Stock Market Simulation

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Stock Market Simulation

An Interactive Qualifying Project Report: submitted to the Faculty of
Worcester Polytechnic Institute
in partial fulfillment of the requirements for the
Degree of Bachelor of Science
By

Jaeyong Oh

Vicky Luu

Submitted:
March 5, 2020

Approved by Professor Dalin Tang, Project Advisor
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Abstract

A stock market simulation was conducted over a ten-week period to study the effects of different trading strategies. Besides trying to earn a profit, the main objective of this project was to gain a better understanding of stock trading through the experience from a more hands-on approach. All trades were done through a stock market simulator called Investopedia. Through the duration of the project, two simulations focusing on different strategies were conducted. Simulation 1 focused on positional and technical trading while Simulation 2 dealt with swing trading and short selling. By the end of the project, both simulations witnessed a net gain, with a profit of 7.99% for Simulation 1 and 2.17% for Simulation 2, respectively. After having analyzed the results between both simulations, it was concluded that there does not exist a perfect trading strategy, rather all success and profits are dependent on the decisions made by the trader themselves. For those with little to no experience in stock trading, this project can be a helpful resource for them as well as for those who share a general interest in investing.
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1. Introduction and Goal

The goal of this project is to understand the stock market while figuring out a good trading strategy. Although the perfect strategy does not exist, we worked with the information we have attained through online resources to research different strategies. With little to no experience we dedicated the first few weeks gathering information about the market and researched promising companies to invest in. After our preparation time, we each made our own trading strategy and began trading through a stock market simulator. Over a ten-week trade period, we hoped that by the end of our research, we can compare and discuss which strategy was proven to be more effective.

The purpose of this project is to learn more about the stock market and how to trade effectively. This fourteen-week time period will depict not only our activity, but also our learning progress. We plan to end all trades after the ten-week duration, yet we will continue to monitor the trends of our investments for further analysis.

1.1 Brief Overview of the Stock Market

Stock, by definition, is an equity investment that represents part ownership in a corporation and entitles one to part of that corporation's earnings and assets. Stock is issued by companies for them to raise funds to operate their businesses. Once the stock is bought, the shareholder obtains an ownership of the company. The importance of being a shareholder is that the shareholder is entitled to a portion of the company’s profits, which is the foundation of a stock’s value. Stock market is where investors and companies gather up to buy and sell stocks to gain profit.
Stock exchanges originate from 1300s in France where the banks encouraged people with debts to trade debts to regulate agricultural community with the help of brokers. Not long after, the Venetians took it a step further and started trading the first government-issued securities.

In 1531, the first stock exchange started happening in Antwerp, Belgium where brokers and money lenders met up and started discussing matters related to their business, from individual to government level. Even though this partnership was not an actual stock trading relation, it made possible for the business to make profit from such partnership, just like how actual stock trading works nowadays.

In 1600s, when the French, British, and Dutch government approved of the legal existence of the East India companies, investment in successful voyage of the ships became very popular. Voyages were extremely risky at the time due to factors likes bad navigation, poor weather conditions, and potential encounters with pirates. Nevertheless, the risk of investing was reduced by investing in multiple voyages instead of just one. The formation of the East India companies changed and expanded the way business was done. The concept of “stocks” was newly introduced, allowing the companies to pay dividends on all the proceeds from of their voyages to all shareholders. Allowing people to invest in their shares gave these companies the ability to build larger fleets as well fund a lot of their other expenses.

The British East India Company, with the aid of government-backed monopoly, naturally brought up the competition in the market when the investors were hungry for profits. This change in market caused there to be no limitations or rules for issuing stocks. Also backed by the king, The South Seas Company, however went bankrupt due to the endless re-issuing of stocks and their failure to pay any dividends to their investors.
In the late 18th century, the New York Stock Exchange (NYSE) was founded. Since then, NYSE has become the most powerful market in the United States and internationally, despite having experienced some big downs like the Great Depression. NYSE remains the largest stock exchange in the world, having the most amount of market capitalization [1].

1.2 Factors that Influence Stock Market

While stock prices are driven by a variety of factors, the most significant factor involves the supply and demand from that company. Other fundamental factors include EPS (earnings per share) and P/E ratio which drives stock prices based on the company’s earnings and profitability from producing and selling their goods and services. Technical factors such as economic growth of a market relate to a stock’s price history in the market. Some technical factors pertain to chart patterns, momentum, and behavioral factors of traders and investors.

Another big factor is general trend of a market flow. Sometimes a stock increases in price due to the company’s popularity either for a short or long period of time. On the other hand, a stock sometimes behaves the opposite way as projected in its trend. Other factors that impact the stock market include news that pertains to politics, foreign relations, global crisis, company improvement/updates, mergers and acquisitions, and other unforeseen events.
2. Stock Trading Strategies

A trading strategy is a fixed plan of buying and selling in markets where its purpose is to attain a profitable return. Although there exist many different trading strategies, they all differ in levels of risk and reward. One method may offer low risk but a low profit return, while others may generate a large reward but also have very high risk. When choosing a method to use, it is not only important to factor in the level of risk and reward, but also to consider what is within the investor’s level of comfortability. Listed below are a couple of different methods of trading both short and long term.

2.1 Market Order

Considered one of the simplest trade strategies, market order trading buys stock at face value and involves the lowest commission amount. The purpose of a single market order trade is to obtain a specific amount of profit that is just above the commission cost as well as the cost of holding before trading or selling.

2.2 Intra-day Trading

Intra-day trading begins and ends in a duration of a single day. Day traders observe the price movements within the day and attempts to profits from short-term price changes. Traders of this method tend to look at the Volume Weighted Average Price (VWAP) to increase trade efficiency. Other types of intra-day trading include scalping, range trading, and news-based trading.
2.3 High-Frequency Trading (HFT)

This form of trading takes advantage of price movements as a result of large institutional trades. When the price of a share for a stock dips, HFT traders come in and buy on this dip with the hopes of selling when the prices normalize a few moments later. It is crucial to buy when the price is below the trend and sell when it's above. Such transactions however require one to be very fast or else said profit opportunity will be taken by someone else. Nowadays most traders just use computers with complex algorithms to analyze the market and seek for such price movements.

2.4 Swing Trading

Swing trading depends on the price fluctuation in the market. It is attempted to trade and expect gains from a few days to several weeks, which means this trading method usually at least holds a position for more than one trading session. This trading method depends on the swings and price fluctuation in the market, which means that a combination of both technical and fundamental trading methods can be used; however, more technical approach will be used than fundamental approach since most swing trading is short-term based. Fundamental analysis can be used to enhance the analysis; for example, if a swing trader sees a bullish setup in a stock, they may want to verify that the fundamentals of the asset look favorable or are improving also.

2.5 Positional Trading

Positional trading is a trading method of buying and holding a stock for a relatively long period of time (long-term strategy) until its value increases to a certain level at which the buyer sells the stock to obtain desired amount of profit. Positional trading follows the trend of where the stock market is heading and focuses on the large price movement of stock; it does not consider the short-term swings or fluctuation.
While the buyer may keep track of the price movement, the buyer will less likely to take any action unless the cause of any change in value is significant enough to affect the long-term movement of the stock price. Because it takes a relatively long period of time than other short-term based methods, the time invested in the stock has to be taken into account when considering the final return, let alone the value of the stock itself.

2.6 Quantitative Trading

This method is heavily reliant on quantitative analysis, modern technology, as well a large database. Quantitative traders conduct thorough research on certain trading methods by developing a computer program that can model said method using prior market data. After a lot of testing, the system is optimized before implemented in the real market. One of the biggest problems investor’s face when trading is their emotions. Due to high levels of risk, emotions may overcome one’s rational thinking and lead to loses. With quantitative trading however, emotions are completely disregarded since this method only relies on math and the computer program.

2.7 Arbitrage Trading

The basis of this trade is based on the difference in price points due to market inefficiencies. A security is bought from one market and instantaneously sold in another at a slightly higher price. Such exploitation of even the smallest price difference can result in huge profits. Although this method of trading is viewed as risk free, it may be difficult to execute as these price differences do not deviate for long periods of time. More experienced traders run specialized computer programs to monitor these inefficiencies across several markets.
2.8 Short Selling

Short selling is an investment or trading strategy that speculates on the decline in a stock or other securities price. It is an advanced strategy that should only be undertaken by experienced traders and investors. Traders may use short selling as speculation, and investors or portfolio managers may use it as a hedge against the downside risk of a long position in the same security or a related one.

2.9 Technical Trading

Unlike positional/swing trading, which focuses on attempting to predict the price movement based on a stock’s fundamental value (causes of growth/decay), technical trading focuses on analyzing the patterns of price movement using historical trading data and price trends on charts. Indicators that technical traders can refer to are chart patterns, volume and momentum indicators, oscillators, moving averages, etc.
3. Company Selections

3.1 Factors to Consider When Selecting Companies

Company selection for stock trading usually depends on different strategies. For this IQP project, three different strategies (technical, swing, and positional trading) are used and each strategy will have its own list of companies to start with from which the stocks will be purchased. For example, companies that tend to be in a steady state of growth over a relatively long period of time will be chosen for positional trading method whereas stock values of the companies that change more frequently over the same period of time will be more suitable for technical or swing trading methods. It is also reasonable to select companies that are within our field of interest such as our majors, because we have more knowledge about the companies within the same field of industry.

3.2 Company

3.2.1 Oneok (OKE)

Oneok is natural gas company based in the U.S. (Tulsa, OK) and is considered one of the leading midstream service providers in the nation. Operating its own premier natural gas liquids (NGL) system, the company is heavily involved in the processing and transportation of its product. This company has become of interest due to its high projected earnings for the coming year. With their plans to construct two new pipelines and as well as fractionators, such creations will only improve the quality of their product as well as the company’s overall efficiency. Significant increase in Oneok’s production with the increase of equipment is likely to make future growth possible within a year.
3.2.2 Global Blood Therapeutics (GBT)

GBT is a biopharmaceutical company that has created a new drug to combat the life-threatening disorder, Sickle Cell Disease (SCD). While the cost of said drug, Voxelotor, is quite expensive, GBT seeks the approval of the FDA to decrease the cost significantly. Looking to pursue an “accelerate approval” with the FDA, it is expected that the drug will earn the FDA’s approval since there currently exists little to no treatment options for this disease. As GBT expects to formally submit their application next year, the expected approval time is estimated to be by the end of the year. With the FDA’s approval of Voxelotor, the credibility of the drug will rise along with the value of their stocks.

3.2.3 The Walt Disney Company (DIS)

As one of the largest media companies in the U.S., this company has become globally known for its involvement in children/family entertainment. While Disney continues to produce new films every year, majority of each earning positive reviews, their new project has gained the interests of many investors. The new Disney streaming service, Disney+, will be like other entertainment subscription services like Netflix and Hulu, however it will feature a twist. Like the other services, there will be original content exclusively available on Disney+ as well as a plethora of movies/tv shows to interest audience members of all age and gender. Unlike the other services however, Disney+ will only feature films owned by the Walt Disney Co, like Marvel, Pixar, etc. With Disney’s new method of content delivery, it is expected that Disney will have increased production and marketing scale [2].
3.2.4 Microsoft Corporation (MC)

Microsoft Corporation is an American multinational technology company that develops manufactures, licenses, supports, and sells computer software, consumer electronics, personal computers, and related services. According to Morgan Stanley, Microsoft is considered “the best in tech” for its well-known technology business such as “computing and storage services,” platform capabilities along with its “productivity and front office apps, and its core financials.” According to Investopedia, Morgan Stanley believes that “Microsoft will see stable growth in its commercial businesses, which represents more than 60% of its revenue. The firm forecasts a three-year revenue compound annual growth rate (CAGR) of 12%.” [3]

3.2.5 Alphabet Inc Class A – Google (AIC)

Alphabet Inc. was chosen as one of the companies for a long-term, positional trading with an expected steady growth over the period of more than 2 months. To be exact, Alphabet Inc is a parent company of Google and was created when Google went through corporate restructuring in October 2015.

3.2.6 Tellurian Inc. (TELL)

Having geared most of the focus on the natural gas market, TELL has caught the attention of many investors like myself. In recent news, the prime minister of India, Narendra Modi, has agreed to one of the “largest liquefied natural gas (LNG) supply deals in U.S history” [4]. Valued at $2.5 billion, this deal is finalized between TELL, Houston, TX based company, and India’s Petronet LNG. Within this deal, it was agreed that Petronet will invest in the construction of a new LNG export terminal in Lake Charles, LA. In return, Petronet will gain the rights to 5 million metric tons of LNG for the entire duration of this project. Unlike many publicly announced
agreements and projects, this one in particular seems to be quite legitimate. With Modi’s motivation to stir India away from coal consumption, he explores more renewable and efficient forms of energy like natural gas.

As the U.S. continues to lead the natural gas industry, the exportation of liquefied natural gas (LNG) has now amount to 10% of the global market. While Australia and Qatar still place ahead of the U.S. as the world’s largest LNG exporter, the U.S continue to perform well due to their flexible contracts. These destination contracts allow the U.S. to insure a more long-term deal as seen with the Petronet LNG and Tellurian Inc. [5].

3.2.7 United Postal Service (UPS)

While conducting research into the e-commerce giant, Amazon (AMZN), I began to realized that although Amazon will most likely continue to rise steadily, there may perhaps exists a greater investment opportunity in shipping companies like FedEx and UPS. Past research confirmed the dissociation of these companies from AMZN. Exploring new technologies and enhancement tools to improve delivery services, both companies seems to have promising futures. Not only do these postal services see AMZN as a competitor, retail companies have grown more uncomfortable cooperating with such a giant [6]. Current conflicts with the U.S. and the UPU (Universal Postal Union) will only influence the overall performance of these companies. The UPU consist of 192 member countries regulating mail that flow across borders. There is a chance that under the Trump Administration, the U.S. will withdraw from the UPU, thus complicating the postal system internationally. The reasoning behind such decision is heavily due to the “terminal dues”, which are the dues paid by each member country within the union. While these dues were developed and
settled back in the 1960s based on the nation’s economic development at the time, the Trump Administration believes some of these dues are rather outdated. For example, the economy of China has grown tremendously since the 1960s, yet they are still paying significantly less in dues compared to the U.S. Not only has President Trump addressed this problem, but so has past presidents like Ronald Reagan [7]. No matter what happens, a deal will occur in the UPU meeting coming up in around September 24-25. If rates were to increase, it will benefit both postal services, UPS and FedEx [8].

3.2.8 FedEx (FDX)

Reasons to be interested in FDX are the same for UPS. While investing in FDX or UPS immediately may not be reasonable, there are strongly reasons to monitor the overall trends and performances of these companies. Reasons are listed above.

3.2.9 Snapchat (SNAP)

While the past has shown the company struggling, Snapchat has been seen making a comeback. With shares rising over 200% in 2019, it is believed that the company will continue to have a promising future. The price per share is reasonably cheap compared to other social media platforms, and it’s a company that I am quite familiar with. After reviewing the company’s second-quarter earnings, it showed a increase in revenue by 48%. Therefore, it’s important to keep an eye out on the company in November when the third-quarter earnings are released. [9].

One of the company’s largest setbacks is its advertisements and demographic. The only consistent users of the app range from the ages 13 to 24. Those above this age range have shown disinterest of this app as they claim the app difficult to navigate. As a result, Snapchat has focused more on their younger demographic, even targeting age groups below the age of 13 with the
addition of games. To continue such growth, Snapchat needs to find new and effective ways to implement their app into the daily lives of adults. Therefore, in investing in this company, I see it as following the current trend. Until Snapchat devises a new strategy to expand their demographic, I do not myself holding onto this stock for a long period of time. [10].

3.2.10. Apple (AAPL)

Apple (AAPL) was selected for positional trading (mainly long-term) purposes as it is one of the biggest tech companies that can be expected to have long-term growth. Apple, as majority of the people know, sells consumer electronics and software and is considered one of the biggest tech companies like Amazon or Google.
4. Simulation 1: Positional & Technical Trading

In this simulation, two trading methods, positional trading and technical trading will be used. Using Investopedia simulator, we start trading with initial budget of $100,000. Once each stock value reaches a certain price (cheap enough), a purchase will be made and the amount of stock to be bought will be decided depending on the price of the stock and its potential growth. Amount of commission is considered zero.

For positional trading, three companies with big names and one company, of which we are familiar with its industry, are selected: Google (GOOGL), Apple (AAPL), and Microsoft Corp. (MSFT). These companies were selected due to them being some of the world’s largest businesses, which will most likely show steady growth (relatively) long-term. The stock value charts used for this trading method are viewed in a bigger scale (one day time scale) to be able to view relatively long-term movement of stock price. It is important that even though a lot of positional trading is done in a long-term manner, we are not limiting the frequency of the trade to any certain period if we follow our predicted price movement.

For technical trading, another three companies are selected: Analog Devices Inc (ADI), Oneok Inc (OKE), and Global Blood Therapeutics Inc (GBT). By analyzing the past price movement chart with more mathematical approach, I will try to predict the future stock value change to know when to buy or sell the stock. The first company, ADI, was chosen because we are familiar with their industry of electrical and computer engineering field; the more I know about the company with related industry, the better I can predict the price movement based on the company’s performance. The stock value charts used for this trading method will be viewed in a
smaller scale (one hour time scale) to get more specific data because more data adds more accuracy to the prediction.

4.1. Week 1

For the first week, I ended up spending $21,933 out of the total budget of $100,000. Of the $21,933, $13,886 was used for the purchase of stock for the positional trading method and $8,047 was used for technical trading method.

50 MSFT stocks were bought at a relatively good price ($137.73) when compared to the price change in the last two weeks, as shown in Figure 4.1.1. Interestingly, the 3 months graph in Figure 4.1.2 shows a frequent fluctuation of price with a relatively big scale. Since the graph for the last two months does not show a stable growth, but rather some sort of regularity in the graph behavior, I might change the strategy for MSFT to technical trading method to do more analysis on the graph depending on how the price fluctuates next week, which is Week 2.

Figure 4.1.1 Investopedia MSFT (September 18 to October 5)
Three GOOGL stocks were bought at a relatively good price ($1204.02) when compared to the price change in the last two weeks, as shown in Figure 4.1.3. In the longer term, the price behavior of the last three months shown in Figure 4.1.4 is steadily growing even though there are some fluctuations. With some more graphical and fundamental analysis, I will decide whether to sell this stock in the upcoming week.
Thirty ADI stocks were bought at a relatively equal price ($112.93) when compared to the price change in the last two weeks, as shown in Figure 4.1.5.

Figure 4.1.3 Investopedia GOOGL (September 18 to October 5)

Figure 4.1.4 Investopedia GOOGL (July 15 to October 5)
Twenty GBT stocks were bought at a relatively cheaper price ($48.16) when compared to the price change in the last two weeks (constant decrease from $56 to $47), as shown in Figure 4.1.6.
Twenty-five APPL stocks were bought at a relatively higher price ($225.74) when compared to the price change in the last two weeks, as shown in Figure 4.1.7. In the longer term, the price behavior of the last three months shown in Figure 4.1.8 is steadily growing. This will suit more for the positional trading strategy and therefore there is a chance of strategy change from technical trading to positional trading for this specific stock (from the upcoming week, depending on the price fluctuation).

Figure 4.1.7 Investopedia APPL (September 18 to October 5)
Twenty OKE stocks were bought at a relatively cheaper price ($72.03) when compared to the price change in the last two weeks, as shown in Figure 4.1 (constant decrease from $77 to $72).
Overall performance of the value of the stock that I bought for Week 1 is shown below in Table 4.1.1. The total gain after the first week of stock trading turned out to be $73.07, which is 0.33% increase.

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<th>Buy/Sell</th>
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<th>Shares</th>
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<th>Profit/Loss</th>
<th>Total Cash</th>
<th>Total Profit</th>
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<td>1,440.60</td>
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Table 4.1.1 Week 1 Transaction
4.2 Week 2:

There was no trading done during the second week for this simulation because most companies were showing a subtle increase/decrease in their stock values. As expected, the graphs above of large companies like MSFT, GOOGL, and APPL (Figure 4.2.1 – 4.2.3) showed steady growth of values, even though there were some ups and downs in a daily basis. Compared to the stock values from last week, all stock values increased except for the small companies like ADI, GBT, and OKE. Now that the slow and steady growth of stock is observed, I will keep these stocks until they reach certain values of MSFT - $150, GOOGL - $1270, and APPL - $247.

Figure 4.2.1 Investopedia MSFT (October 4 to October 11)
For small companies such as ADI, GBT, and OKE, the stock value decreased with some daily ups and downs (Figures 4.2.4 – 4.2.6). The stock values for ADI, GBT and OKE all decreased...
by the end the week and therefore no trade was made. As going into the third week, the graph of the second week will be used to do technical analysis on the small companies such as ADI, GBT, and OKE to see if I am at a better position to sell or buy stocks.

Figure 4.2.4 Investopedia GBT (October 4 to October 11)
Figure 4.2.5 Investopedia ADI (October 4 to October 11)

Figure 4.2.6 Investopedia OKE (October 4 to October 11)
4.3 Week 3:

This week, I kept all three stocks used for positional trading method (MSFT, APPL, GOOGL) since none of the three reached the desired price yet (MSFT-$150, APPL-$247, and GOOGL-$1270). Stock for MSFT rather showed a lower price than the original purchase price, and therefore I bought 30 more shares from MSFT in a hope for a potential rise. Additionally, I purchased 50 TSLA (Tesla) shares for $256.89, in a hope for a potential rise to $280. For stocks used in technical trading method (GBT, ADI, and OKE), only GBT’s stock value was showing a slight increase, and so I decided to sell it to invest in other stocks.

MACD (Moving Average Convergence Divergence) method was used to buy/sell more stocks from this week since the values are changing rapidly up and down. The new stocks bought for this week are Calamos Strategic Total Return FD (CSQ) and First Source Group (SRCE).

Circled in both Figure 4.3.1 and Figure 4.3.2 show the points where the MACD line (blue) is increasing while it crosses the signal line. By this indicator I am expecting the rising trend of the value for the two stocks and therefore will not sell them until certain conditions are reached: when the stock reaches a certain value, or until both MACD and the signal line cross again when the MACD line is decreasing (which indicates the beginning of the falling trend), or both.
Figure 4.3.1 Investopedia CSQ with MACD Indicator

Figure 4.3.2 Investopedia SRCE with MACD Indicator
<table>
<thead>
<tr>
<th>Date</th>
<th>Symbol</th>
<th>Buy/Sell</th>
<th>Price</th>
<th>Shares</th>
<th>Net Cost/Proceeds</th>
<th>Profit/Loss</th>
<th>Total Cash</th>
<th>Total Profit</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
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<td>11.00</td>
<td>74,911.54</td>
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<td>60,791.04</td>
<td>11.00</td>
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<td>100</td>
<td>4,927.00</td>
<td></td>
<td>55,864.04</td>
<td>11.00</td>
</tr>
</tbody>
</table>

Table 4.3.1 Week 3 Transaction

4.4 Week 4:

This week, I sold TSLA’s stock after its huge increase from October 24th. This is because Tesla announced its third-quarter revenue of $6.3 billion and earnings per share on the 23rd [11]. It was obviously such a significant number that people were impressed and started regarding the value of Tesla much more highly, causing the stock value to increase about 17.7%, as shown in Figure 4.4.1, circled inside. I sold the stock right away because I decided that a profit of $1,978 is good enough and because I was concerned about a potential drop if I kept the stock. Other stocks like MSFT, GOOGL, and APPL all showed increased values by the end of the week, but I kept them because none of them reached my desired value yet. APPL (currently $246) and GOOGL (currently $1,264) are very close to reaching my desired stock value (APPL-$247 and GOOGL-$1,270) and therefore I will most likely be able to sell them next week.
Stocks that were bought last week, which are CSQ and SRCE, both experienced gains over the past week. There were some points where the MACD graph indicated a potential decrease, but the stocks were not at my desired value yet, so I decided to wait. As a result, luckily, the MACD graph showed a rising trend indicator again after subtle ups and downs, circled in Figure 4.4.2 and Figure 4.4.3, and price started going up again. Therefore, I decided to keep these stocks for this week.
Figure 4.4.2 Investopedia CSQ

Figure 4.4.3 Investopedia SRCE
<table>
<thead>
<tr>
<th>Date</th>
<th>Symbol</th>
<th>Buy/Sell</th>
<th>Price</th>
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<th>Profit/Loss</th>
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<th>Total Profit</th>
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<td>1,978.00</td>
<td>70,686.54</td>
<td>1,989.00</td>
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</table>

Table 4.4.1 Week 4 Transaction

4.5 Week 5:

This week, stocks of AAPL and MSFT reached the price that I had been aiming for. Therefore, I sold them and made around $1,000.00 in total. I bought 1800 shares from SIRI and later decided to sell them all at a same price on the same day. This is because I realized that the stock shows such subtle change in its value that it is more difficult to use the MACD indicator to predict its trend line.

CSQ was not showing much difference in its stock value over the last two weeks and therefore I decided to sell it when the MACD line was showing declining trend while crossing the signal line, circled in Figure 4.5.1. This is because I wanted to sell the stock before I start losing money and to invest the money in some other stocks that are more active later. Overall profit I made with CSQ stock is $25.

SRCE stock showed a steady increase since I purchased it, and I decided to sell it when the declining MACD indicator crossed the signal line on the 28th, circled in Figure 4.5.2, leaving me with a profit of $181.
Figure 4.5.1 Investopedia CSQ

Figure 4.5.2 Investopedia SRCE
300 shares of AMTD were purchased on the same day (10/28) in a hope of increasing trend, as the MACD indicator shows, circled in Figure 4.5.3. Although the purchase was done after the MACD line crossed the signal line, its slope seemed steep enough compared to the signal line to make me think that it will be worth waiting for the price to go up in the future.

![Figure 4.5.3 Investopedia AMTD](image)

Table 4.5.1 Week 5 Transaction

<table>
<thead>
<tr>
<th>Date</th>
<th>Symbol</th>
<th>Buy/Sell</th>
<th>Price</th>
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<th>Net Cost/Proceeds</th>
<th>Profit/Loss</th>
<th>Total Cash</th>
<th>Total Profit</th>
</tr>
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<td>0.00</td>
<td>83,071.04</td>
<td>3,238.60</td>
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</table>
4.6 Week 6:

This week, I sold GOOGL stock because it finally reached and even exceeded my desired value of $1,270. Because I only bought three shares of GOOGL, I only made $238.68 which is not a significant amount, relatively speaking. I am starting to learn that I should invest more amount for a more return. AMTD stock, which was purchased last week, kept increasing as expected by the increasing MACD trend line until the trend line showed negative crossing point, circled in Figure 4.6.1. I sold it because it was a signal to sell, and a profit of $204 was made. Some other stocks such as TMUS, LULU, and SBAC were newly bought this week as the MACD indicators were all predicting the increase of stock values, circled in Figures 4.6.2, 4.6.3, and 4.6.4. I sold stock of LULU the day after the purchase because it showed decreasing MACD indicator after the steep increase, also circled in Figure 4.6.4; this trade resulted in a profit of $420. Lastly, I decided to sell ADI’s stock after a long wait to avoid loss. After five weeks of constant negative net cost (loss), it finally recovered the loss on November 5th. I made sure to look at the MACD indicator and sold it right after the indicator showed potential decreasing trend line, circled in Figure 4.6.5.
Figure 4.6.1 Investopedia AMTD

Figure 4.6.2 Investopedia TMUS
Figure 4.6.3 Investopedia LULU

Figure 4.6.4 Investopedia SBAC
Figure 4.6.5 Investopedia ADI

Table 4.6.1 Week 6 Transaction
4.7 Week 7:

This week, I sold SBAC stock that was purchased last week. It was sold right after the MACD line started decreasing while crossing the signal line, circled in Figure 4.7.1. It was a good decision to sell because the indicator was correct in predicting the price fall afterwards. Additionally, four more stocks (AVGO, WDAY, TEAM, and ADSK) were bought using the MACD trendline. Each point circled in Figures 4.7.2 through 4.7.5 below represents the moment when increasing trend was about to occur, which is when I made the purchase. The values increased after the purchase, and I sold AVGO stock the day after the purchase when the indicator started predicting falling trend, also circled in Figure 4.7.2. I am looking to sell the other three (WDAY, TEAM, and ADSK) next week when the indicator starts predicting decreasing trend.

Figure 4.7.1 Investopedia SBAC
Figure 4.7.2 Investopedia AVGO

Figure 4.7.3 Investopedia WDAY
Figure 4.7.4: Investopedia TEAM

Figure 4.7.5: Investopedia ADSK
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<th>Net Cost/Proceeds</th>
<th>Profit/Loss</th>
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<th>Total Profit</th>
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</tr>
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<td></td>
<td>-12,846.94</td>
<td>4,787.28</td>
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</table>

Table 4.7.1 Week 7 Transaction

4.8 Week 8:

This week, the most amount of profit so far per week was made ($1,950). As shown in the circled points in Figures 4.8.1 through 4.8.3, stocks from TEAM, ADSK, and WDAY were bought right after the MACD trendline started indicating the decreasing trend. As expected, stock values of TEAM and ADSK started decreasing after they were sold. However, stock value of WDAY rather significantly increased even after the indicator predicted downfall. Even though the amount of profit was still quite significant ($470), I would have made more profit if I had waited longer; this sets a good example of the fact that indicators used in technical trading methods are not always correct.

Another notable trade for this week is that I finally sold OKE’s stock which was purchased during the first week. Because I failed to sell the stock at the right moment, OKE’s stock value kept repeating to decrease and increase and never made profit. Therefore, I decided to sell the stock when I can lose the least amount, resulting in my first loss with an amount of $6.40.

Finally, LPLA’s stock was purchased after the trendline predicted the increasing trend, which is the crossing point of the MACD-signal line circled in Figure 4.8.4. Even though the stock has been both increasing and decreasing by small amount afterwards, I am still waiting for a chance
for its value to increase by enough amount until the indicator predicts the downfall again, at which point I will decide to sell the stock.
Figure 4.8.3 Investopedia WDAY

Figure 4.8.4 Investopedia LPLA
<table>
<thead>
<tr>
<th>Date</th>
<th>Symbol</th>
<th>Buy/Sell</th>
<th>Price</th>
<th>Shares</th>
<th>Net Cost/Proceeds</th>
<th>Profit/Loss</th>
<th>Total Cash</th>
<th>Total Profit</th>
</tr>
</thead>
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<td>TEAM</td>
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<td>6,273.78</td>
</tr>
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<td>36,228.00</td>
<td></td>
<td>31,376.06</td>
<td>6,273.78</td>
</tr>
<tr>
<td>11/19/2019</td>
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<td>Sell</td>
<td>167.42</td>
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<td>33,484.00</td>
<td>470.00</td>
<td>64,860.06</td>
<td>6,743.78</td>
</tr>
<tr>
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<td>20</td>
<td>1,434.20</td>
<td>-6.40</td>
<td>66,294.26</td>
<td>6,737.38</td>
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</tbody>
</table>

Table 4.8.1 Week 8 Transaction

4.9 Week 9:

This week, only two trades were done. I sold LPLA when it reached the MACD crossing point for downfall indicator, circled in Figure 4.9.1 below. Even though there were times when the LPLA stock increased after it was predicted to be increasing, I either missed the opportunity to sell or the value was not high enough for me to sell. Additionally, I bought stock from ILMN (Illumina Inc.) at the circled point in Figure 4.9.2 below. Normally, I make purchase after MACD indicates increasing trend; however, as shown in Figure 4.9.2, I tried to predict the indicating trend so that I can even aim to make purchase at even lower price than buying after the indicator. This is because there is always a delay in price change (stock value having been already increased after the increasing trend is predicted) when I use the indicator. Unfortunately, this method failed and the stock rather kept decreasing. Therefore, I will be waiting until next week for the stock to increase again.
Figure 4.9.1 Investopedia LPLA

Figure 4.9.2 Investopedia ILMN
<table>
<thead>
<tr>
<th>Date</th>
<th>Symbol</th>
<th>Buy/Sell</th>
<th>Price</th>
<th>Shares</th>
<th>Net Cost/Proceeds</th>
<th>Profit/Loss</th>
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<th>Total Profit</th>
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</thead>
<tbody>
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<td>103,018.26</td>
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</tr>
<tr>
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<td>32,028.00</td>
<td>60,840.26</td>
<td>7233.38</td>
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</tr>
</tbody>
</table>

Table 4.9.1 Week 8 Transaction

4.10 Week 10:

This week, which is the final week of the 10-week trading period, a total of five trades were done with stocks from the three companies: CVCO, ENTA, and ILMN. Circled in Figure 4.10.1 is when the purchase of CVCO stock was made after increasing trend was predicted. However, unlike the steady graph of MACD trend line, the stock value kept fluctuating (even though it ended up increasing by December 9th). Therefore, I was not sure about the prediction and decided to sell the stock before the possible result of more loss, ending up with a loss of $4.00.

Figure 4.10.1 Investopedia CVCO
ENTA stock was newly bought and sold this week as well. The two points circled in Figure 4.10.2 below indicate when the stock was bought and sold from left to right, respectively. Notice that I missed the first decreasing point to sell the stock right after the purchase because the change happened in approximately 3 hours, during which I did not check the graph. Fortunately, the value increased again and I sold the stock at the second decreasing point. Additionally, ILMN stock was sold after the trend line indicated decreasing trend, circled in Figure 4.10.3. Finally, TMUS stock was sold with a loss; even though I was waiting for a significant increasing trend line for a long time, there was none. Therefore, I had to sell the stock to wrap up the simulation and ended up with a loss of $187.72.

Figure 4.10.2 Investopedia ENTA
Figure 4.10.3 Investopedia ILMN

<table>
<thead>
<tr>
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<th>Symbol</th>
<th>Buy/Sell</th>
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<th>Shares</th>
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<td>12/5/2019</td>
<td>ENTA</td>
<td>Sell</td>
<td>63.68</td>
<td>500</td>
<td>31,840.00</td>
<td>170</td>
<td>103,963.26</td>
<td>8,178.38</td>
</tr>
<tr>
<td>12/6/2019</td>
<td>ILMN</td>
<td>Sell</td>
<td>328.07</td>
<td>100</td>
<td>32,807.00</td>
<td>779</td>
<td>72,123.26</td>
<td>8,008.38</td>
</tr>
<tr>
<td>12/6/2019</td>
<td>ENTA</td>
<td>Sell</td>
<td>63.45</td>
<td>50</td>
<td>4027.40</td>
<td>-187.72</td>
<td>107,990.66</td>
<td>7,990.66</td>
</tr>
</tbody>
</table>

Table 4.10.1 Week 10 Transaction
5. Simulation 2: Swing Trading & Short Selling

Simulation 2 will run for a period of 10 tens with a starting balance of $100,000. As a stock stimulator, Investopedia will be used at zero commission to reflect the current stock prices. This simulator will pay specific attention to more short-term trading, such as swing trading and short selling. However as one of the objectives is to earn a profit, Simulation 2 will not object or oppose to using more long-term strategies if a promising investment opportunity is discovered. There is will at most ten different companies in which trading will take place. While most traders spend a large portion of time into researching the companies to invest in, this simulation will conduct a less thorough background. Other factors that will be considered when deciding on which companies to invest in are the trend and the stock’s overall performance. Based off the research and overall judgement of the trader, the strategies used as well as the holding period will be catered to the stock’s performance. All trades and activities will be recorded and summarized in weekly reports. Such reports will include a more in-depth analysis as well as the trader’s insight and plans for the upcoming week. This simulation will focus on swing trading and short selling. Other analytical methods that will be used but are not limited to are moving averages, Bollinger Band, Relative Strength Index (RSI) and possibly other technical and theoretical indicators.

5.1 Week 1:

During my research of possible companies to invest in, a few have stood out. The company, Tellurian Inc. is specialized in the field of liquified natural gas (LNG), has recently gain much attention on the news. A deal between the Houston company Tellurian and India’s Petronet LNG has been made, making it one of largest supply deals in the U.S. As a result, this company has
intrigued me, and thus after viewing the overall trend as seen below, there are some key indicators worth noting.

It appears the trend has been going down rather steadily up until the middle of August where a massive jump occurred followed by a fall. Such feature on the graph gives me the idea that the spike was a result from “pump and dump” (P&D). Such spike occurred around the same time as TELL began to gain traction, perhaps even during the time the deal was beginning discussed and finalized. As shown in the graph, even after the spike, the trend can still pick itself back up leading me to believe that there is a possible chance of profiting over time.

Figure 5.1.1 Investopedia TELL (April 2019 - late September of 2019)

Another company that I have been monitoring for some time now and am very familiar with is the music streaming company, Spotify (SPOT). SPOT has been around for some time now, but its stocks were only released to the public in 2018. It is important to note in Figure 5.1.1 that the company hit reached its lowest point around early December of 2018, before picking itself
back up again before the new year. As shown in the graph, the trend is reaching close to said low point. Thus, swing trading will be the best method of trading as prices will most likely pick up again in the span of a few weeks to a month.

Figure 5.1.2 Investopedia SPOT (Mid-April 2019 - Late September of 2019)

While articles have stated that the company, Snapchat (SNAP) have been performing surprisingly well, I still have my premonitions about investing in this company. While the trends are stable, and dips are not as drastic and evident, SNAP seems rather safe than the other companies that I have looked at. However, as a user of SNAP, I do not believe that SNAP will continue to climb upwards due to the loss of popularity in the future. Most of the functionalities SNAP provides are offered on other social media platforms like Instagram. Not only that, but the user age demographic is quite slim compared to SNAP’s major competitors. Only appealing to kids and young adults, SNAP according to my judgement might not be worth investing in.
As part of my research, I have been reading up on the news regarding to the U.S. and the United Postal Union (UPU). While tensions are high, if the U.S. do decide to pull out of the UPU, postal service companies like FedEx and UPS should in turn benefit. Not to mention that FedEx is working on making their mailing services more efficient by researching and experimenting, their stock performance should be doing better in theory. Yet their stock performance as shown in Figure 5.1.3 do not reflect this premonition. With such a drastic dip during around mid-September, it seems as though it is slowly and gradually continuing this downward trend. Therefore, like SPOT, I think the best thing to do is use swing trading for the FDX stocks. Prices will only rise now with such a dip.
Table 5.1.1 Week 1 Transaction (09/30-10/6)

<table>
<thead>
<tr>
<th>Date</th>
<th>Symbol</th>
<th>Buy/Sell</th>
<th>Price</th>
<th>Shares</th>
<th>Net Cost/Proceeds</th>
<th>Profit/Loss</th>
<th>Total Cash</th>
<th>Total Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/30/19</td>
<td>FDX</td>
<td>Buy</td>
<td>145.31</td>
<td>25</td>
<td>3,632.75</td>
<td>0</td>
<td>96,367.25</td>
<td>0</td>
</tr>
<tr>
<td>9/30/19</td>
<td>TELL</td>
<td>Buy</td>
<td>7.88</td>
<td>20</td>
<td>157.60</td>
<td>0</td>
<td>96,209.65</td>
<td>0</td>
</tr>
<tr>
<td>9/30/19</td>
<td>SPOT</td>
<td>Buy</td>
<td>112.05</td>
<td>25</td>
<td>2,801.25</td>
<td>0</td>
<td>93,408.40</td>
<td>0</td>
</tr>
</tbody>
</table>

With a starting budget of $100,000, I started slow, only buying about 20 to 25 shares per company. I was not very confident in my skills in buying shares therefore I avoided spending a large amount of money in the very beginning of this simulation. For a more detailed and in depth look on the stocks I invested in, see Table 5.1.1. At the beginning of my trading, I was in the red as all three of my investments were not performing well. It was only towards the end of this week did my shares gain value. SPOT shares have increased a bit over $4 since I last purchased them.
while FDX continues to lose value. While the price of its shares has increased towards the end of this week, its final closing price was still $2 short from when I purchased them. Therefore, I think it’s reasonable to establish a sell price, so that if the price of a share ever dips below this said value, the best plan of action is to sell. As for TELL, I think I can still profit from the company for a few more days before I will have to sell them as well. By analyzing the graphs, I noticed that the price per share tends to vary between $7 and $9. Therefore at $8.48, I don’t believe the price per share will increase that much more.

As I mentioned above, I plan to sell my shares for TELL, however before doing so I will conduct a more technical analysis on that. I plan to invest in more companies as well as buying more shares and utilizing my budget even more. I have researched more companies that I would like to invest it and have listed them below, especially when the company is not doing much that would gain the attentions of new potential investors.

![Figure 5.1.5 Investopedia COP (Mid-April – Oct. 4)](image_url)

Figure 5.1.5 Investopedia COP (Mid-April – Oct. 4)
The company, ConocoPhillips’ main purpose is on the exploration, development, and production of energy (oil and natural gas). As shown in Figure 5.1.5, the company is experiencing a dip in their stock as a result of a recent peak. The cost per share has not been this low since before the peak in September. Prior to that, it was during March of 2018 before the company peaked again. However, this could all be a coincidence since there is no real news articles found that could support or provide insight as to why these trends are behaving this way. Nor were there any articles that suggested another peak coming. Given that COP is a well-established company that has been in business for a long time now, I do not believe that even if this company were to face difficulty and backlash, it will not be enough to put it out of business. This company is stable therefore I am willingly to invest in it but not as much as the company I will later discuss.

![Figure 5.1.6 Investopedia NAKD (2012 - Current)](imageURL)

The Naked Brand Group is an Australian intimate and swimwear company. I stumbled upon this company while looking at the list of companies in NASDAQ. This one particularly intrigued me due to its current low cost and its high potentials. As shown in Figure 5.1.6, the company has
drastically peaked twice in 2015 and 2018. With the current price per share being as low as 0.0475 cents, such price hasn’t been seen since before the first peak occurred back in 2015. At the other hand, there is not much news on NAKD making me believe that the company has not changed much in the last year or two. However, with such low cost, I think this company is worth investing in. Even if the company does not perform well in the next week, the amount lost will not be as significant compared to the potential losses from my other investments.

5.2 Week 2:

This week my portfolio changed quite a bit. I invested in four new companies adding up to a total of six companies in my portfolio. Within the week, I ended up selling my shares for TELL and SPOT. While I wanted to invest in NAKD, I did not realize until within the week that Investopedia prohibits users from buying shares that value less than a dollar. Given at the time the price per share was less than five cents, I decided to abandon this company and research elsewhere. The new investment opportunities I later discovered, provide a more promising outcome.

Figure 5.2.1 Investopedia ZM (Mid-July – Oct. 14)
One of the new companies I invested in this week is called Zoom Video Communications Inc (ZM). I have been researching this company for the past week and a half and I believed that this company was a good investment. Although I was confident in this company, one of the biggest problems I faced was determining the right time to jump in and invest. As a result, I started looking at indicators and applying them to my research. In Figure 5.2.1, I utilized the Bollinger Bands as well as the Relative Strength Index (RSI). Analyzing the bands, the current trend falls within the upper and lower bands thus conveying that the stock was neither overbought nor oversold. Although the trend was evidently trending towards the lower band, I decided to apply the RSI indicator to receive further information. Under the traditional RSI conditions, I set the upper band at 70% and the lower band at 30% level. I noticed a dip underneath the 30% level, thus indicating that the stock was oversold. Such dip can be seen within the red circle in the RSI section.

Figure 5.2.2 Investopedia SRNE (Mid-June - Oct.14, 2019)
Sorrento Therapeutics Inc (SRNE) is a biopharmaceutical company that has recently caught my attention. After learning more about Bollinger Bands, I found that a lot of my research was applicable for this company. Within the red squares in Figure 5.2.2, it shows the upper and lower band close together, as if the bands were “squeezing” together. When this occurs, there is always a high chance that the following bands will expand outwards. Therefore, the stock will either trend upwards or downwards. Unfortunately, the stock trended downwards while I was still holding onto its shares. However, given that the cost per share is comparably low, I’m planning on holding onto the shares a little longer to see how it will perform next week.

I stumbled upon this company while looking into the list of companies within NASDAQ. Normally I would conduct a little bit more background research on a company before investing, however given that the graph, showed in Figure 5.2.3, resembled the way it did, I was confident that a profit could be made. The trend dipped significantly under the 30% level band in the RSI as well as in the Bollinger Band.

Figure 5.2.3 Investopedia YNDX (Mid-June - Oct. 14)
This company caught my attention due to its strong upward spike that occurred this weekend. I later realized that such occurrence was due to the recent signing of a Merger Agreement with Australian Future Energy. With such performance resulting from the actions of the company, indicators like RSI and Bollinger Bands are not as reliable. Prior to such strong spike, the upper and lower bands were shown tightly “squeezed” indicating that the bands will most likely expand outwards, yet signs that the stock was going to drive upwards so strongly was not apparent. Therefore, instead of buying, I am planning on short selling this stock, since the last time the cost per share reached this price was in November of 2018. As a result, I strongly believe that the stock will not stay at such high value within the coming days.
To summarize this entire weeks’ worth of activity, please see Table 5.2.1 for a more detailed and organized chart of transactions.

<table>
<thead>
<tr>
<th>Date</th>
<th>Symbol</th>
<th>Buy/Sell</th>
<th>Price</th>
<th>Shares</th>
<th>Net Cost/Proceeds</th>
<th>Profit/Loss</th>
<th>Total Cash</th>
<th>Total Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/11/19</td>
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<td>20</td>
<td>169.80</td>
<td>-12.20</td>
<td>93,578.20</td>
<td>12.20</td>
</tr>
<tr>
<td>10/09/19</td>
<td>SPOT</td>
<td>Sell</td>
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<td>2,890.25</td>
<td>-89.00</td>
<td>96,468.45</td>
<td>101.20</td>
</tr>
<tr>
<td>10/07/19</td>
<td>COP</td>
<td>Buy</td>
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<td>0</td>
<td>95,379.45</td>
<td>101.20</td>
</tr>
<tr>
<td>10/11/19</td>
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<td>Buy</td>
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<td>0</td>
<td>95,341.95</td>
<td>101.20</td>
</tr>
<tr>
<td>10/14/19</td>
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<td>92,523.55</td>
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</tr>
<tr>
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<td>0</td>
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<td>101.20</td>
</tr>
<tr>
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<td>525.20</td>
<td>0</td>
<td>91,808.75</td>
<td>101.20</td>
</tr>
</tbody>
</table>

Table 5.2.1 Week 2 Transaction (10/7-10/14)

5.3 Week 3:

This week I focused on selling rather than buying. I ended up covering the stock I shorted last week which was SES. As predicted, the stock did indeed decrease significantly, which proves that short selling was the right strategy to use. Since the stock decreased below $8.98, more of a profit could have been made if I had sold the stock at the right time. For a more graphical representation of the amount I profited, the black circle in Figure 5.3.1 shows roughly where I bought the stock on the trend, and the red circle represents where I shorted it.
The other stock I ended up selling was SRNE. I sold all my shares and had later realized that I made the same mistake as I did with SES. Again, had I miss my chance of earning as much as I possibly could. As shown in the red circle in Figure 5.3.2, I only decided to sell once the trend started to peak. By that time, it had already dipped below $1.70 per share.

Figure 5.3.1 Investopedia SES (August 2019 – 10/25/2019)

Figure 5.3.2 Investopedia SRNE (August 2019 – 10/25/2019)
So far in the 3 weeks of trading, I have profited the most from short selling my shares from SES. Having only held the stock for 3 days, I had already earned $166 as seen in Table 5.3.1. One major thing I would like to improve on is the timing of each sale. It appears I could be profiting more if I can figure out a way to determine when the best time will be to sell my shares. Going forward, I need to monitor the stocks more frequently and as well perhaps incorporate more graphical indicators in my analysis.

<table>
<thead>
<tr>
<th>Date</th>
<th>Symbol</th>
<th>Buy/Sell</th>
<th>Price</th>
<th>Shares</th>
<th>Net Cost/Proceeds</th>
<th>Profit/Loss</th>
<th>Total Cash</th>
<th>Total Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/17/19</td>
<td>SES</td>
<td>Cover Short</td>
<td>8.98</td>
<td>40</td>
<td>359.20</td>
<td>166.00</td>
<td>91,449.55</td>
<td>267.20</td>
</tr>
<tr>
<td>10/17/19</td>
<td>SRNE</td>
<td>Sell</td>
<td>1.68</td>
<td>25</td>
<td>42.00</td>
<td>4.50</td>
<td>91,491.55</td>
<td>271.70</td>
</tr>
</tbody>
</table>

Table 5.3.1 Week 3 Transaction (10/15-10/21)

5.4 Week 4:

This week I only invested in one new company called Universal Forest Products (UFPD). After noticing a strong spike that occurred on Oct. 23rd, I expect the performance of the stock to decrease within the next few days. As apparent on the graph in Figure 5.4.1, the company’s stocks experienced a strong spike as a result of the recent release of their quarter 3 earnings. As indicated by the Bollinger bands and RSI, this trend is completely outside of its expected range thus suggesting the stock has been overbought. As a result, the stock will most likely fall back down as it has already surpassed the 70% level within the RSI. Therefore, I decided to short 30 shares of UFPI in hopes to cover the stocks within the next few days when prices decrease significantly.
I ended up selling my shares to YNDX and only earned $67.20. The purpose of selling was simply because holding it caused too much stress. The cost per share had been slowly rising and falling since I purchased it on 10/14/2019. Therefore, when the stock finally rose to a reasonable price, I sold it without any further analysis. To see a more detailed summary of this week’s transactions, see Table 5.4.1 below.

<table>
<thead>
<tr>
<th>Date</th>
<th>Symbol</th>
<th>Buy/Sell</th>
<th>Price</th>
<th>Shares</th>
<th>Net Cost/Proceeds</th>
<th>Profit/Loss</th>
<th>Total Cash</th>
<th>Total Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/25/19</td>
<td>YNDX</td>
<td>Sell</td>
<td>32.68</td>
<td>40</td>
<td>1,307.20</td>
<td>67.20</td>
<td>92,798.75</td>
<td>338.90</td>
</tr>
<tr>
<td>10/25/19</td>
<td>UFPI</td>
<td>Short</td>
<td>50.52</td>
<td>30</td>
<td>1,515.60</td>
<td>0</td>
<td>94,314.35</td>
<td>338.90</td>
</tr>
</tbody>
</table>

Table 5.4.1 Week 4 Transaction (10/22-10/27)
5.5 Week 5:

This week I have paid special attention to Yahoo Finance and the newly released quarter 3 earnings. I have noticed in the trends of many different companies that their quarterly earnings report directly transfers onto these graphs. If the company reports favorable results, the cost per share for that stock increases and vice versa. Therefore, I thought these earnings reports was worth researching as many companies were scheduled to announce their quarter 3 earnings this week. On Yahoo Finance, it provides not only the actual reported earnings per share (EPS), but also an estimate EPS prior to the time the earnings are released. One company that caught my attention more than others was Alphabet Inc. (GOOG), because of its estimated EPS. Estimated at $12.42, the cost per share has already been increasing prior to GOOG announcement day. Therefore, the stock can be considered overbought as people like myself have been anticipating a strong spike in the trend. As reported by GOOG, the earning reports were scheduled from release after the market closes on October 28th. To much of everyone’s surprise the actual EPS was $2 short of what was estimate. As seen in the orange rectangle in Figure 5.5.1, the decrease in the trend is a direct response to GOOG quarter 3 earnings report. As a result, I decided to put my shares up for sale right when the market opens back up the next day.
I ended up selling my shares to ZM. Due to poor judgement, I thought this company was worth investing in weeks ago due to my analysis of its trends. Since then, the company has not been performing well and for many weeks I have been losing money as a result. Once the cost per share exceeded the initial price, I sold all 40 shares.

As for COP, I realized that the company was announcing their quarterly earnings this week as well. Given that I had already invested in this company a few weeks prior, I had to opportunity to sell my shares prior to when the stock releases its actual earnings due to how people were responding the stock. As seen in the orange rectangle in Figure 5.5.2, the cost per share spiked from October 28th to October 29th. While COP did report an EPS slightly higher than the estimated value, the company also announced that the following quarter may not perform as well as quarter 3. Such claims must have been the reason as to why the stock dropped significantly even after reporting favorable earnings. As a result, I decided to sell a few days after such a miss.
I have invested in FDX since week 1 and only during this week did I end up selling my shares. The red circles in Figure 5.5.3 depict when I initially invested in the stock up until the day I sold it. During the first few weeks after buying 25 shares, the company was not performing that well. After week 3 the stock had taken a turn and was gaining traction. Since then, the cost per share had been increasing stably up until a few days ago where it dipped. Due to uncertainty, I decided to sell my shares on October 31st, which unfortunately was not the best call because as seen in the figure mentioned above, the graph trended upwards the next day.

The table below, Table 5.5.1, summarizes this week’s activity. Overall, this week I ended up selling a large majority of my stocks, therefore this following week I will be more focused on investing.
Figure 5.5.3 Investopedia FDX (Sep. 2019 – 11/01/2019)

<table>
<thead>
<tr>
<th>Date</th>
<th>Symbol</th>
<th>Buy/Sell</th>
<th>Price</th>
<th>Shares</th>
<th>Net Cost/Proceeds</th>
<th>Profit/Loss</th>
<th>Total Cash</th>
<th>Total Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/28/19</td>
<td>GOOG</td>
<td>Buy</td>
<td>1,275.45</td>
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<td>12,754.50</td>
<td>0</td>
<td>81,559.65</td>
<td>338.90</td>
</tr>
<tr>
<td>10/29/19</td>
<td>GOOG</td>
<td>Sell</td>
<td>1,276.23</td>
<td>10</td>
<td>12,762.30</td>
<td>7.80</td>
<td>94,321.95</td>
<td>346.70</td>
</tr>
<tr>
<td>10/31/19</td>
<td>ZM</td>
<td>Sell</td>
<td>69.52</td>
<td>40</td>
<td>2,780.80</td>
<td>-37.60</td>
<td>97,102.95</td>
<td>309.10</td>
</tr>
<tr>
<td>10/31/19</td>
<td>COP</td>
<td>Sell</td>
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<td>10/31/19</td>
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<td>3,803.75</td>
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<td>101,999.10</td>
<td>483.50</td>
</tr>
</tbody>
</table>

Table 5.5.1 Week 5 Transaction (10/28-11/01)

5.6 Week 6:

This week I invested in the company, Booking Holdings Inc (BKNG). As reported on Yahoo Finance, BKNG had an estimated EPS of 44.15, which was significantly more than all the other EPS. With such a high estimated EPS, it seemed a bit unlikely for the company to either hit or surpass such estimation. While the cost per share was already declining, I decided that I was
going to short sell the shares for BKNG. The company had announced that its third quarter earnings report will be released after the market closes on 11/07/19. I decided to short 10 shares at the cost of $2,006.67 per share under the premonition that the cost will decrease much more once the earnings report is released. As depicted in Figure 5.6.1, the red circle represents where in the trend I invested in the shares. The next day, (11/07/19), the company’s stocks dropped significantly as shown in the figure. Unable to determine whether the stock will continue to decrease or not, I ended up buying to cover 5 shares first at $1,909.50. After about twenty minutes of watching the trend dip down even more, I ended up buying 5 more shares to cover at $1,871.91.

Figure 5.6.1 Investopedia BKNG (Oct. 2019 – 11/08/2019)

Another company I had invested in this week was the Walt Disney Company (DIS). Like BKNG, the company’s third quarter earnings report was scheduled to be released after the market closes on 11/07/19. Even if the released EPS turns out less than estimated, I am still confident in the company’s future performance due to the upcoming events for the company. On 11/12/19, DIS is scheduled to release its newest streaming service to the public and I have faith that it will receive
positive feedback. As seen in Figure 5.6.2, I purchased 50 shares at a price of $131.26 each as represented in the red circle. Fortunately, DIS reported earnings was more than what was projected, therefore the trend experienced a strong spike. I plan to hold the shares for another few days just to see how well the public reacts to the new feature DIS is releasing. For more details on the total profit earned and overall activity summary, see Table 5.6.1 below.

![Figure 5.6.2 Investopedia DIS (May 2019 – 11/08/2019)](image)

<table>
<thead>
<tr>
<th>Date</th>
<th>Symbol</th>
<th>Buy/Sell</th>
<th>Price</th>
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<th>Net Cost/Proceeds</th>
<th>Profit/Loss</th>
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<th>Total Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/06/19</td>
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<td>$6,563.00</td>
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<td>483.50</td>
</tr>
<tr>
<td>11/06/19</td>
<td>BKNG</td>
<td>Short</td>
<td>$2,006.77</td>
<td>10</td>
<td>$20,067.70</td>
<td>0</td>
<td>115,503.80</td>
<td>483.50</td>
</tr>
<tr>
<td>11/07/19</td>
<td>BKNG</td>
<td>Cover</td>
<td>$1,909.50</td>
<td>5</td>
<td>$9,547.50</td>
<td>486.35</td>
<td>105,956.30</td>
<td>969.85</td>
</tr>
<tr>
<td>11/07/19</td>
<td>BKNG</td>
<td>Cover</td>
<td>$1,871.91</td>
<td>5</td>
<td>$9,359.55</td>
<td>674.30</td>
<td>96,596.75</td>
<td>1,644.15</td>
</tr>
</tbody>
</table>

Table 5.6.1 Week 6 Transaction (11/04-11/08)
5.7 Week 7:

This week I mainly focused all my attention to my shares from DIS. I have invested in 50 shares in the prior week and had a strong interest in selling all of it this week. The reason being is that last week the company’s third quarterly earnings report was announced, and the company did better than expected. The company reported an EPS of 1.07, which was more than 0.95, the EPS that was estimated. While their stocks did experience an increase, I decided to hold onto my shares because I anticipated a greater earning opportunity later. This opportunity involved the newly released Disney streaming service, Disney+. As expected, the cost per share increased strongly on 11/12/19, the day the service released to the public. What I did not expect was that the stock was going to drop the very next day. As I had read a lot of articles regarding to the feedback Disney+ was getting, a good majority of it was positive. Therefore, I thought that the stock will continue to climb, slowly. This however did not occur. As shown in Figure 5.7.1, the first red star represents where on the trend I bought my shares. The last red star represents where on the trend I decided to sell. As shown on the graph, I missed the chance to sell my shares when it peaked on the graph. Overall, I did profit from investing in DIS, however I could have earned just a bit more. For a more detailed transaction see Table 5.7.1 below.

Next week I plan to invest in a lot more companies and even consider more long-term options. I am still holding onto my shares from UFPI and only this week did I begin to consider covering the short. However, the cost per share is not low enough to my liking, therefore I will have to see what happens this coming week.
Figure 5.7.1 Investopedia DIS (Sep. 2019 – 11/15/2019)

<table>
<thead>
<tr>
<th>Date</th>
<th>Symbol</th>
<th>Buy/Sell</th>
<th>Price</th>
<th>Shares</th>
<th>Net Cost/Proceeds</th>
<th>Profit/Loss</th>
<th>Total Cash</th>
<th>Total Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/14/19</td>
<td>DIS</td>
<td>Sell</td>
<td>$147.82</td>
<td>50</td>
<td>$7,391.00</td>
<td>828.00</td>
<td>103,987.75</td>
<td>2,472.15</td>
</tr>
</tbody>
</table>

Table 5.7.1 Week 7 Transaction (11/11-11/15)

5.8 Week 8:

This week I invested in the company Paypal (PYPL). After having analyzed PYPL quarterly earnings report, I realized that the company has consistently been surpassing its estimated EPS. It has been noticed that PYPL have been buying more companies in the past two years, its most recent purchase would be of the company called Honey. The clear purpose of such acquisitions is to expand PYPL network. While such spending may have caused its stock to react negatively, the company’s goal is met as each quarterly earnings report result is revealed to be better than expected.
Now that the holidays are approaching, e-commerce stores will most likely flourish on days like Black Friday and Cyber Monday. With all the shopping that will be conducted this coming week, it’s hard to believe that PYPL stock’s will not sore. The transaction conducted can be seen in detail in Table 5.8.1 below.

<table>
<thead>
<tr>
<th>Date</th>
<th>Symbol</th>
<th>Buy/Sell</th>
<th>Price</th>
<th>Shares</th>
<th>Net Cost/Proceeds</th>
<th>Profit/Loss</th>
<th>Total Cash</th>
<th>Total Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/21/19</td>
<td>PYPL</td>
<td>Buy</td>
<td>$102.57</td>
<td>20</td>
<td>$2,051.40</td>
<td>0</td>
<td>101,936.35</td>
<td>2,472.15</td>
</tr>
</tbody>
</table>

Table 5.8.1 Week 8 Transaction (11/18-11/22)

5.9 Week 9:

There was no trading this week. I had decided to continue to keep my shares from PYPL since the stock did not change much to my expectation and liking. A good majority of time this week was spent researching companies to invest in, specifically those that involve e-commerce. Yet to my surprise companies such as Amazon (AMZN), Macy’s (M), and other stores that would profit over the following days/week all performed below my expectation. While companies involved in retail are not particularly companies I would normally be interested in, I thought given around the time is was it’s stocks should be doing better than usual. More specifically, this is usually the time these companies come out with many sales and promotions that tempt those that normally conduct all their shopping online to the local malls and outlets. This is the time where people find the best items at lower cost either for themselves or for others as present for the next upcoming holiday being Christmas, Hanukkah, etc.,. The stocks of the companies I had been observing still had yet to increase after Thanksgiving Day, during Black Friday, a day known for the large discounts/sales.
5.10 Week 10:

This week I sold my shares from PYPL. The company’s performance did not increase as much as I had hoped for. Only earning a profit of $48.60, it seemed rather

![Investopedia PYPL Graph](image)

Figure 5.10.1 Investopedia PYPL (Sep. 2019 – 12/4/2019)

I also invested 20 shares this week into the company Amazon (AMZN). This company has been on my attention because of the past and upcoming events that would have profited most e-commerce businesses. Events such as Thanksgiving, Black Friday, and Cyber Monday. However, unexpectedly, the company’s performance dropped significantly on Thanksgiving Day, and kept dropping till Cyber Monday (12/2/19). As a result, I decided to invest in the company expecting the stock to increase after a few days, if not, two weeks’ time. The stock continued to drop the following day after I have already invested however that was understandable. What I did not consider was the fact that the trading period in this research report would conclude after the 10th week mark. Therefore, no matter how poorly the stock performed by the end of the period, it will
have to be sold. This resulted in a loss as seen in Figure 5.10.2. The last red circle shows the price I sold my shares, about $20 less than the original price, as depicted in the first red circle. I was confident that the stock will increase in the coming week, as can be seen in the figure where the trend is climbing upwards towards the end of this week. But given the deadline, I had no choice but to take the loss.

![Figure 5.10.2 Investopedia AMZN (Sep. 2019 – 12/4/2019)](image)

As the trading period commences, I also covered by share for UFPI, a stock that I would have stayed invested in if it were not for the deadline. For the longest time, the company would not trend downwards up until last week. I believed that if I had stayed invested for another week or so, its performance would have decreased significantly given that it was only a matter of time before it did just that. After selling my shares, I still profited yet not as much. For more details on all the activity and total earnings, see Table 5.10.1 below.
<table>
<thead>
<tr>
<th>Date</th>
<th>Symbol</th>
<th>Buy/Sell</th>
<th>Price</th>
<th>Shares</th>
<th>Net Cost/Proceeds</th>
<th>Profit/Loss</th>
<th>Total Cash</th>
<th>Total Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/4/19</td>
<td>PYPL</td>
<td>Sell</td>
<td>$105.00</td>
<td>20</td>
<td>$2,100.00</td>
<td>48.60</td>
<td>104,036.35</td>
<td>2,520.75</td>
</tr>
<tr>
<td>12/4/19</td>
<td>AMZN</td>
<td>Buy</td>
<td>$1,770.79</td>
<td>20</td>
<td>$35,415.80</td>
<td>0</td>
<td>68,620.55</td>
<td>2,520.15</td>
</tr>
<tr>
<td>12/6/19</td>
<td>AMZN</td>
<td>Sell</td>
<td>$1,751.60</td>
<td>20</td>
<td>$35,032.00</td>
<td>-383.80</td>
<td>103,652.55</td>
<td>2,136.95</td>
</tr>
<tr>
<td>12/8/2019</td>
<td>UFPI</td>
<td>Cover</td>
<td>$49.17</td>
<td>30</td>
<td>$1,475.10</td>
<td>40.50</td>
<td>102,177.45</td>
<td>2,177.45</td>
</tr>
</tbody>
</table>

Table 5.10.1 Week 10 Transaction (12/2-12/6)
6. Analysis

Throughout the ten-week period, Simulation 1 used positional trading and technical trading method which included graphical analysis. Positional trading was used for trading stocks of big, well-known companies (Apple, Google, Microsoft, etc) that seem relatively stable compared to other companies in the long run. The result of the positional trading resulted in a profit as expected, proving the fact that these companies are worth waiting for a relatively long-term stock increase. For technical trading method, the MACD (Moving Average Convergence Divergence) trendline was used as indicator for stock increase/decrease; one critical thing I learned using the MACD indicator is that it is almost impossible to predict a big, long-term change of stock price with MACD indicator. After the first five weeks of trading, I realized that the MACD trendline is quite accurate in predicting daily change of stock prices. Therefore, most trades were completed within a day or two. Since price change within a day is not significantly big, I decided to increase the number of shares to buy so that a small increase in a single share can result in a significant amount of profit, which indeed resulted in a bigger profit than when I traded for the first five weeks. The only downside of this method is that I had to monitor the price change every hour or even more often after the stock was purchased since the prices change fast.

Overall, Simulation 1 earned a 7.99% profit by the end of the trading period, with about half of the profit coming from positional trading and the other half from technical trading. Considering the fact that my personal goal was to have a 5% profit rate, this trading simulation was well-performed, even though there would have been a room to improve if I had been able to monitor the stock price more often (mainly applicable to technical trading method).
Simulation 2 used several analytical methods to help assess their understanding on the stock’s performance as well as to assess in their decision making. Some analytical methods used include Bollinger Bands, Relative Strength Index (RSI), and moving averages. While relying on said methods as well as a few news articles helped Simulation 2 earn a bit of a profit, as seen in the beginning weeks of this period, significant profits were only made after discovering and utilizing the company’s quarterly earning reports. Such earning reports summarizes the company’s overall quarterly performance. Included in said report contains the EPS which was of heavy focus in Simulation 2. After having viewed the trends of several different companies, it was noticed that the company’s performance often is affected once their report is released to the public. For those who have been tracking the progress of a company, they may be able to predict the general results of the report beforehand. As a result, the company’s stock tends to either be overbought or oversold for a week or even a few days prior to the day the report is released. Simulation 2 analyzed the trends as well as made predictions of their own based off the projected EPS calculated by Yahoo Finance and the previous EPS values from past earning reports.

Overall, Simulation 2 earned a 2.17% profit by the end of ten weeks using swing trading and short selling. While a profit was still gained, there were several mistakes made that minimized the amount of money that could have been earned. While both investors of Simulation 1 and Simulation 2 experienced trader’s anxiety during the first week of the research, such stress continued to affect the performance of Simulation 2 for weeks after. Unable to make strategic decisions due to the fear of losing money, Simulation 2 not only was unable to invest in shares at large quantities but also was unable to expand its portfolio. While Simulation 1 gained a higher profit than Simulation 2, such success does not directly correlate to the different trading strategies used.
7. Conclusion

Our IQP was completely based on a ten-week stock market simulation. Prior to these ten-weeks, we conducted heavy research not only on good investment opportunities and trading strategies, but also on the overall inner workings of the stock market itself. Having each selected two trading strategies to investigate and analyze, we each conducted our own simulations. One investigating positional and technical trading and the other on swing trading and short selling, this report consist of our weekly entries summarizing our earnings and activity. Through the course of this report, our learning curve could be traced as the weeks went by. Our limited knowledge of stocks and all that relates was the key reason we had initially selected this on-campus project. Aspiring to learn more in this field as well as to gain hands on experience with no risk, allowed us to acquire a greater understanding of the stock market. Making it one of our goals to attain a better perception of trading, we hope that our findings may assist others with similar objectives.

After carefully analyzing the earnings from both simulations, it was apparent that Simulation 1 secured the higher profit. Even though positional and technical trading was the focus of Simulation 1, we concluded that these strategies cannot be the sole reason for its success over Simulation 2. Limitations made by Simulation 2 narrowed its own opportunity to profit more. Limitations such as consistently having a rather small portfolio heavily limited the investor’s potential in earning large profits. Even if these companies were all having great performances, other hindrances that would impend the success of Simulation 2 includes its small investments. Such investments of 10 to 20 shares from both large and small companies decreased the potential gains significantly. All said restrictions set by the investor for Simulation 2 were
nonexistent in Simulation 1, therefore allowing us to conclude that the profit earned is dependent of the trader and not on the specific trading strategies used.

The biggest difficulty our group faced was in the beginning weeks of our trading period. Having spent three weeks learning and teaching one another, we still felt unprepared for the world that is the stock market (Investopedia). With little to no real experience in investing, we were overwhelmed by our goal of earning a profit in this seemingly chaotic realm. Unsurprisingly, we found ourselves experiencing a bit of trader’s anxiety. Insecure about one’s investments at the fear of losing money prevented us from initially making sensible and strategic decisions. After the first two weeks had passed by, it became apparent that Simulation 1 was no longer affected by such concerns as depicted in its transactions and activity. While Simulation 1 progressed, Simulation 2 remained victim of such anxiety and made slow advancements throughout the period.

This project was a great opportunity for our group to gain a stronger understanding in an area of interest. With our tight schedules and restricting course selections, it’s uncommon for us students to be able to dedicate such time into another field of study outside of our own major. Over the course of three terms, we found ourselves gaining real experience in trading. Although this project was conducted within a simulator, the knowledge acquired is very much so applicable to the real market. With the new skills obtained from this project, we hope to become more profitable if we do decide to reenter the market whether it’s a simulator or not. We advise to others who are interested in potentially investing in the stock market to spend time using a simulator first, rather diving into the real thing all at once. The simulator will be more forgiving as there was no true risk involved unlike the real market. Hopefully this report helped others gain a better insight of the stock market through our own experience.
Reference