



NORTHERN  
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UNIVERSITY

Deliverable 1 - Inception

Project C.A.T. - Capital Activity Tracker

Group: "The Stockings"

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Course: CS 386 Software Engineering, Spring 2018

Instructor: Marco Gerosa

GitHub Link: <https://github.com/kdl222/CAT>

## Team Project - D.1 Inception

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### 1. **Introduction:**

The Capital Activity Tracker (C.A.T.) is a web application that will mitigate financial loss and help to maximize profit for those interested in the stock market. C.A.T. will utilize several algorithms to calculate the average and the average maximum and minimum activity trends of a particular stock. C.A.T. will suggest optimal times to buy and sell the stock in question based on previous graph and trend data (that will also be available for the user to view and analyze). The problem C.A.T. is seeking to solve is the intimidating nature of stock market investing for those who are inexperienced in the activity. It also seeks to make the experience of stock market trading more manageable and convenient for more experienced stock traders.

### 2. **Initial Value Proposition and Consumer Segments:**

- Initial VP:

C.A.T is the most affordable, stock-assisting web application on the open market. Live buying and selling suggestions help those with little time to make smart trades and help to maximize profits and minimize loss.

- Initial CS:
  - The average age of potential consumers will be between 18 and 50.
  - Gender will have no bearing on the potential consumer base.
  - Users will be split by amount of experience.
  - Those interested in stock market trading will be those of three investing types: lower-branch investors, middle-branch investors, and higher-branch investors; each type corresponds to the amount of money a user will be looking to invest at any one time. A fluid categorization.
- Hypotheses:
  - We believe that our software will attract inexperienced stock buyers with its ease of use and mitigation of financial loss. We also believe a tutorial section would be beneficial.
  - We believe that our software will appeal to experienced stock buyers with its ease of stock trend segment analysis and trend tracking.
  - The most popular feature of C.A.T. will be its buy/sell suggestions to the users based on previous trend data
  - The fear of buying and selling stocks at the wrong time will be one of the most prominent problems faced by potential product users.

### **3. Interviews Summaries:**

#### Clayton Williams

In my interviews I decided to approach two college students from NAU, I did this because I wanted some insights from people that may have little to no experience in stock trading.

#### **First Interview**

**Who:** Josiah Vander Kooy

**When:** February 7, 2018

#### **Summary:**

My first interview I conducted was with a college senior, Josiah Vander Kooy, on 2/7/18. He told me that he had never been involved in stock trading. When I asked him why that was it was for a plethora of reasons, the two most important factors being that he simply did not have much if any excess money to use, and that he didn't know how/where to start with stock trading. When I asked him if having tools such as recommended buy/sell points for stocks would ease the process. He replied that it would help, but he simply didn't want to turn into a "monkey" that only buys, and sells based on recommendations from such tools. From this interview I was under the impression that our project can be Nice to have for those interested in stock trading. I also learned that learning tools to help people learn how to interpret trends, would allow us to retain users as they continue to trade stocks.

#### **Second Interview**

**Who:** Jake Sugawara

**When:** February 6, 2018

#### **Summary:**

My second interview that I conducted was with a business major named Jake Sugawara on 2/6/18. When I asked him if he had been involved in any stock trading, he told me that he has. I asked him if he has seen success from his trading, to which he told me that the success he had seen has been rather minimal. He went on to tell me that because of his lack of money, meant that any success or loss doesn't affect his financial stability. From there I asked him if he has experienced any type of difficulty in his ability to interpret data while trading, and if so if there were any tools that he may find helpful to him. He told me that most times he finds it tiresome to sort through the

data himself, and that tools that are already available for such functions were simply too expensive for him. This showed to me that even more experienced traders may find a use for our project, if it is affordable.

### Savannah Fischer

I decided to approach a young female with little to no experience trading stocks and an older male with moderate stock experience to help provide data on two extremes of a set age and gender scale to help verify interest in a stock-tracking program is present regardless of gender and around the age range of interest determined by “The Stockings” group.

#### **First Interview:**

**Who:** Shelby Sorenson

**When:** February 6, 2018

#### **Summary:**

19 year old female, NAU photography major, Shelby Sorenson.

Interview was conducted in person on 2/06/2018

She has little interest in trading stocks now, because “gambling stresses [her] out”, but would potentially like to start stock trading after graduation. She believes that the most challenging aspects about investing in the stock market are the facts that she does not know which companies she should invest in, that there is no “easily attainable” insight into a company without extensive research, and that the research aspect itself seems overwhelming and time-consuming. She believes that the features a stock-tracker application would have to have a list of available stock options, and explanation into company values and why she should be interested, and potentially a short “quiz”-like feature to help her determine the best companies to invest in.

- Key insights: This consumer is of the female, younger, less experienced in stock trading archetype. Features this consumer is looking for in our product are: easy-to-read and easy-to-navigate company information, company ‘browsing’ options, investing recommendations.
- We thought: An alert system for when to buy/sell would be one of the more popular features that consumers would request.
- We learned: This consumer wants more direction in stock trading than our conceptual product would otherwise provide.
- Assessment: Nice to Have
- Hypotheses validated: partial validation of interest in stocks occurring regardless of gender and around specified age range. Partial validation of monetary risk

being intimidating for new investors, that a tutorial stage may be worth considering.

## **Second Interview**

**Who:** Jerry Fischer

**When:** February 7, 2018

### **Summary:**

51 year old male, retired school district network administrator, Jerry Fischer.

Interview was conducted over the phone on 2/07/2018

He has prior experience trading with stocks and has had some success investing in the stock market, but he believes that the process connected to investing - the research - is very time consuming and, for someone who could not dedicate the entire day to research, was difficult to invest time in. The most difficult aspects of investing in the stock market for him were having the time to do it, and handling the risk. The features a stock-tracker application would have to have, according to him, would be: buy and sell triggers, alerts for rises and falls, company information - especially if the company made their quarterly profits and paid dividends.

- Key insights: This consumer is of the male, older, moderately experienced in stock trading archetype. Consumer has had moderate success with stock trading. Features this consumer is looking for in our product are: buy & sell triggers; stock value rise and fall alerts; and in-depth, easy to read, easy to navigate company information
- We thought: An alert system for when to buy/sell would be one of the more popular features that consumers would request.
- We learned: This consumer desires what we have been planning to implement. Customer wants in-depth company information to be plainly visible and easy to analyze.
- Assessment: Must Have
- Hypotheses validated: partial validation of interest in stocks occurring regardless of gender and around the specified age range. Partial validation of rise/fall or buy/sell alerts being a highly desired function of a stock-tracking application.

Kaitlyn Lee

### **First Interview**

**Who:** Jason Lee

**Date:** February 6, 2018

### **Summary:**

Jason is a male in his 40's with some background in the stock market. He is not very experienced but has had some success. Jason has interest in EBay and Berkshire Hathaway. During the interview, Jason explained that the hardest parts of stocks are knowing when to buy and sell and knowing what to buy. Jason enjoys buying stocks and believes that a tool that could help him understand the market would make the experience more enjoyable. This would also prompt him to get more involved in the market. When asked what feature he would use the most, he responded, "I would love something that would tell me what is current or is rising, so I know what and when to buy." We thought that the most requested feature would be the buy/sell feature, but instead, we learned that some people would enjoy a "what is rising" page. We also learned that such an app would make the buying/selling of stocks more enjoyable to users. One of our hypotheses was that experienced buyers would enjoy such an app because of its ease of trend tracking, and Jason validated this hypothesis. The assessment for this interview is a must-have. Ultimately, Jason would use an app to help him distinguish what to buy and when to buy/sell.

### **Second Interview**

**Who:** Charlotte Morgan

**Date:** February 7, 2018

### **Summary:**

Charlotte is a female in her 50's with a tremendous background in the stock market. Charlotte reminisced about the times when she was a child, and her father would take her to the market. She was amazed at the market back then, and her fascination has only grown since. Charlotte is interested in how the stock market works and its history. She has had some great success with buying stocks. She has purchased stocks in Netflix, graphite mining, and many others. Charlotte shared some advice, "I don't watch what companies are getting big, instead I look at the infrastructures of companies. Instead of buying stocks in Apple when phones started to

get more popular, I bought stocks in graphite mining.” Charlotte discussed how a section talking about what technologies are getting popular would be very useful. We thought users would like to know what companies are getting big more than what technologies are getting big. Something we did learn was that some users would benefit from a way to easily search for a company’s symbol. Charlotte also mentioned that a feature that could immediately tell a user what the stock index is would be helpful for her. Even for someone who has had a lot of experience with buying/selling, Charlotte says, “The most challenging thing about stocks is the risk.” The market can be intimidating to buyers/sellers. From her interview, our hypothesis about having a tutorial section was validated. Charlotte loved the idea of having an app that is geared more towards beginners to break down the market and make it less intimidating. The assessment of the interview is a must-have.

Adam Goins

### **First Interview**

**Who:** Vincent Valdez

**Date:** February 7, 2018

### **Summary:**

I interviewed my close friend’s brother, Vincent Valdez, whom actively buys and trades stock on the stock market for a living. Vincent is in his late 20’s and has been active in the stock trade for around 5 years and is very familiar with how it works.

Upon talking to Vincent, it was very clear that he had a very different idea of what a “helpful” app might do than we did. Vincent has been dealing with stock trading for some years, and when asked what the challenges he faced, he said that he finds investing in multiple stocks to be cumbersome. Investing in more than one company’s stock means that he has to track separate stocks at once and watch each company’s market separately. Vincent says that a tool which could centralize all of his investments in one place would make his life easier. He said this tool would be nice to have, but isn’t a necessity for him.

I learned that there isn’t as much emphasis on predicting the stock market via computation. He was more interested in the idea of making his stocks easier to visualize and see at once rather than something making a prediction for him. This validates the hypothesis that there is a consumer need in this market, but the need for Vincent doesn’t have to do with graph predictions.



## **Second Interview**

**Who:** Joshua Sommers

**When:** February 8, 2018.

### **Summary:**

My second interview was with a close friend of mine, Joshua Sommers. Josh is a Software Developer for General Motors and has invested in the stock market briefly. His experience with stocks stems from his employment with General Motors. They take a specified amount from his paycheck before tax and put it into a 401k for him. They match a certain percent of what he puts in and he chooses where they invest that money.

When interviewing Josh, he stated that the most challenging part about the stock market is emotional trading. The stock market has a tendency to fluctuate and people have a tendency to panic and make emotional decisions rather than logical ones when a stock starts to drop. When asked about what a tool might do to help combat emotional trading, a tool that would allow him to set a buy/sell point for a stock and do that part for him would remove the emotional aspect of his investments. He also says that a tool that provided a clear trading history with logs of profit/loss and stock history for each stock would be another feature that he would like to see. He supports the idea of having a lot of stock information readily available, but wasn't so concerned with actual predictions being made for him. He thinks that a tool with buy/sell capability and a history would be nice to have.

I learned that there is a need to have stock data read and interpreted, but there still isn't much of a concern with prediction so much as there is a concern with having information about stock activity and history readily available.

Brandon Horner

## **First Interview**

**Who:** Darryl Brown

**When:** February 8, 2018.

### **Summary:**

My first interview was with my CS 301 professor, Darryl Brown. Darryl was a great candidate for an interview, early on in my class he announced he had worked on similar stock apps. Upon interviewing him he said that he has day traded for five years and ran a software development for blackbox high frequency trading for eight years.

Darryl explained that it was very much to be determined if pattern recognition is very useful. He notes that volatility is one of the only successful ways to predict patterns. Darryl said that a successful stock apps would have to quickly react to news and volatility on a certain stock.

Finally, he told me that automated trading was not necessarily proven to be successful. Perhaps the time of our economy has a factor in our trends. For instance during the housing market crash, the patterns we are searching for during that time would likely be different than the patterns we are seeing today.

This assessment was a must have; Darryl basically told us to pivot our idea from pattern recognition to news gathering and interpretation. I am inclined to believe him since he has dedicated so much time to this subject.

## **Second Interview**

**Who:** Bailey Emig

**When:** February 9, 2018

### **Summary:**

My friend Bailey is a 23-year-old college student and veterinarian technician that has little involvement in stocks. She told me that she was interested but when it came down to it, she did not feel like she had enough money to invest into a company.

Her friend and her friend's dad were apparently active traders, but she did not know much about how they made trading decisions. When I asked about the most challenging thing about stocks, she said that she didn't know much about them in general; when to buy, when to sell, or why to choose a company to go with.

Bailey also said that she thinks an assisting tool would very beneficial to bring information about stocks that could help new people decide when to buy or sell. When I asked her about features she would like to see, she explained that she would want to see graph data, good times to buy and good times to sell. It could also include information about which companies are doing well, and which ones aren't.

This assessment was useful, we confirmed that new users are intimidated by a lack of known information. We also continue to see a desire for buying and selling suggestions and a need for our app to provide information to new traders.

#### **4. Final Value Proposition and Consumer Segments:**

- Final Value Proposition.

CAT is a stock market analysis application that brings data visualizations and information-gathering together in an easily-accessible and affordable program, making it perfect for new and experienced stock traders alike. Equipped with live transaction suggestions and in-depth company evaluations, CAT allows traders to make more informed financial decisions than could be accomplished alone.

- Final Consumer Segments:

We believe that our app will provide all interested parties an easily accessible program for stock tracking, analyzing, and monitoring:

- Experienced and inexperienced stock buyers/sellers
- Average age range: 18 - 50.
  - Early adult = approximately 18 - 30
  - Established adult = approximately 31 - 50
- Investing statuses: lower-tier, middle-tier, higher-tier
- Male and Female

## **5. Group Participation:**

- Kaitlyn Lee - Conducted two interviews, uploaded documentation on GitHub, and assisted with section 4. (20%)
- Clayton Williams - Conducted two interviews and assisted with sections 1 and 2. (20%)
- Adam Goins - Conducted two interviews and assisted with sections 2 and 4. (20%)
- Brandon Horner - Conducted two interviews and assisted with sections 1 and 2. (20%)
- Savannah Fischer - Conducted two interviews and assisted with sections 1 and 4. (20%)