Analysis and Prediction of Stock Prices

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Introduction

- Stock market has always been a hot topic for investors and traders.
- Stock market is known for its unique behavior of being highly volatile, non-linear, having a lot of noise.
- Stock market prediction provides a winning edge to the traders and investors.

Problem Identification

In the world of academic, the stock market prediction is a time-series problem in which the historical data is examined and based on that analysis, the future values are predicted.

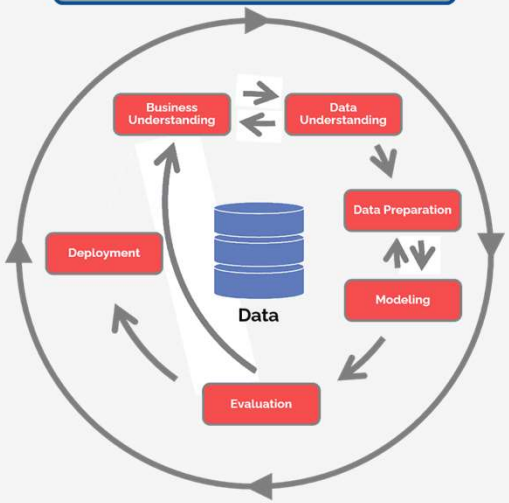
Objective

- To propose a state of art predictive model that is capable of predicting stock price trend in the near future.
- We have focused on the short-term prediction in the study.

Research Questions

- Does the data have any trend or seasonality?
- Which power transformation method would be right for the data?
- What would be the right parameters for ARIMA model for max accuracy?
- How would the data help to build a neural network-based model?
- Which model would give better accuracy?

Research Methodology



Data Collection & Preparation

- Data is taken from an open-source platform “Kaggle.”
- Data belongs to a US stock market index- S&P 500.
- The data contains missing values and had to be imputed.
- The data contains prices of all the stock listed in the index hence each stock data is required to be segregated.
- Up-sampling and interpolation to fill the gaps of missing dates.

Ethical Consideration

The main ethical consideration is that the data used for the project is publicly available and no sensitive or confidential information of any organization has been used to achieve the desired results. (Insider Trading is Illegal)

Future Work

Exploration of multiple ML and NN algorithm to achieve better predictions and usage of optimization methods in feature engineering for better results.

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