

Final Project Report

Section 1 : “Overview and Summary of Project”

```
import pprint
import yfinance as yf
import pandas
import matplotlib.pyplot as plt

pp = pprint.PrettyPrinter(indent=5)
pandas.set_option('display.max_columns', None)
```

After typing out the Honor System pledge, the first thing I did in my program was import everything that I needed to import. First, I imported the yfinance library, which was the primary library that I centered my project around.

I also imported matplotlib, which was used when creating the image of the graph that I created. I also imported pprint, in order to print out the information corresponding to each stock ticker in a fashion that was easy to read. Finally, I imported pandas, because it allowed me to manipulate and utilize the tables from the yfinance library.

```
pp = pprint.PrettyPrinter(indent=5)
pandas.set_option('display.max_columns', None)
```

These two lines were for aesthetic purposes, the top line creates a 5 character indent between the

columns, and the bottom line displays all of the columns of the yfinance library.

```
def getTickerInput():
    return str(input("Please enter the ticker of your stock(Make sure it has a reported PE ratio or dividend yield): "))
```

The first function that I created in my program was the getTickerInput function. This function asks the user to enter an input for the ticker of their stock that is interpreted as a string. The string is returned in the main function, which will be seen later.

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```
def getStock(anyTicker):  
    return yf.Ticker(anyTicker)
```

Next, I created a function called `getStock`, with a parameter called `anyTicker`. This `”yf.Ticker”` part of this function references the specific stock in the `yfinance` library that the user is asking for.

```
def getStockDividendRate(anyStock):  
    return (anyStock.info["dividendYield"])*100  
  
def getPERatio(anyStock):  
    return anyStock.info["trailingPE"]
```

The two next functions are entitled `getStockDividendRate` and `getPERatio`. These functions perform the tasks of finding and returning the values of the PE Ratio and dividend yield of the stock that the user is interested in. The dividend yield is multiplied by 100 because it is presented as a percentage.

```
def graphStock(anyStock, anyTicker):  
  
    df = anyStock.history(period="ytd")  
  
    plt.plot(df.index, df["Close"], label="Close")  
    plt.plot(df.index, df["Open"], label="Open")  
  
    plt.xlabel("Date")  
    plt.ylabel("Price")  
    plt.xticks(rotation=90)  
    plt.title("{} Stock Prices".format(anyTicker.upper()))  
    plt.legend(loc="upper left")  
    plt.grid()  
  
    plt.show()
```

The next function I had in my program was the `graphStock` function that used the parameters `anyStock` and `anyTicker`. This function draws the graph in the output. It plots the closing and opening prices of the stock during the calendar year labeled as `”Close”` and `”Open”` respectively. The x axis was

set to `Date` and the y axis was set to `Price`. The legend of the graph was placed in the upper left.

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```
def main():  
  
    while True:  
        ticker = getTickerInput()  
        print(ticker)  
  
        stock = getStock(ticker)  
        print(stock)  
  
        print("the dividend yield of your stock is", getStockDividendRate(stock), "%")  
        print("the PE ratio of your stock is", getPERatio(stock))  
  
        if getStockDividendRate(stock) >= 3 and getPERatio(stock) <= 25:  
            print("This is a solid investment, and I recommend making it based on the stock's PE ratio and dividend yield.")  
        elif getStockDividendRate(stock) < 3 and getPERatio(stock) <= 25:  
            print("This is a potentially good investment, I recommend making it based on the stock's PE ratio.")  
        elif getStockDividendRate(stock) >= 3 and getPERatio(stock) > 25:  
            print("This is a potentially good investment, I recommend making it based on the stock's dividend yield.")  
        else:  
            print("Look for better opportunities, this stock isn't the best option right now")  
  
        print("a graph of your stock's closing and opening price over the calendar year will now appear")  
        graphStock(stock, ticker)  
  
main()
```

Finally, the last function of my project was the main function, which holds my program together. Using the

values of the PE ratio and dividend yield, I tell the user if the stock is a good investment or not with if, elif, and else statements. This function is also used to call other functions and print statements that contextualize the information I am providing.

Section 2 : “Target Audience”

The target audience for this program is the population of people who are involved with the stock market and the world of investing. I am providing the audience with my perspective on what companies are good investments right now, and a visual representation of how the stocks the audience cares about have performed during the calendar year.

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Section 3 : “Specific Programming Techniques Used”

Something different that I did with this program in comparison to the programs I had written throughout this course was that I used more than one function in this program. I felt like the way I wrote this final program was more sophisticated than my previous work, and worked well for this program because of the multiple things that I was attempting to achieve with this program. Using tools such as the ability to return values allowed me to develop a clearer program that flowed well.

Section 4 : “Challenges”

I would say that the primary challenge that I faced with this program was working with a library. This is because throughout the entire course we have been working with a user input, and while I did use a user input in this program, I still found it difficult to manage the ins and outs of the library, because of the different syntax it required. However, I think that I was able to use the help of the TA and understand how to write my program and allow it to work in the way that I wanted it to.

Section 5 : “Future Extensions”

In order to improve this program, one of the things I would want to do would be to use more data points into factoring in whether or not a certain stock is a good investment. Throughout the first semester, we learned in class that a good way of measuring a stock’s viability is its dividend yield and price to earnings ratio, but obviously there are more factors that can help an investor

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determine if a stock can be trusted going forward. I would also like to add a tool that allows the

user to ask to re-run the program with another stock. I attempted to do this but had difficulty.

Finally, I would want to find a better way of handling stocks that have no reported PE ratio or

dividend yield. Now, I ask the user to input a function that has either a dividend yield or a PE

ratio. If the user doesn't listen, the program will result in an error.