CS 464-1 Introduction to Machine Learning 2021-2022 Fall Project Proposal - Group 10

Project Title: Financial Data Estimator

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Description of Data

From different API's like Alpha Vantage [1] and Kaggle [2] we are going to gather data in .csv format for various commodities. These commodities include stocks, forex and cryptocurrencies. Stock and forex data can be found from the late 1990s and cryptocurrency data can be found from 2018 to today. There are intraday, daily and weekly data. Intraday data is mostly used for short-term analysis, daily and weekly data is used for mid to long term analysis. Data points are opening, closing, high, low, and volume. Crypto currency data has market cap addition to these data points. In intraday data, the time interval between two consecutive data points can be 1 min, 5 min, 15 min, 30 min and 60 min.

Description of the Question

Can accurate predictions be made about commodities by using machine learning?

Milestone Achievement

The aim of this project is to predict the future values of investment instruments, which are increasingly popular today, with the help of their past financial data. We will experiment with algorithms to show the behavior difference between different time intervals. This will also give us clues about what are the differences between mindsets of people who are taking short and long term actions. Market behavior is closely connected with human psychology, so other fields that use machine learning may also benefit our work [3]. The success rate will show us the possibility of making accurate predictions and comparison of different approaches.

References

[1]   A. Vantage, "Free Stock APIs in JSON & Excel," *Alphavantage.co*. [Online]. Available: https://www.alphavantage.co/. [Accessed: 31-Oct-2021].

[2]   "Kaggle: Your machine learning and data science community," *Kaggle.com*. [Online]. Available: https://www.kaggle.com/. [Accessed: 31-Oct-2021].

[3]   K. Didur, "Machine learning in finance: Why, what & how - Towards Data Science," *Towards Data Science*, 11-Jul-2018. [Online]. Available: https://towardsdatascience.com/machine-learning-in-finance-why-what-how-d524a2357b56. [Accessed: 31-Oct-2021].