

ML Stock Algo Planning

Stage 1. Collecting Data

- **Use web scraping and API's to:**
 - **Senator Trading Data:** Collect data on stocks bought by senators from sources like OpenSecrets.
 - **Stock Price Data:** Obtain historical stock price data (e.g., from Alpha Vantage, Yahoo Finance).
 - **News Data:** Acquire historical news articles related to the stocks from APIs like News API.

Stage 2. Using Collected Data

- **Senator Trading Data:**
 - For introductory purposes, parse senator buys for at most 5 common buys.
 - IE; SPY, NVDA, AMZN, MSFT, QQQ
- **Stock Price Data:**
 - Determine stock patterns that indicate buys.
 - Moving Averages (MA), Relative Strength Index (RSI), Bollinger Bands, and MACD. As well as earning reports.
- **News Data:**
 - Parse news, PR (along with earnings reports), to perform a sentiment and identify potential catalysts.

Stage 3. Create The Model

- **Identify Models that may provide the best results:**
 - Time Series Forecasting to forecast future prices
 - ARIMA, Exponential Smoothing, and Prophet.
 - Implement machine learning models.
 - Linear Regression, Random Forests, Gradient Boosting Machines (GBM), and Support Vector Machines (SVM).
 - (Potentially) Implement Deep Learning:
 - Long-Short Term Memory (LSTM) or Convolutional Neural Network (CNN).

Stage 4. Training and Backtesting

- **Collect Historical Data**
 - Senator Buys
 - Stock Price Data
 - News Data
- **Point Stages 1-2 at the historical Data**

Stage 5. Optimization

- **Analyze the training results**
 - Assess performance using metrics like Sharpe Ratio, Maximum Drawdown, and Profit and Loss.
 - Reconsider strategies
 - Indicators, News catalysts, ML Models.
- **Repeat 1-4 until desired results**

Stage 6. Test on Current Data

- **Release app into the world**
- **Regularly monitor results and update 1-5 if needed.**