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PROJECT PROPOSAL: A RUDIMENTARY ANALYSIS OF THE STOCK MARKET

I. Dataset:

We will be using financial data including but not limited to stock market movements. This dataset is acquired from Alpha Vantage and Yahoo Finance, both of whom provide simple and reliable API necessary for our project. The dataset can range from 1-minute gap to 60-minute gap between movements.

II. Methodology:

We are planning to use Python as our development language with NumPy and Pandas for the number crunching task and Matplotlib for graph representation. We also plan to use other Python packages liberally if the need arises.

As for the framework of this project, we plan to apply some elements of the Item-to-Item Collaborative Filtering Model to extract possible relationship among some stocks (representative of each economic sector).

III. Outcome:

As we both know little about the stock market and financial movements in general, we would like to use this opportunity to apply what we have learned in this class to peer into this field and hopefully equip ourselves with better knowledge regarding the financial sector. This project will hopefully help us answer the following questions:

- What can we learn from watching the movements of certain stocks?
- What qualities can we extract from a quarterly performance versus a yearly performance versus a few-year (3+) performance?
- How does sector performance relate to the resilience of an industry should an economic instability arise?

We consider it a success if we can answer these questions at the end of our project.