

Barfy's Finance – User Guide

Daniel, John, Jose, Kay

Intermediate Programming with Python – Spring 2020

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1 Introduction

1.1 Scope and Purpose

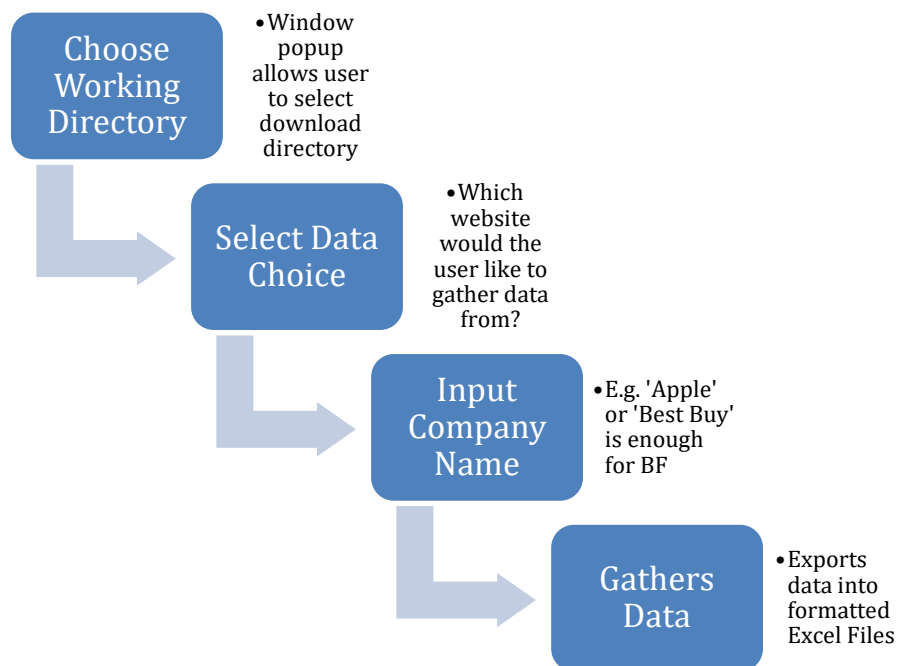
Barfy's Finance (BF) is a financial application whose purpose is to automate the process of obtaining financial reports for companies, while also calculating important financial ratios that aid in the determination of the financial condition of the company. This application saves the user the work of searching through 30+ pages of financial reports, as well as time spent calculating the financial ratios, so that the user can focus on a subjective analysis of the company with the provided financial statements.

BF is an extremely simple application. However, the team assumes the user has basic knowledge of python – this is a python-based application, and at version 1.1 will only run with python and the important packages (such as PySimpleGui) installed in the python environment.

We assume that to get the most use out of the application, the user also has basic financial statements understanding. For example, BF computes financial condition ratios such as Debt/Equity, Current Ratios, etc. that require understanding in how to interpret. However, this is not required to navigate the application.

1.2 Quick Overview

BF is really easy to use and does not require too much knowledge to operate. BF provides a simple GUI window. Each step should be done in order, or else an error dialogue box (might) popup. The following is a very simple demonstration of the process underlying the application:



2 Main Process

First, ensure that PySimpleGui is installed in your python environment:

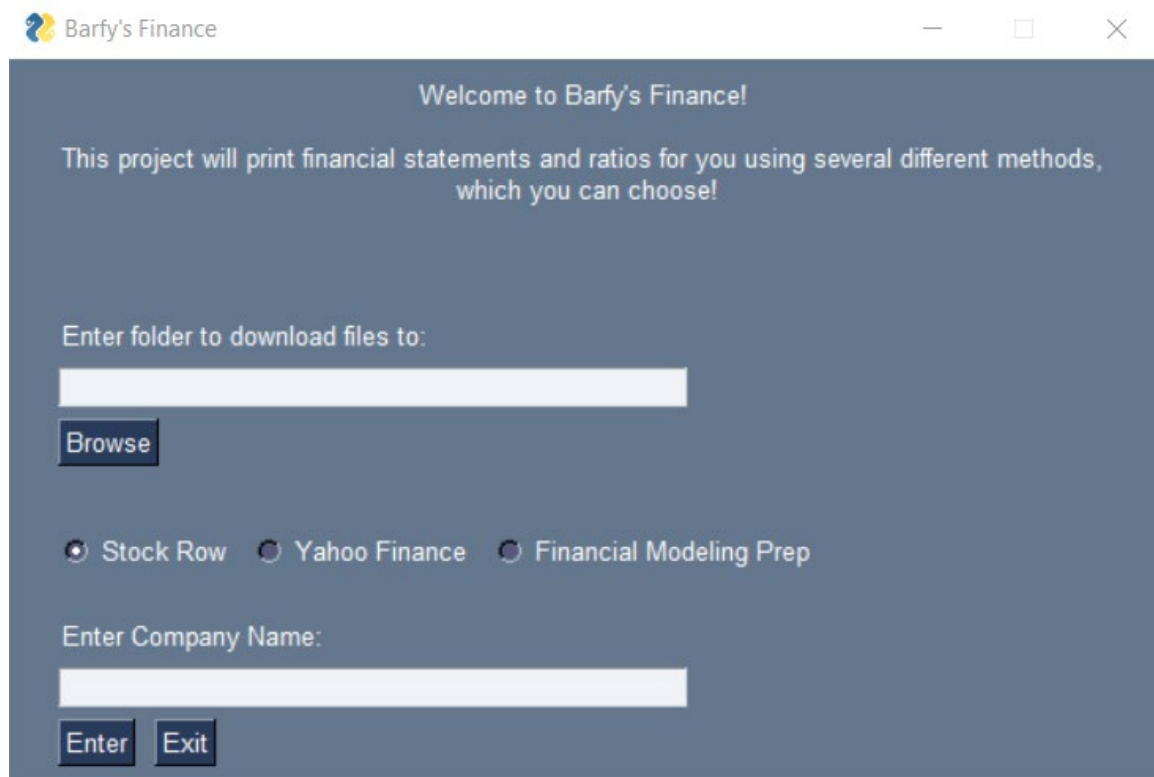
```
conda install -c conda-forge pysimplegui
```

OR

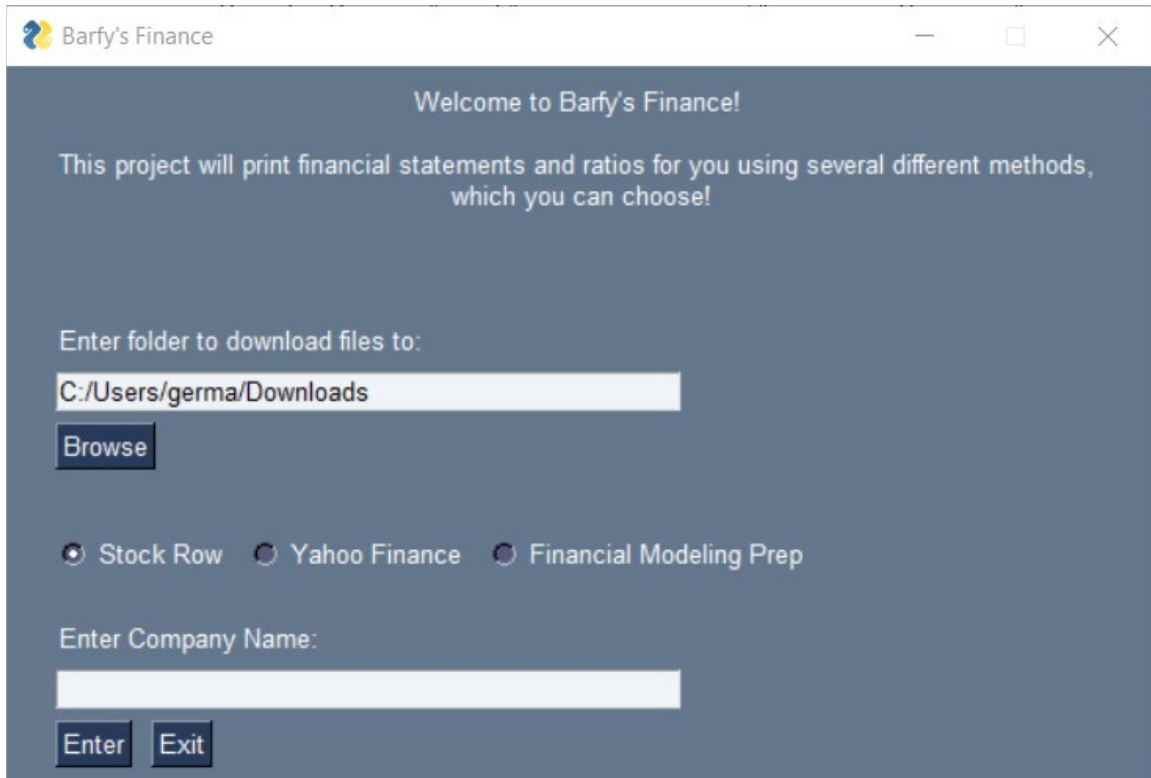
```
!pip install pysimplegui
```

If neither of these installation commands work, an '!' may be needed at the beginning of either statement. If that does not work, please follow the steps [here](#).

After running the program in your python IDE of choice, you will be greeted by this window:



You then select the download directory. We have chosen a standard download directory:



Barfy's Finance

Welcome to Barfy's Finance!

This project will print financial statements and ratios for you using several different methods, which you can choose!

Enter folder to download files to:

C:/Users/germa/Downloads

Browse

☒ Stock Row ☐ Yahoo Finance ☐ Financial Modeling Prep

Enter Company Name:

Enter Exit

You have 3 options of data sources to choose from: 1) Stock Row 2) Yahoo Finance and 3) Financial Modeling Prep. Data source 1 will download prepared excel documents. Data source 2 will actually web scrape Yahoo Finance. Data source 3 will use an API. All 3 result in different layouts and different financial terminologies, so choose the one that makes the most sense for you.

Then, type in a company's name. We will do 'Vera Bradley' as an example.

Barfy's Finance

Welcome to Barfy's Finance!

This project will print financial statements and ratios for you using several different methods, which you can choose!

Enter folder to download files to:

C:/Users/germa/Downloads

Browse

☒ Stock Row ☐ Yahoo Finance ☐ Financial Modeling Prep

Enter Company Name:

Vera Bradley

Enter Exit

After some time, three excel documents will be opening, containing the financial statements. They will also be downloaded to your directory, named as the company's financial ticker_'financialstatementname'. For example, Vera Bradley's income statement saves as 'VRAIncome Statement.xlsx'. See below:

Today (3)				
	VRABalance Sheet.xlsx	3/4/2020 7:39 PM	Microsoft Excel W...	7 KB
	VRACash Flow.xlsx	3/4/2020 7:39 PM	Microsoft Excel W...	7 KB
	VRAIncome Statement.xlsx	3/4/2020 7:39 PM	Microsoft Excel W...	7 KB

You are able to keep these, print them, and also modify them further. BF will then print important financial condition ratios, and a base-interpretation of the company's financial condition:

Results		
Debt Ratio:	Year 1: 0.19	Year 2: 0.19
Current Ratio:	Year 1: 5.8	Year 2: 6.01
Debt Equity Ratio:	Year 1: 0.23	Year 2: 0.23
Percent Asset Change:	-3.17	
PPE, Net:	Year 1: 77951000.0	Year 2: 86463000.0
Financial Condition: Very Strong Financial Condition		

Here, Vera Bradley has a very high current ratio, and very low debt ratios. BF then classifies this company as having a 'Very Strong Financial Condition'. However, we cannot take this at face value. There are many other financial interpretations, many of them subjective. Continue to peruse the other financial statements to make your decision – ratios are not the only thing to consider!

2.1 Specific Data Sources & Company Classification

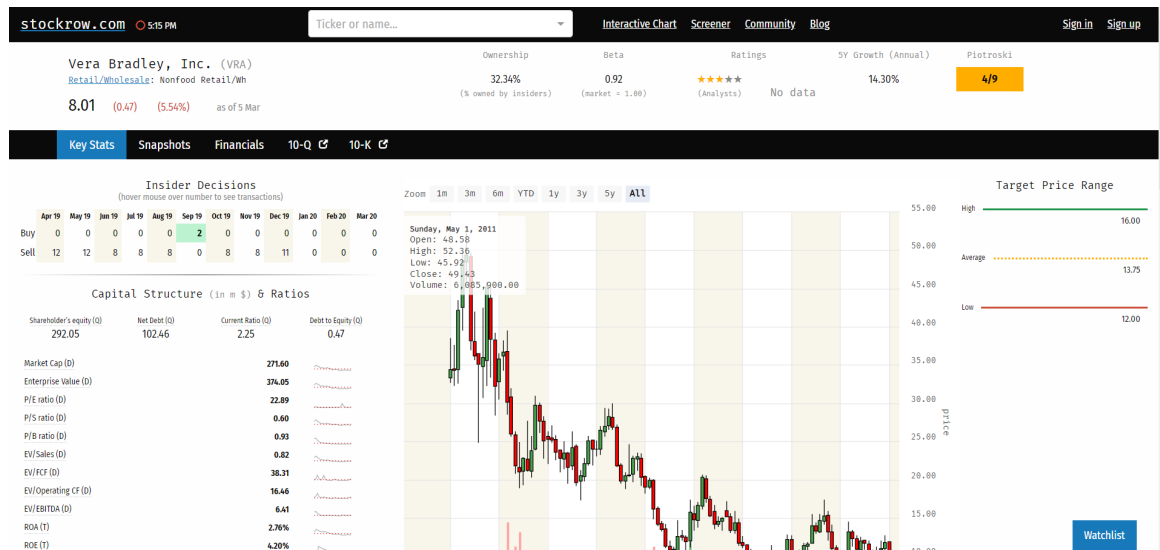
Companies are classified as being very strong, ok, or poor financial conditions based on the following conditions (Current ratio = CR, Debt Ratio = DR, Debt Equity Ratio = DE):

Conditions (Benchmarks)	Classification
$CR > 1.0, DR < .4, DE < 1.5$	Very Strong
$CR > 1.0, DR > .4, DE < 1.5$	Ok
$CR > 1.0, DR < .4, DE > 1.5$	Ok
$CR < 1.0, DR < .4, DE < 1.5$	Ok
$CR < 1.0, DR > .4, DE < 1.5$	Poor
$CR < 1.0, DR < .4, DE > 1.5$	Poor
$CR > 1.0, DR > .4, DE > 1.5$	Poor
$CR < 1.0, DR > .4, DE > 1.5$	Poor
All Else	Very Poor

2.1.1 Downloading CSVs

www.stockrow.com:

Stock Row is a relatively unknown financial website. When you search for a specific company, you can find their key stats (prepared by Stock Row), snapshots of their financial data, their actual financial statements (which can then be downloaded into excel documents), and links to the company's 10-Q or 10-K, both the company's actual document containing the financial statements. This is typically a very long document, but useful in financial interpretations.



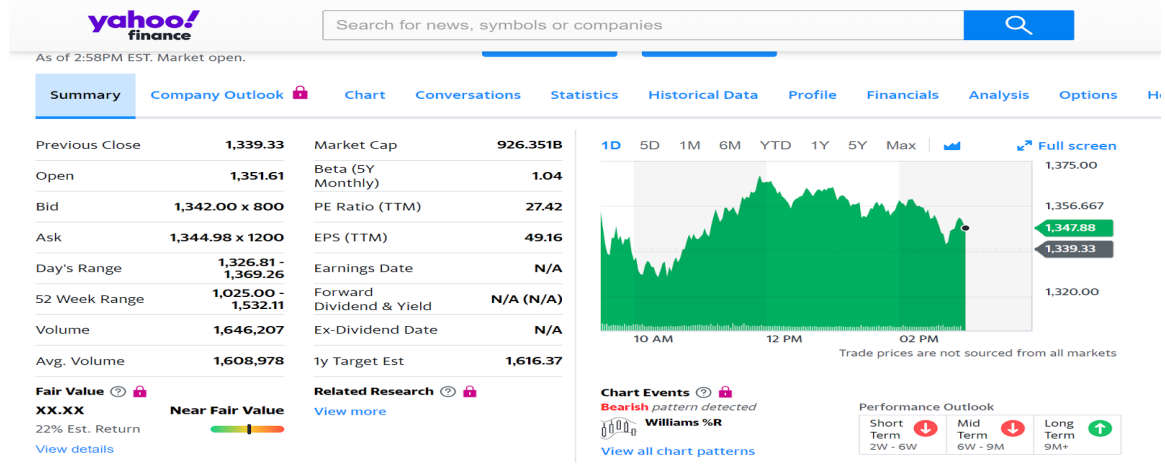
➔ **NOTE: Stock Row typically only recognizes US based companies. For example, if you were to type in 'Samsung' into either BF or Stock Row, you will not find them.**

2.1.2 Web Scraping:

www.yahooofinance.com:

Everyone knows about Yahoo Finance. It's a staple in the finance and investing industry. If you search for a company, you can find similar things that are on Stock Row. You have access to the company's financial summaries, charts, statistics, yahoo's financial analyses, the company's financial statements, and yahoo's company outlook forecast. There are plenty of options to choose from here, but we have focused on the financials.

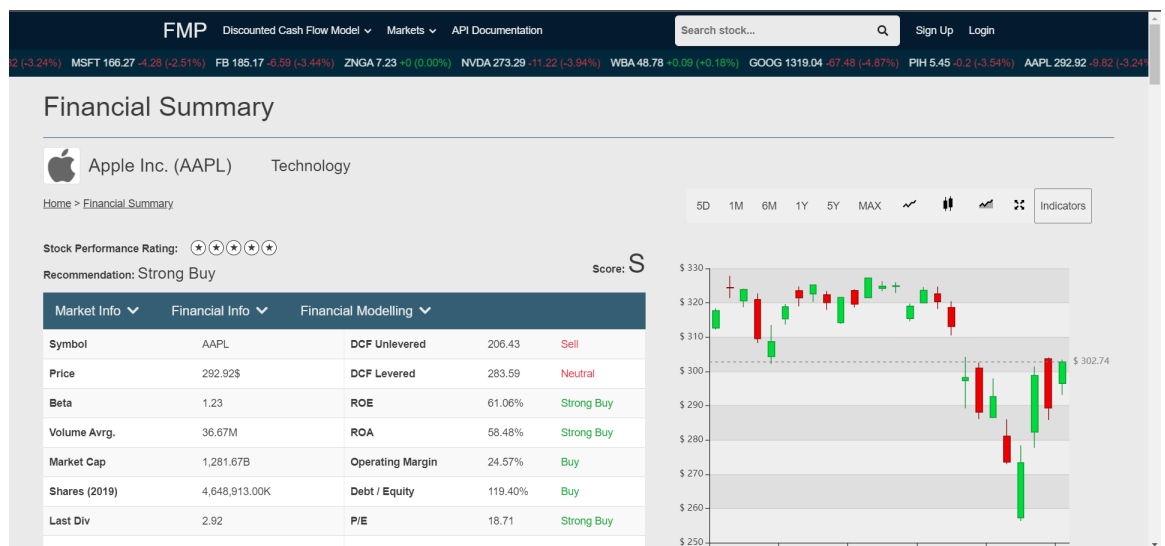
Yahoo does not provide any easy exportable documents. This is part of the reason why we chose to web-scrape the site, as well as the reputability of it.



➔ **NOTE: Yahoo Finance does let you search for companies that are not based in the US. Searching for Samsung works, but may be limited within BF.**

2.1.3 Financial Modeling Prep APIs

Financial Modeling Prep is our last data source. They contain formatted APIs for researchers to implement into their projects, which we chose to do as well. They are well known in the finance world, and provide charts, financing summaries, modeling, performance ratings, as well as a sophisticated recommendation on whether to purchase / not purchase the stock.



➔ **NOTE: Financial Modeling Prep, similar to Stock Row, will not allow you to search for non-US based companies.**

3 Errors and Conclusion

3.1 Errors

BF is not a flawless application. It requires that you at least know the company you are searching for, and to recognize some of the pros / limitations of the data sources that are used. For example, if you wanted to search for Samsung, you would need to know that Yahoo Finance would be the best choice for that.

The application also is not perfect in its search for financial tickers. The website used, MarketWatch, searches every known company in its database that matches on their strings. So, if you were to type in the word 'whatintarnation' into BF as the company name, you will actually get a result (even though it's not a real company), ETIC ticker, because the company has the word 'nation' in it. Steps have been taken to improve this and should be much better in this final version of the application.

Finally, we have also taken steps to limit user errors / crashing of the GUI application. Although we do not guarantee a flawless, uncrashable experience, we have taken the following steps:

1. Ensure user enters a download directory
2. Ensure user inputs a company name
3. Check to see if that company actually exists
4. Check to see if the financial ticker returned exists
5. Checks the connections of the websites – if there's no response, an error occurs
6. Check to see if the user already searched for AND downloaded financial statements for a particular company.

All six of these main errors result in error popups and will ask the user to close the error and try again. However, if we failed to think of a specific error, please take these steps to restart the application. NOTE: if there is an error that's not caught, the application will crash, and you won't be able to close the GUI window / do much in your IDE. This is annoying, but please follow these steps:

1. Open task manager
2. Kill the second version of your IDE. Usually if you expand the description, you will see that it says 'Barfy's Finance'
3. Clear the IDE Terminal
4. Restart the Kernel

And if your IDE still won't respond:

5. Open a new kernel and close the old one

When BF crashes, it seriously crashes, and we apologize for any inconvenience that it may cause!

3.2 Conclusion

Barfy's Finance was created by students to help students of Financial Analyses of Companies at Heinz College, as well as to help investors determine their investments. We crafted BF to be a rather lightweight and easy application to use, and we are very proud of how far it has come.

If you have any questions, please reach out to us:

Daniel: sangwony@andrew.cmu.edu

John: jgermano@andrew.cmu.edu

Jose: jasalomo@andrew.cmu.edu

Kay: qzhang2@andrew.cmu.edu

Thank you for trying our application!