Collin Eaton

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**Title:** Predicting the next bottom of the S&P 500

**Overview:** Using key financial indicators and historical pricing data, the goal is to predict when the S&P 500 will hit its lowest value point within 2023.

**Type of Task:** Time Series Analysis with the S&P 500 share value as the outcome to predict

**Data Description:** **How big do you expect the data will be?** I expect to collect weekly data for multiple financial indicators as well as the Share Price for the S&P 500 back to the beginning of 1980. **Is amount of your data too big or too small?** The more historical data the better, I want to capture as many recessions within my dataset as possible. **If you're web-scraping or collecting data, how long do you expect to collect the data?**  I don’t expect to need to web-scrape, but if web-scraping is necessary data collection should take a week.

**How will you analyze the data? What machine learning methods do you plan to use, and/or what business intelligence aspect do you plan on incorporating?** I will analyze the data using time-series analysis.

**Describe any anticipated difficulties and problems. Discuss how you may overcome the problems.** Possible difficulties may include overfitting and collinearity of the different financial indicators. To avoid overfitting and collinearity I can use regularization techniques to penalize the model for any coefficients being too large.

**Suggest a timeline for the project. This should be a weekly breakdown of what you plan on doing each week.**

Week 1: Project brainstorming and proposal

Week 2: Researching needed variables/Data Collection

Week 3: Data Collection

Week 4: Data Cleaning/EDA

Week 5: Data Cleaning/EDA

Week 6: Training/Testing different models

Week 7: Training/Testing different models

Week 8: Finalize model findings and presentation

**Github Link: https://github.com/Collin-Eaton/Practicum-Project-StockMarket-Prediction**