**Springboard 1st Capstone Project Proposal**

**Stock Market Prediction Using Different Data Mining Techniques**

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# Problem statement

For my first capstone project, I am planning to implement different data mining techniques for determining the future values of a company stock and evaluate performance and limitations of each algorithm. There are many algorithms and software packages in the market that are performing these types of analysis. Moreover, some of them are considering more than just the history of stock prices and take into account the company’s past performance, the credibility of its accounts, etc. (known as fundamental analysis methods). My goal in this project though is to do a case study on the most popular *data mining techniques* and *technical analysis methods* and study their performance.

# How does it benefit the client?

A successful prediction of the future stock prices could yield significant profit to corporates and firms. Regardless of how deep and revealing information could potentially be derived merely from the past and current stock market data, it still will provide a valuable insight for decision-making. This is what concerns investors in different sectors of business companies and financial corporations. My work could be used by a wide range of investors from wall street strategists to individuals who put a few dollars in the market and want to have control on their investment.

# Data Source

I will be acquiring the datasets from different sources like Yahoo Finance and Google Finance. These datasets include historical prices over different periods of time in the form of OHLC charts and are downloadable in .csv format. Additional datasets may be considered if needed.

# Proposed Approach

There are different widely used algorithms that I am planning to implement in my project such as Artificial Neural Network (ANN), Recurrent Neural Network (RNN) and Time Delay Neural Network (TDNN). Exponential Moving Average (EMA) and Random Forests Regression will also be implemented to compare the results with as technical analysis methods. My plan will be to implement as many of these techniques and as many forms of them as possible and discuss their performance and limitations and showcase it for a company and its stock prices. Eventually, I am thinking of putting together a framework in the form a website where one can select for which company and using which technique he or she wants to predict the stock prices.

# Deliverables

* Final report/paper
* Deck of slides
* Code
* Project website