StockSy: A Stock Prediction and Analysis Toolkit Using Nonparametric Regression

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Stock market forecasting refers to the prediction of the price of any given stock within a desired time frame and has been a highly researched topic in recent years due to the difficulty of predicting price action within time series considered to be “random walks.” While many attempt to leverage traditional technical analysis techniques or machine learning alone, lacking certainty in decision-making behavior, the problem has recently attracted the use of prominent regression-based methods, specifically nonparametric regression. This project explores the use of nonparametric regression approaches involved in predicting the direction and prices of selected securities for a given time range. Using Prophet, a flexible and tunable forecasting procedure, historical price indicators, and search trends analysis, an effective, open-source stock analysis and prediction toolkit was developed with the intention of providing the user with a wide array of analytical tools that can assist them in improving returns significantly over standard buy-and-hold investing. The final product trains and iterates on historical price data while allowing for automated quantitative evaluation and forecasting with minimal loss.

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