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CS212: Practical Python

Project 1 Report

08 November 2023

IBM Stock 2000-Present

Task Proposal Outline

Upon beginning this project, goals were set to ensure productivity and a high quality product. These goals and the outline of this project was

* HTTP GET request to API

Send an HTTP GET request to an API to retrieve stock price data and return it to my program. To accomplish this task, find an API containing stock price data and use the correct method of authentication. After retrieving this data, convert it into a Pandas data frame. Assuming this data wont be prepared for plotting directly from the API, clean, manipulate and convert the data into the correct form for proper and clean plotting. Once prepared, plot the data using matplotlib and add any necessary labels, and ensure that the data is plotted in a user-friendly fashion. Hopefully by this point there is enough time to start some sort of machine learning and data analysis using the plot and dataframe.

* Convert to Pandas data frame
* Cleaning
* Matplot
* Simple machine learning

Goals

* Learn stock market trends
* Analyze trends

Completion Evaluation

Wasn’t able to make it to any machine learning but I am excited to try this in the future.

Would give 90% because I didn’t really have a big expectation on completing machine learning

Program Details

* Libraries
* Making url
* Fetch
* To dataframe
* Converting data to floats and to\_datetime
  + Need function for this and was reused
* Plotting
  + Making labels

Conclusion

Overall, I would consider this project very successful. I took away skills which I didn’t have at the beginning. The biggest of these skills was HTTP GET requests to an API. Unexpectedly, learning this and being able to apply it, didn’t take long for me to figure out. It was unexpected because I set a goal this past summer to do the same in JavaScript and it took me a large chunk of the summer to figure out. This is a skill that I will no doubt be using in the future. Also, there is a lot more to data cleaning and preparing then what I expected. The data I received from *Alpha Vantage* was very clean to begin with but positioning the data and changing the data types took a lot more work than what I originally expected. Lastly, the ending part of this project (other than this write up) was maining manipulating Matplotlib which I also found deceiving. Overall this problems I had with matplotlib had to do with not knowing what was going on underneath the hood of the program. For example, floats being interpreted as string unknowingly data being flipped in the wrong order ( newest to oldest ) and unneeded axis scaling code that when deleted, fixed my code.

Data Review

The data gathered and presented in the graphs below seem to be somewhat accurate.

* Look similar but aren’t quite exact. What does this mean?

Diagrams

Graph Produced with MatPlotLib

A graph of a graph showing the cost of a dollar

Description automatically generated with medium confidence

Graph from NASDAQ

A graph of a stock market

Description automatically generated