link: <https://youtu.be/wvVyiMmTuuE>

**Demo 4: Health. Powered by ADA**

Big Idea - A chat bot to answer user questions up to a certain level of complexity and difficulty such as “why can’t I sell my stocks on Saturday?” or “Is it a good idea for me to invest in crypto as a beginner investor?” while also resolving queries related to the app and its utility. This would be implemented similarly to the ADA powered health app where a user can select a query from multiple provided options and further refine it through dialogue

options until a specific problem is identified. The chatbot will provide appropriate solutions to said problems, connecting the user to support staff as a last resort.

Pros:

- An AI would be able to answer frequently asked questions consistently, without exhausting human resources.
- An AI chat bot would be available 24/7 without rest except for occasional updates and maintenance and respond quickly.

Cons:

- An AI assistant may not be able to completely replace human intervention as it has limited knowledge and therefore can be unreliable.
- An AI chatbot may feel impersonal and mechanical to the user as it cannot empathize and/or respond according to context.

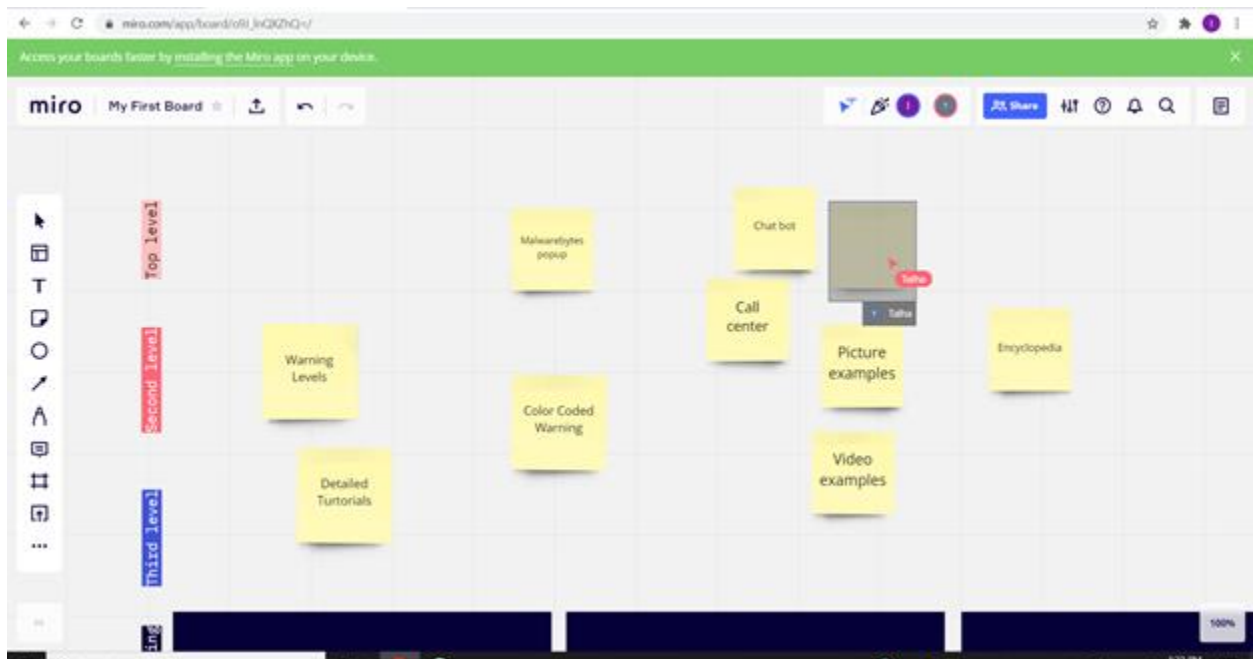
Link: <https://youtu.be/zZtCn3Rhsc8>

### **Visual documentation**

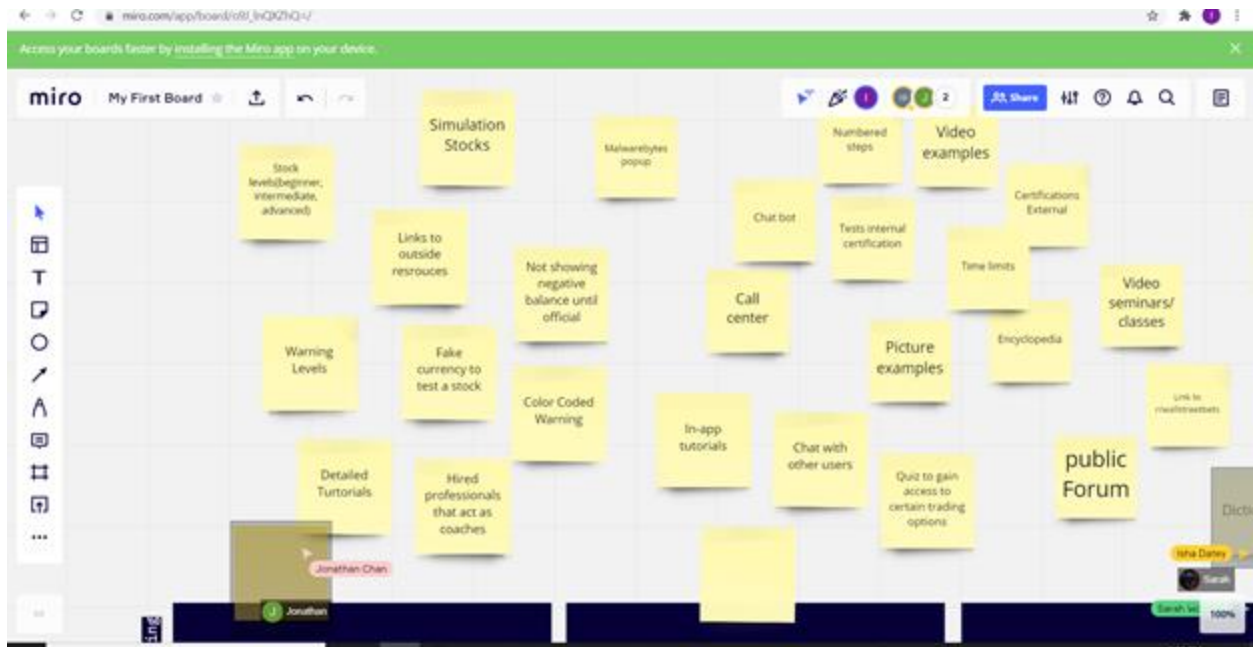
Card sorting is a brainstorming technique used to gather everyone's ideas on a single topic. Members in this group are tasked with writing down, on sticky notes or cards, whatever comes to mind in relation to said topic. For this project in particular, our main topic revolved around "What is Robinhood missing?". We allotted ourselves 10 minutes to jot down as many cards with whatever small solutions we could associate with the problem, such as "Adding In-app Tutorials", "Warning Levels", or "1 Month Risk-Free Trials". Once the time we set is over, we organize our notes into related subcategories like "Tutorials" or

“Memberships”. Now that the board looks much more visually appealing, discussion comes forth with all the individual categories and what the best solution might be.

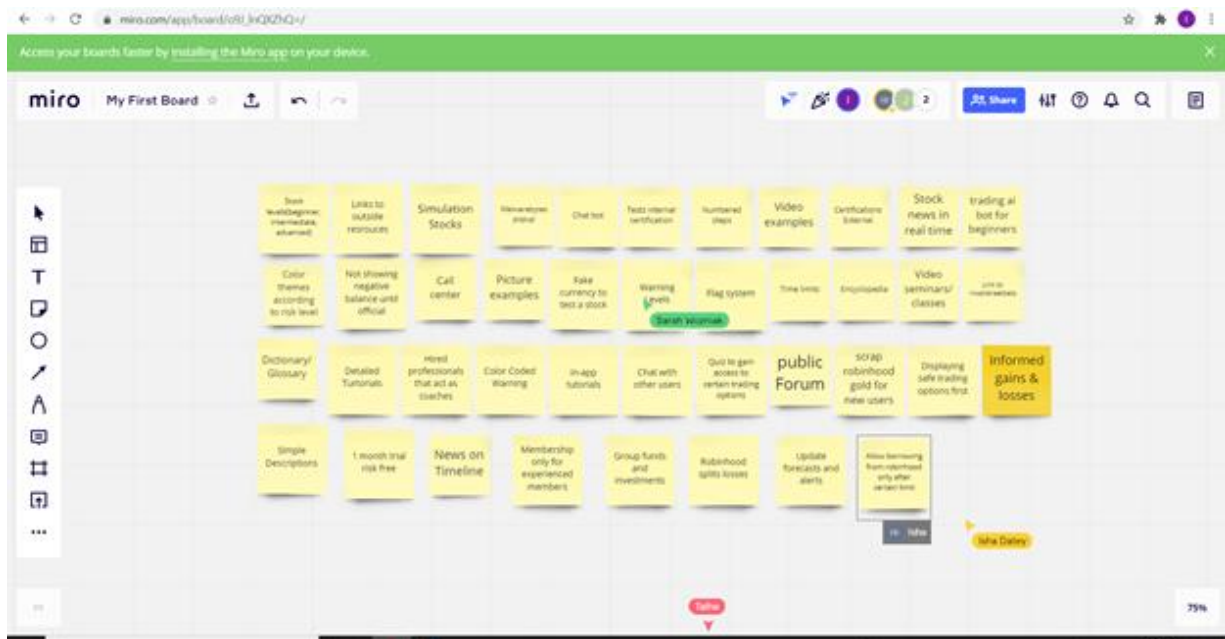
The reason why we chose to do cardsorting is that everyone has their own ideologies on how RobinHood could improve their system and those ideas could be better or worse than other given solutions. When we spew out all of these theories to the rest of our members, it helps to give further analysis on what you think may or may not believe is a good addition to RobinHood’s design. Some members may have similar ideas to your own and thus can build off of each other’s notes. Other members may have conflicting opinions too, allowing all of you to discuss why X solution may not be the best solution compared to Y. Overall, it’s a great way to get everyone’s ideas out there and start diving into the topic at hand together.



We first started throwing ideas on the miro board without any organizational structure. All ideas were welcome and added to the board.

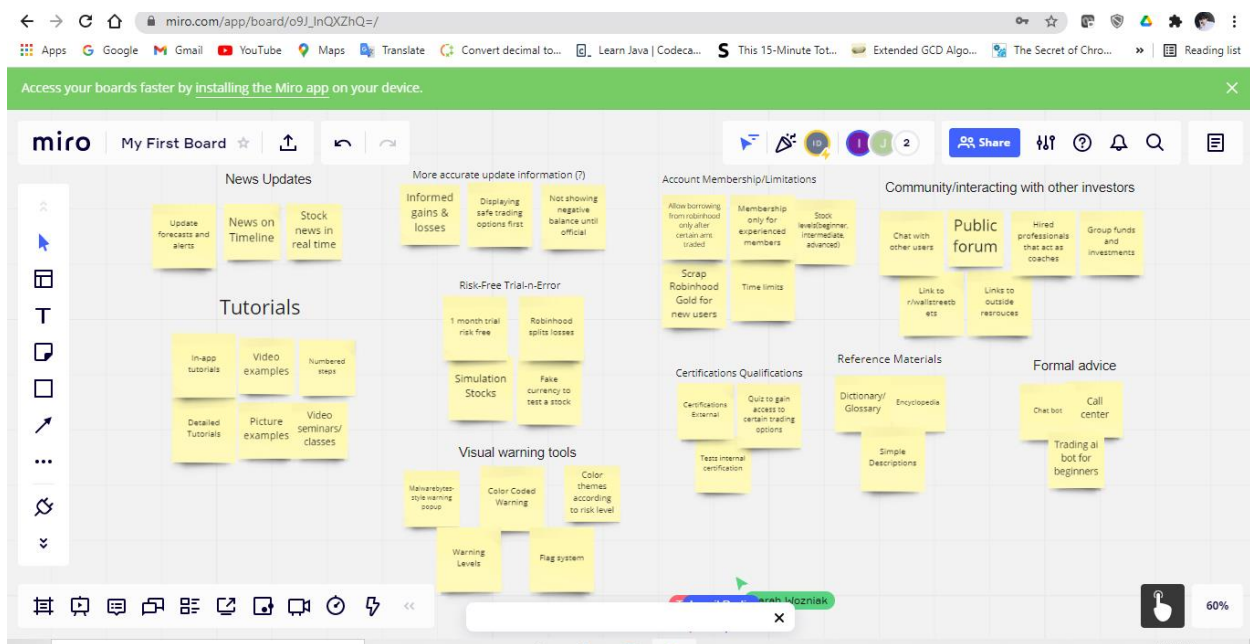


The board filled up pretty quickly with many ideas. This part of the process was very hectic and unorganized but the brainstorming was very fast.



After all ideas were exhausted from each member we organized the ideas into a block in order to start the sorting process. This helped us to sort the cards because they were all in one place instead of being thrown all over the place.





We then sorted the cards into categories based on what their function was. We were then able to see which features we could use and what ideas go along with that feature.

## Prototypes and Claims Analysis

Claims Analysis is a technique used for assessing the positive and negative consequences of the design features which are being considered for implementation. These consequences are called “claims”. This technique gives designers a chance to weigh the pros and cons of a particular design choice in a very quick and fluid manner. These are the claims analysis our group came up with for the prototypes we created.

## **Claims Analysis**

### **Prototype: Options Call Warning and Information**

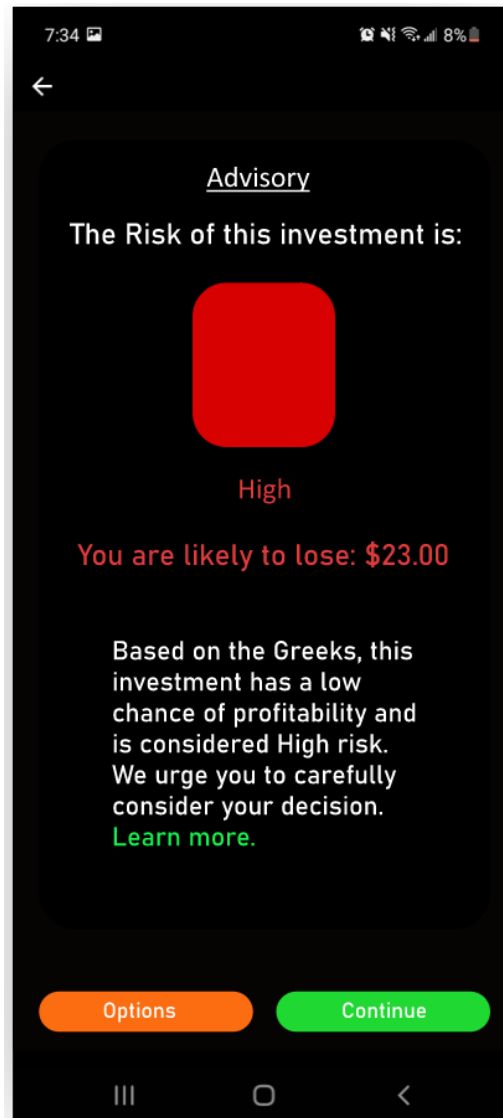
#### **Pros:**

- Provides explanations and resources for understanding what the Greeks mean in the given context so users can understand what they are doing better.
- Gives the user the choice to learn more if they want to without forcing them into an educational course.
- Clear system to warn customers of potential losses before finalizing the purchase of a stock so users can make carefully informed decisions and prevent those losses.

#### **Cons:**

- The large amount of text could be a factor in deterring people from engaging with the information.
- The many question marks could be a hassle for the users because it may be too much information to go through individually.

## Screenshot



Link: <https://projects.invisionapp.com/prototype/ckvfuoiwv003lm801tcyc4jru/play>

## Prototype: Flag System

Pros:

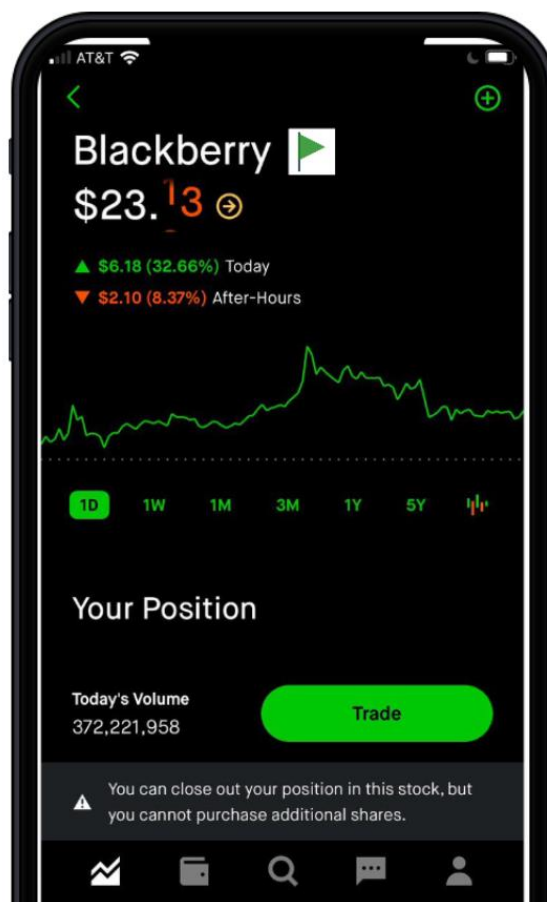
- Gives a quick impression of the stock's recent (two weeks) volatility so users can make better trading decisions based on this data.

- Can help people make an informed decision on what stocks to buy based on how volatile a stock can be.

Cons:

- Users might not pay attention to the flag or not click on it to see what it means which would result in the same issues.
- Information may be outdated or irrelevant since the market or the company can have sudden changes.

Screenshot:



Link: [https://invis.io/XU11Y8PA5ERS#/460441139\\_First\\_Screen](https://invis.io/XU11Y8PA5ERS#/460441139_First_Screen)

## **Prototype: Chatbot**

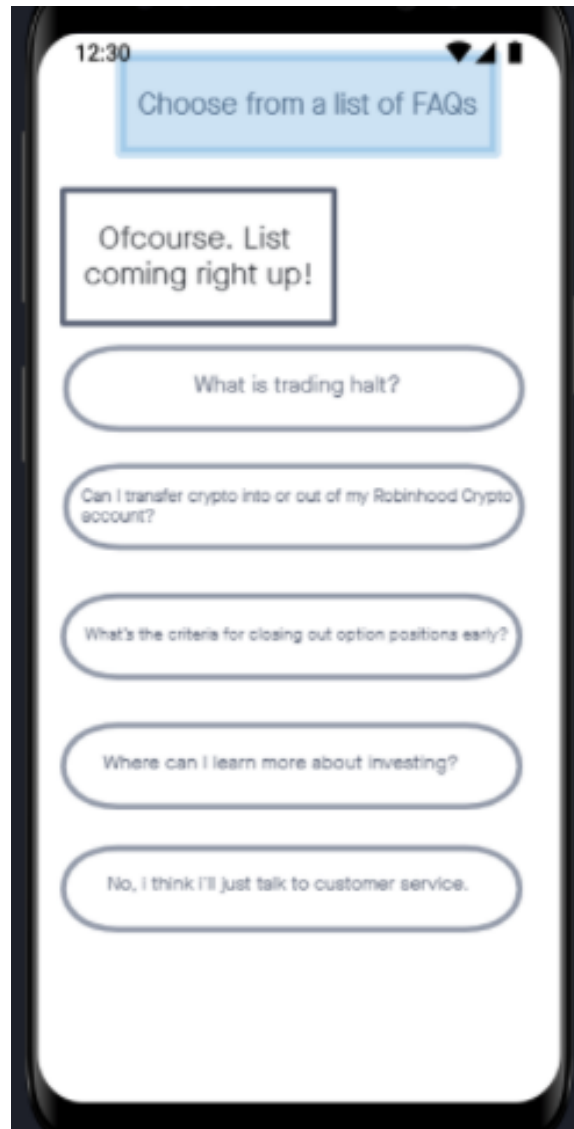
### **Pros:**

- Would provide an easy method for users to get answers to their questions quickly and efficiently due to the consistent presence of the chatbot
- Can help users connect to a professional where their input could be valuable to the user when they want to make a decision

### **Cons:**

- Users want to be able to trade quickly so if response time is slow they could get frustrated.
- Users may not be able to receive answers on the questions they need or are left misinformed because the chatbot could not answer their questions due to its limited answering capacity.
- Experts may not be available to answer calls/messages promptly and lead to long delays which could cause the user to become bored or frustrated with the app.

Screenshot:



Link: <https://invis.io/5Q11Y41HHG42>

### **Prototype: Homepage and FAQs**

Pros:

- Provides a simplistic homepage for users to quickly access what they need on the application's launch.
- Allows first time users to get acquainted with trading options and become more informed before even entering the app.

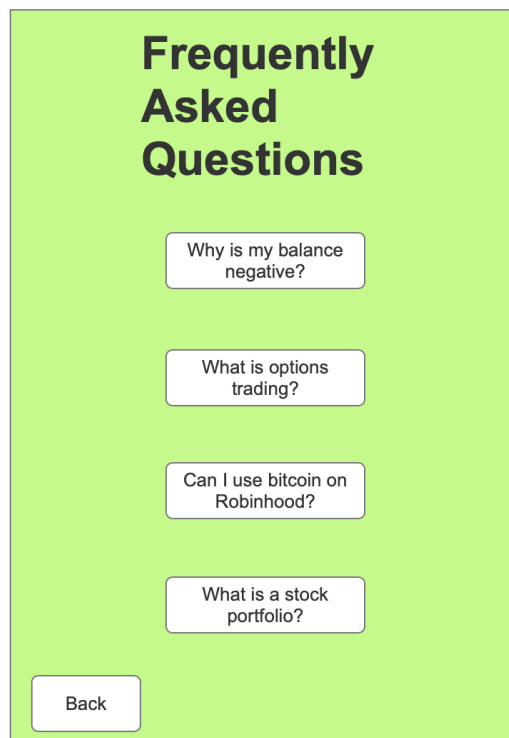
- FAQs are a good way to gather information users frequently want access to.

Cons:

- Might be annoying for experienced users to always go through the support options because they want to start trading right away.
- The links and options on the homepage can be incorporated under a tab and do not need an entire separate homepage.
- FAQs tend to have too much information and are cumbersome to sift through.

Link to Demo: <https://e1i2si.axshare.com>

Screenshot:



## Prototype: Tutorials Tab

### Pros:

- Provides users a highly accessible space to learn about the stock market and other investing information to better understand stocks and trading options without leaving the app to avoid redundancy and distractions.
- Allows users to filter out specific topics they want to learn more about for easier accessibility and usability.
- Users are recommended videos with basic knowledge about some general topic areas related to investment and stock trading if they are unsure about where to start.

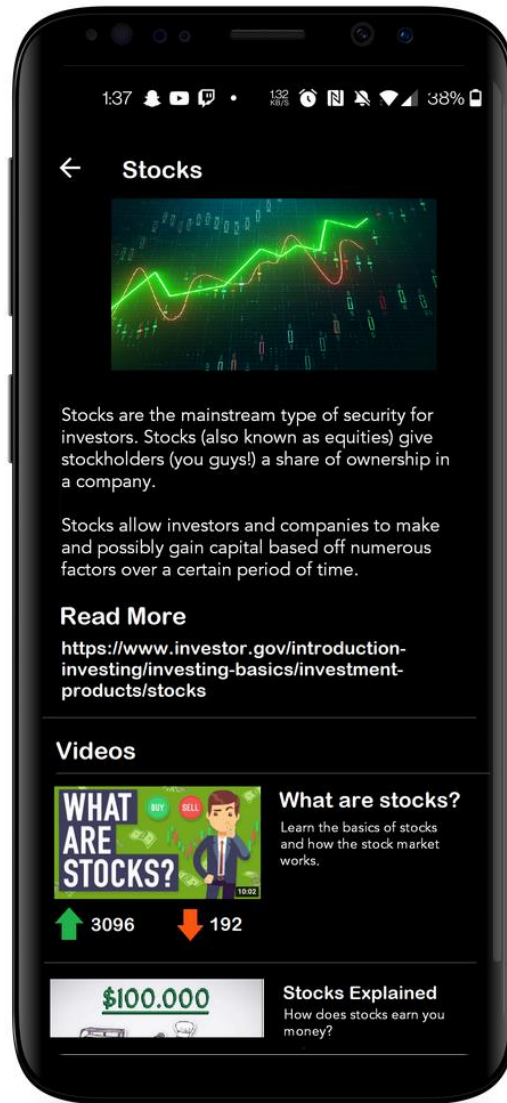
### Cons:

- Voting systems may misinform users on the relevancy of certain videos in a topic.
- There are currently no RobinHood tutorials available; all information is sourced via YT or other articles hence there is a possibility of videos becoming outdated or unavailable.
- Some users may not even use the feature to begin with or ignore it outright.

Link: <https://projects.invisionapp.com/share/YZ11YHBU3X2E#/screens>

Screenshot





### Prototype Chosen:

The Option Call Warning - We chose this prototype because it was very well developed. It had a clear goal and involved multiple compatible ideas which fit together in a coherent way towards accomplishing that goal through a series of clear steps. Due to the detailed steps and the consistent design, the prototype was the ideal candidate when preparing the walkthrough plan for usability testing. We also collectively liked the idea of the feature and how it was implemented.

## **The Cognitive Walkthrough Plan**

What is a cognitive walkthrough?

A cognitive walkthrough consists of designers having a group of users walk step by step through a single action sequence in order to accomplish a specific task or goal. During this step by step process, the users provide feedback on the useability and learnability of the UI design. This feedback is reported by the team conducting the walkthrough and is later used to improve the design. Cognitive walkthroughs provide a time saving, streamlined method of collecting user feedback.

### **Inputs of the walkthrough**

Inputs:

Identification of Users: Robinhood users interested in purchasing an options call.

The tasks for evaluation:

Goal: Understanding how the risk factors involved in purchasing options are calculated before purchasing an option.

### **Action Sequence**

1. Click on Trade Options.
2. Read the information about buying a call.
3. Click the "Up" arrow indicating you believe the option price will go up.
4. Click on the option (\$19 - \$0.23) to select it for purchase.
5. Read the data metrics for the option.
6. Click on "question marks" for a brief primer on the data (only Delta has been expanded upon in this example).
7. Click on "Learn More" to learn more.
8. Go back to the previous page to get out of the help page.
9. Click on "Buy" to move towards the purchase.
10. Review the data and price forecast.
11. Click on "Review".
12. Read the warning and reevaluate the final decision.
13. Make a final decision to either go back and reassess the option or to go forward with the purchase.

## **Cognitive Walkthrough Script**

The goal of this walkthrough is to evaluate how effective the redesigned interface for Robinhood's Options trading is in educating the users about the risk involved in purchasing an options call contract. An options call involves buying a contract which states that the user plans to buy 100 shares from a company at a certain price by a certain date. If the value of the shares go beyond the value set in the contract, the user can profit from the difference. If the value goes down, the user eats the difference.

In the walkthrough we will be going through the necessary steps required to trade options on the app. We will collect feedback on how well the users navigate the interface and how well they are able to understand the information being provided to them, assessing the overall useability and learnability of the design. This feedback may then be used to revise the design and create another iteration.

What we will not be doing:

1. Covering goals outside the scope of the design.
2. Covering action steps outside the scope of the design.
3. Interrupting the users.
4. Pressuring the users.
5. Arguing with the users.
6. Guiding the users regarding the action steps.

Defusing defensiveness:

1. Every problem or shortcoming will be framed as a "potential" problem.
2. Notes will be taken and will be used to later on assess and verify the validity of criticisms.
3. Design is subjective and can not satisfy every user every time so criticism is expected and should be welcomed.

Ground rules for conducting a streamlined CW:

1. No designing during the walkthrough.
2. No defending a design during the walkthrough.
3. No debating cognitive theory.
4. The usability specialist is the moderator of the session.
5. The first run through should be conducted without prompts for feedback to allow users to familiarize themselves with the design.
6. The second run will focus on feedback.
7. The walkthrough is timed so it is important to cover all the action steps.

Assigned Roles:

1. Usability specialist: Talha.

2. Note takers: Sarah, Jonathan, Ismail, Isha.

The usability specialist will introduce the walkthrough, read the action steps, and moderate the discussion. The note takers will be asking the questions and recording the responses.

### Introduction Script for the Walkthrough

The goal of this prototype is to present useful information to prospective options traders, which will help their decision making process, and also to present a clear risk warning about the option they are considering for purchase.

As it is right now, when a user opens an options call for purchase, Robinhood does not provide clear enough explanations for the information it presents. Mainly this refers to the “Greeks” (delta, theta, etc) shown when clicking on an option. In this prototype, the Greeks are presented with small summaries about what they represent, along with a separate “Learn More” page where more information can be found. This information has been seamlessly integrated into Robinhood’s current model.

Additionally, before making the final purchase, the user is presented with a final “Advisory” screen which reiterates the risk level of the option purchase in clear terms along with the likely financial loss, in case the user skipped the previous information or did not understand it.

For the purposes of this prototype, the user has already been logged into Robinhood and has already selected “Gold” as the stock option to investigate for purchase. The user is then meant to navigate through the options list, investigate its data, and then simulate a purchase.

### Cognitive Walkthrough Findings

**Step 2.** Read the information about buying a call.

**Possible learnability/usability problems:** There is confusion on who “I” is in “I think...”. Hence there are issues about understanding the purpose of clicking the icons

**Design gaps:** There are many questions that came to their mind when they looked at this screen. What do the symbols mean?, “I think it’s going up” is very ambiguous, what is going up? The definitions at the bottom are not obvious to the user on what they are defining. Which symbol is represented by “buying a call”, is it even matching up to a symbol or is it just some extra information displayed on the screen?

**Step 3.** Click the “Up” arrow indicating you believe the option price will go up.

**Possible learnability/usability problems:** The Up arrow button and all the other round buttons beside it at the top of the screen are rather ambiguous in their meaning and/or purpose for new users and/or inexperienced users.

**Design gaps:** Users may not understand what the up arrow means and what it's being used for and hence this design needs to be clearer and simpler to understand.

**Step 4.** Click on the \$19 - \$0.23 option to select it for purchase

**Design gaps:** The complexity and sheer volume of data on the screen is not easily understood by new users.

**Step 5.** Read the data metrics for the option.

**Possible learnability/usability problems:** The data metrics are confusing for beginners and they may not understand what everything means, especially regarding the meaning of the green and red bar “graph” at the bottom.

**Design gaps:** The graph should have clearly labelled axis and points or have some other form of explanation.

**Step 6.** Click on “question marks” for a brief primer on the data (only Delta has been expanded upon in this example)

**Possible learnability/usability problems:** There are too many question marks which makes reading the information and navigating between them complicated.

**Design gaps:** There are too many question marks everywhere and it's tedious to navigate them all.

**Design ideas:** There were too many question marks so it was suggested we try to combine them in some way and make the data itself clickable.

**Step 11.** Click on “Review”.

**Design ideas:** It was suggested that the review button be changed to “continue” and we make only one page for review.

**Design gaps:** There seemed to be two review pages which could cause confusion about which is the confirmation of buying and when is the actual review.

**Problems in the task analysis (the action sequence):** It was said that the text on the review button gives a misleading impression about the sequence of events before and after.

**Step 12.** Read the warning and reevaluate the final decision.

**Possible learnability/usability problems:** The warning seemed a bit too late, especially after going over so many screens beforehand but we resolved that issue by explaining the reason why it was at the end (as a final warning), allowing users to experiment on their own first before giving them the warning/advice and the feedback team agreed that it made sense.

**Design ideas:** A bar or scale of some kind to show the risk level was suggested to give some kind of relativity to what “High Risk” is.

**Problems in the task analysis (the action sequence):** The warning seemed a bit too late in the action sequence for beginners but it is a design decision based on wanting to give all users enough time and space to consider the data by themselves before being given a formal final warning by the app.

**Step 13.** Make a final decision to either go back and reassess the option or to go forward

**Problems in the task analysis (the action sequence):** The text on the buttons does not reflect their functionality and place in the sequence clearly enough.

Link to recording:

<https://drive.google.com/file/d/1iqYpvuX7rwab9CkBIck9qYg2NhKHhI6b/view?usp=sharing>

### **Revision to the prototype based on walkthrough findings**

#### **Revised Action Sequence**

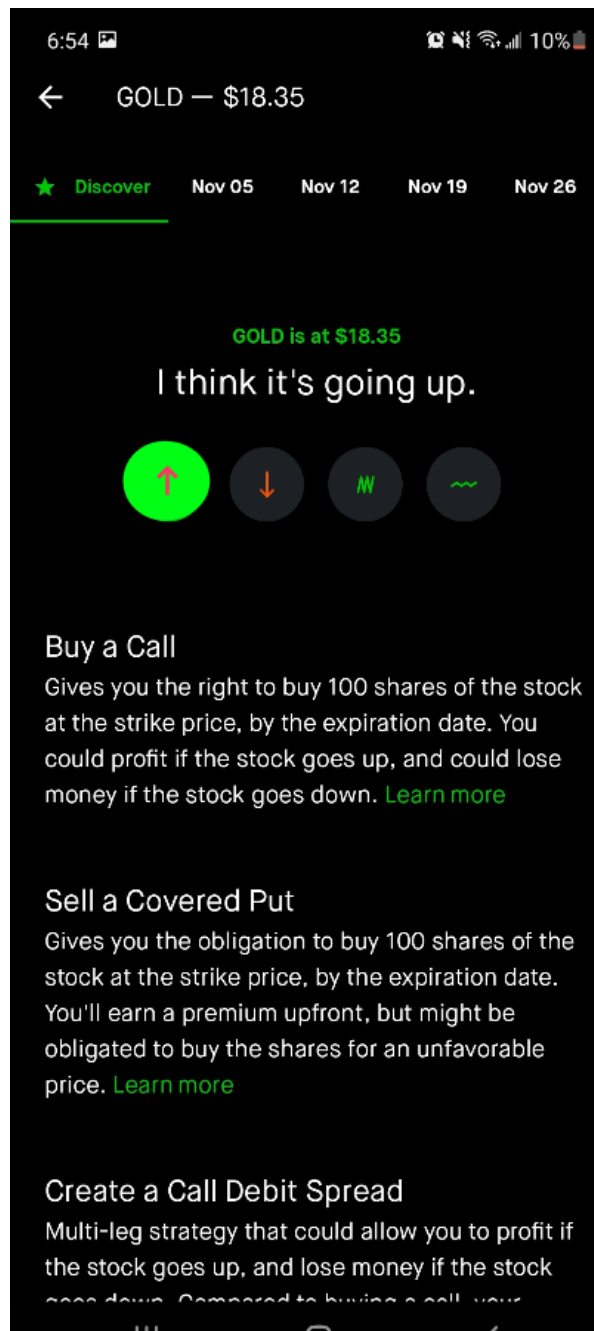
1. Click on Trade Options.
2. Click on the option (\$19 - \$0.23) to select it for purchase.
3. Read the data metrics for the option
4. Click on the “question mark” next to the Greeks heading to get a tooltip about the metrics.
5. Click on Delta to learn more about it (only Delta has been expanded for the prototype).
6. Click on “Learn More” to access a page with more detailed information about the Greeks.

7. Go back to the previous page to get out of the help page.
8. Click on “Buy” to move towards the purchase.
9. Select the quantity of contracts to purchase (quantity is preselected as one).
10. Click on the little green arrow to view the P/L chart and the price forecast.
11. Click on the question mark to read about the P/L chart.
12. Use the X to go back to the P/L screen and click on “Continue” to move forward.
13. Read the warning about the purchase and consider the final decision.
14. Make the final decision to reassess the Greeks by clicking on “Learn More”, consider another option by clicking on “Back to Options”, or go forward with the purchase by clicking on “Finalize”.

### **Revised Prototype Screenshots with Explanations**

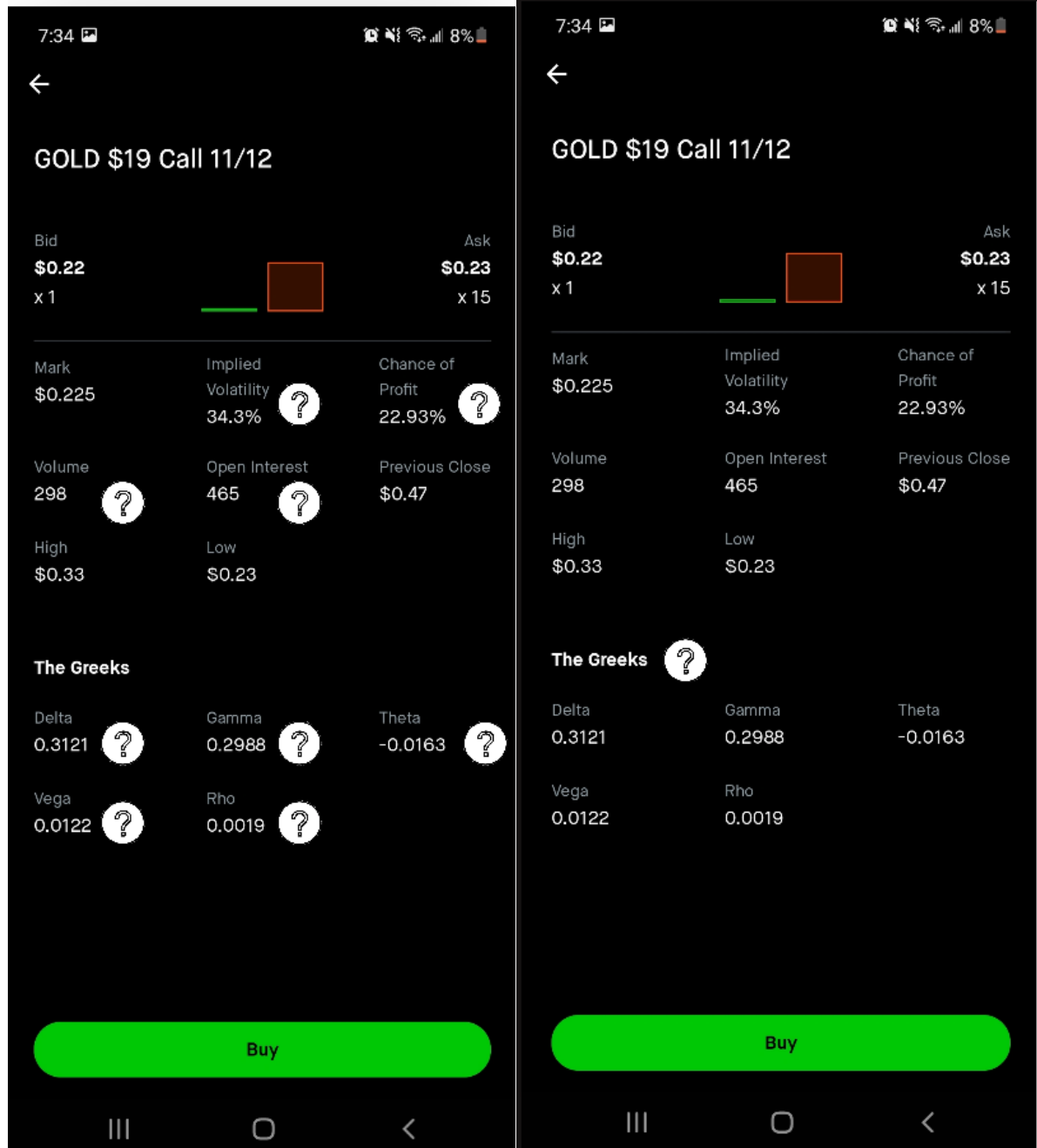
Revised Prototype Link:

<https://projects.invisionapp.com/prototype/ckvzi4esz0031pa01onvjahrn/play>

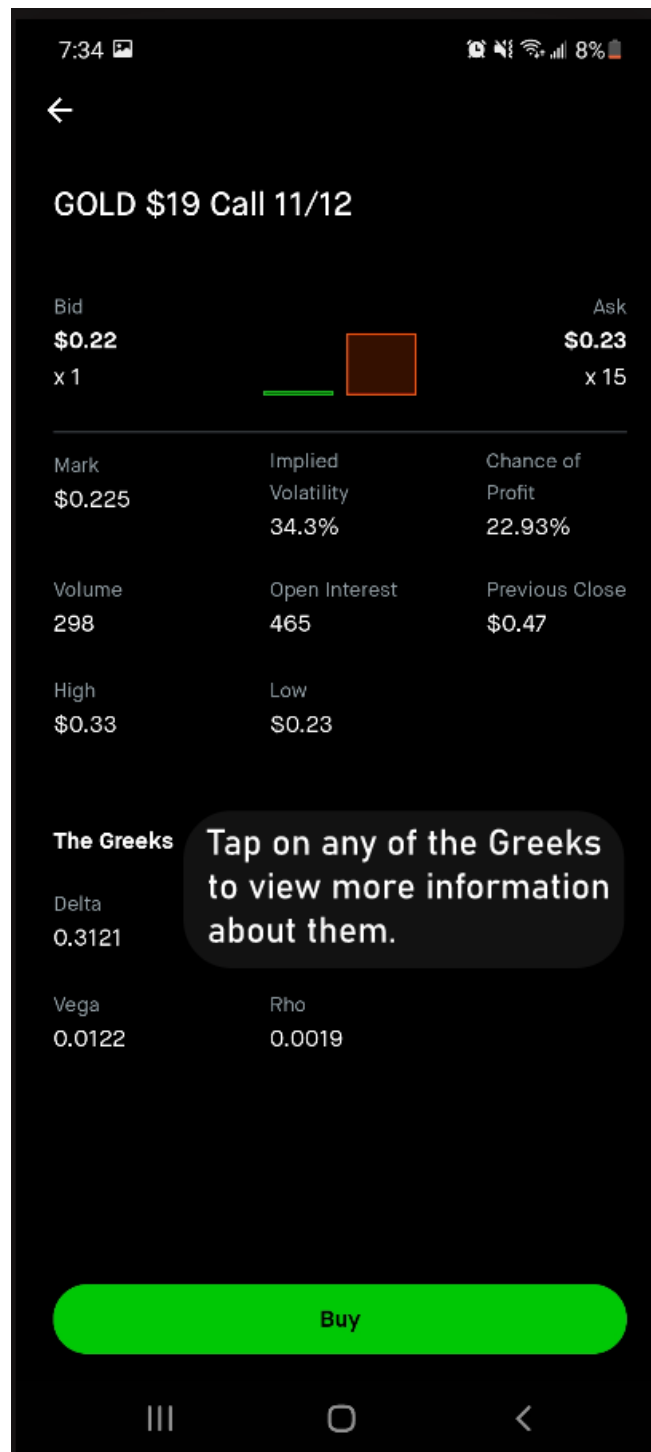


This screen was removed from the revised prototype because the four buttons were causing confusion and were irrelevant to the overall goal of the prototype which is to purchase an options contract. Instead, the buttons lead to info pages regarding general information about Buys, Puts, and Spreads which was not under design consideration for the prototype so the entire page was discarded.





The numerous question marks were consolidated under a single icon next to the Greeks heading to reduce screen clutter and to streamline functionality.



Tapping on the question mark leads to a tooltip which explains that the Greeks now function as clickable buttons which will reveal the relevant information when clicked.

7:34

8%

←

Limit Order ▾

Buy GOLD \$19 Call 11/12

1

GOLD \$18.35 · \$580.17 Available

Limit Price

\$0.23

Bid \$0.22 · Ask \$0.23 ▾

Max Cost

\$23.00

\$0.23 × 100 Shares

▾

Max Profit

Unlimited

Breakeven

\$19.23

Max Loss

-\$23

Continue

1

2

3

4

5

6

7

8

9

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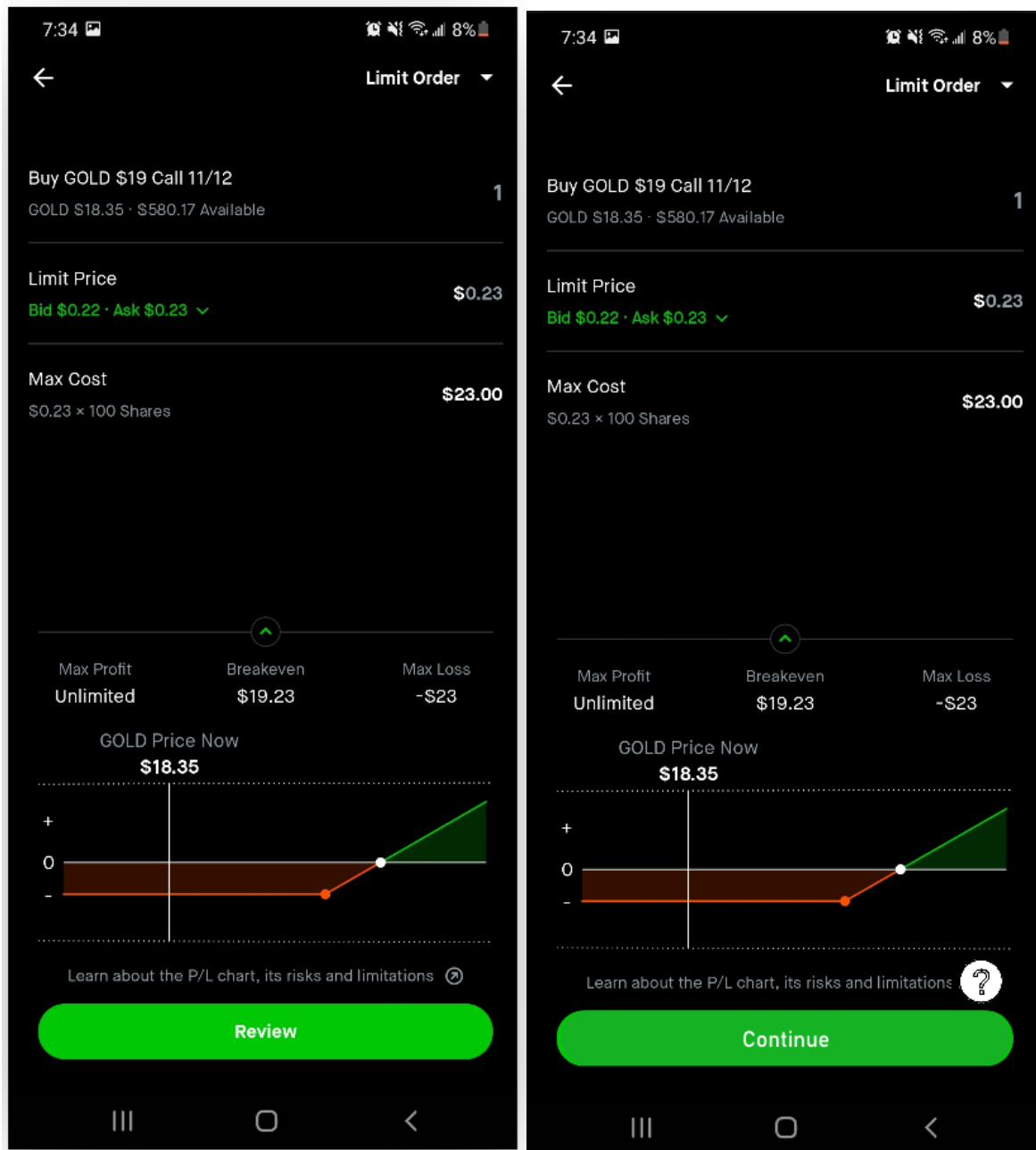
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Added the number pad screen to indicate that the quantity of the contracts can be changed.  
The green arrow above the pad pushes it down and reveals the P/L chart.



The P/L chart now has a prominent question mark icon at the bottom which leads to a page containing more information about the chart (shown in the screenshot below). The text on the button was also changed from “Review” to “Continue” since “Review” implied that the order confirmation page was next when it was not.

11:26

72%



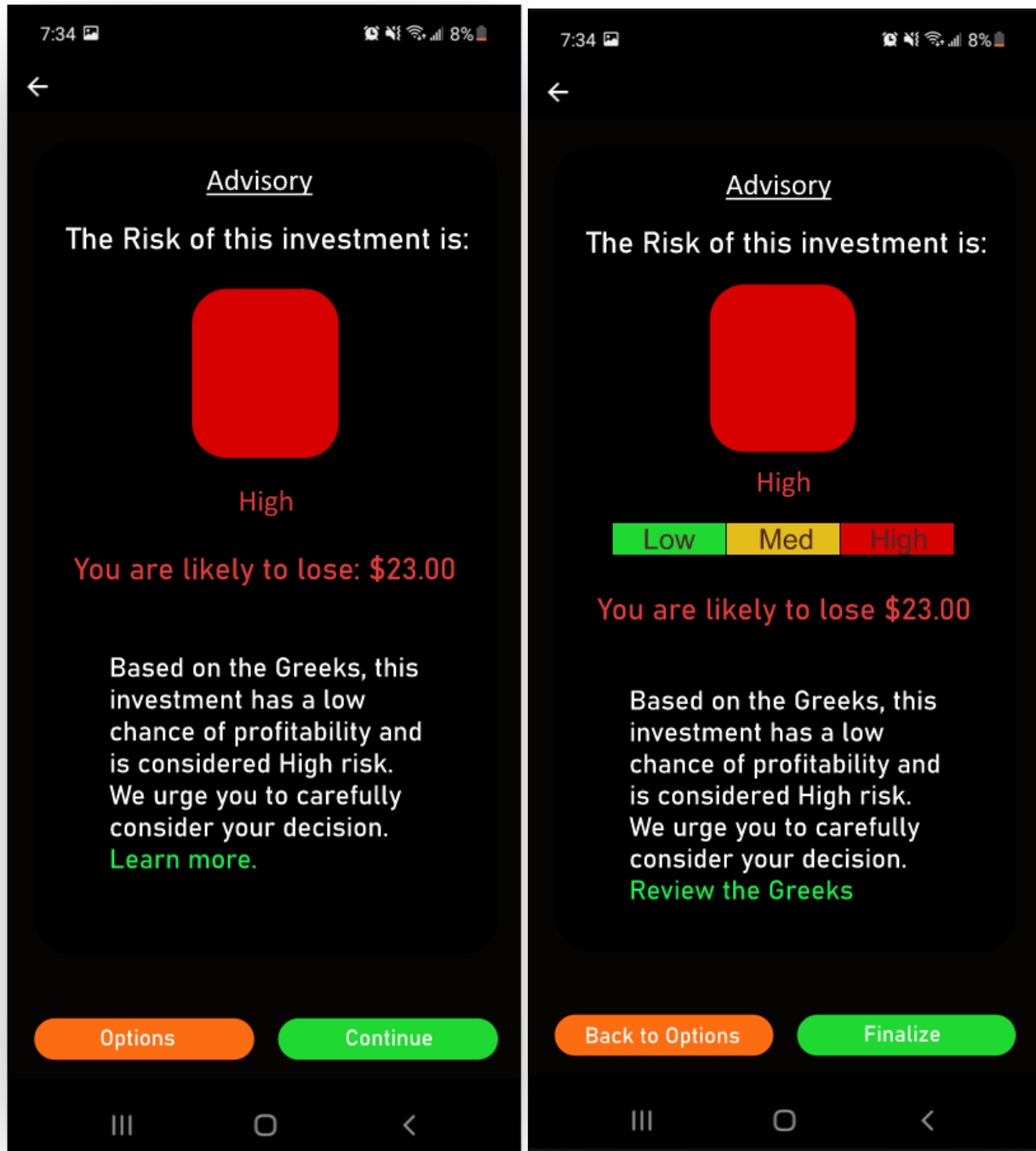
## The P/L chart

The P/L (Profit & Loss) chart visually represents an option strategy's theoretical profits or losses at expiration.



The horizontal X-axis represents the stock price at expiration date. In the case of calendar spread, it's the near-term expiration of the front month.

The vertical Y-axis represents the potential profit (+) and loss (-) range. Anything above zero represents theoretical profit while the area below represents theoretical loss.



A bar spectrum labelled with the three Risk levels was added to the warning screen in order to provide context for the current Risk level. The text on the buttons was also changed to accurately reflect their functionality.