

PROJECT EZCOIN

by. team Coin\$tar\$





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● README

○ Project Description

Create cryptocurrency recommendations by using machine learning modeling to predict performance.

Use Google Colab and scikit learn

Objectives Project Questions to Answer

- Pull data upon request
- Examine Technical Indicators
- Pull in crypto sentiment
- Which model performs better between Random Forest and AdaBoost
- Create a all-in-one dashboard

Data Sources

Kraken API

Crypto News API

Libraries

CCXT

TA-lib

Plotly Dash

Scikit-Learn

GitHub Repo: <https://github.com/maxla777/Project-2>

Google Colab

Compelling Features:

- User Input Form
- Google Drive Integration
- Hardware Acceleration



Cryptocurrency Selector

`select_crypto:` ETH ▼

`select_period:` 1d ▼



My Drive > Colab Notebooks ▼

 kraken-pull.ipynb 

Hardware accelerator

None ▼

- None
- GPU**
- TPU

- Kraken API

- Use API call to Fetch
open-high-low-close-volume
(OHLCV) data

For a user selected Crypto
at interval they specify



- Technical INDICATORS

- **EMA - Exponential Moving Average**

On daily close price or daily return volatility generate crossover signals based on moving averages

- **Bollinger Bands**

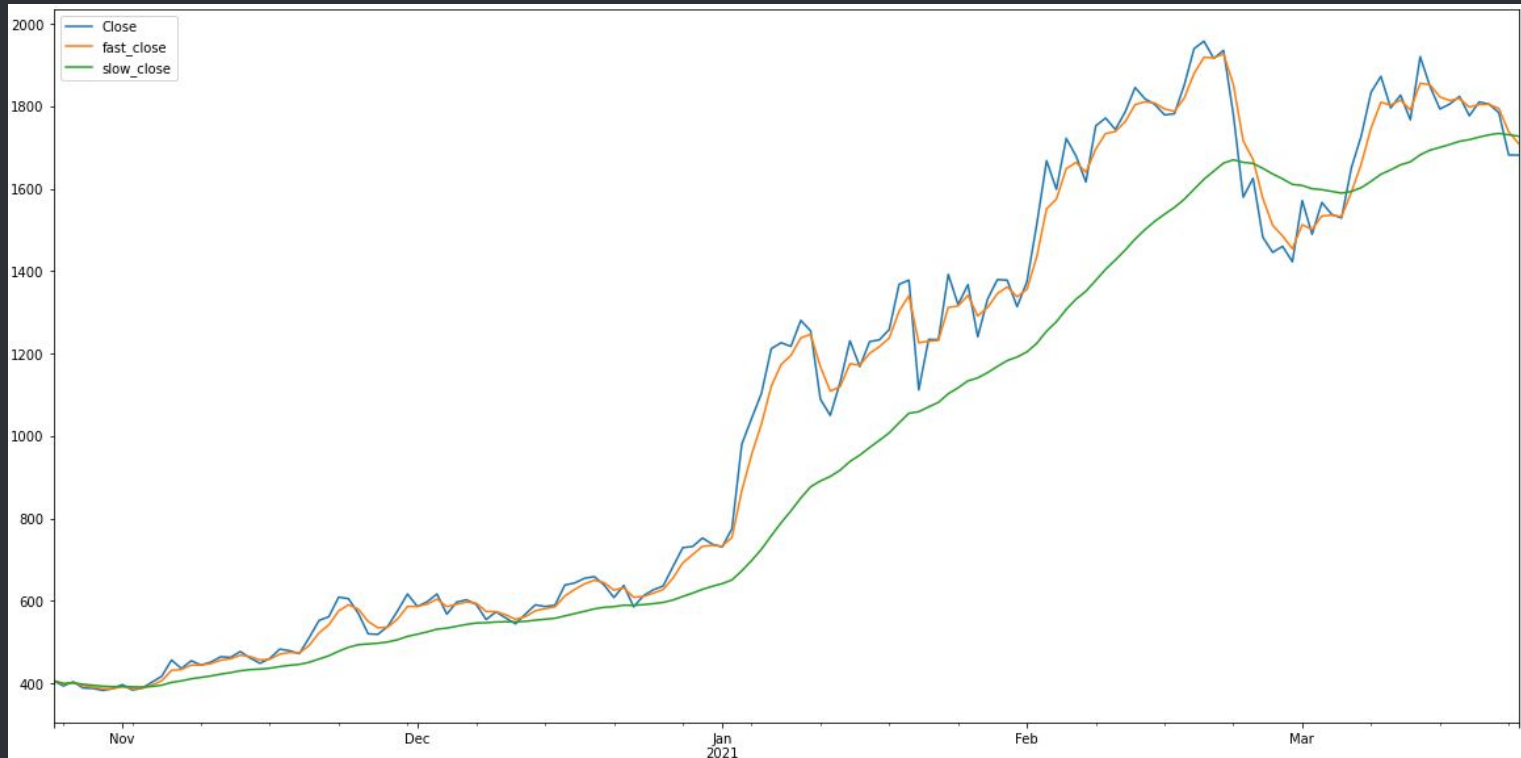
SMA of closing price with upper and lower bands showing rolling standard deviation

- **RSI - Relative Strength Index**

Momentum Indicator that uses the magnitude of price change to determine if overbought or oversold

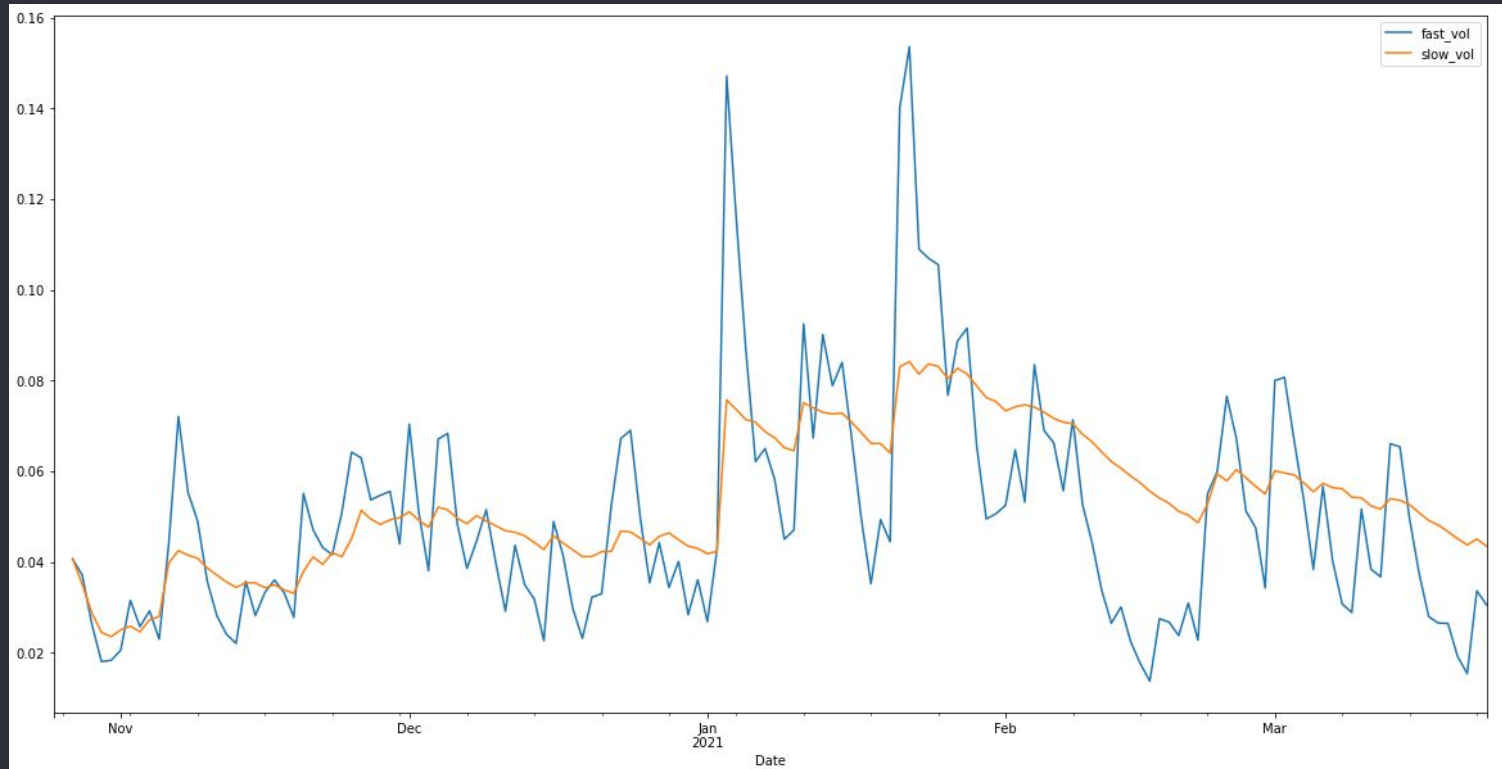
EMA - Exponential Moving Average: Daily Closing Price

On daily close price generate crossover signals on moving averages for closing prices



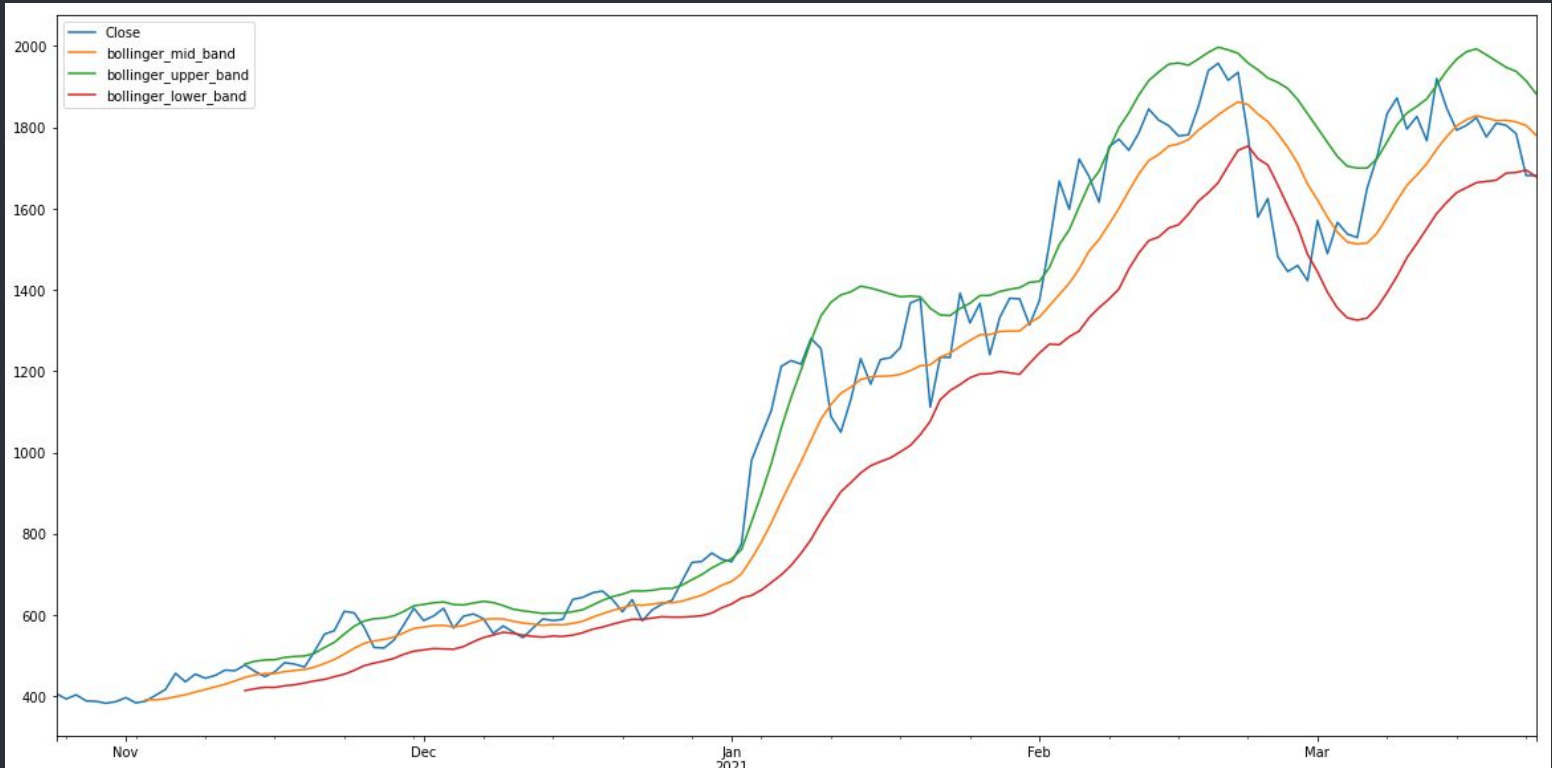
EMA - Exponential Moving Average: Daily Return Volatility

On volume and daily close price generate crossover signals on moving averages for daily return



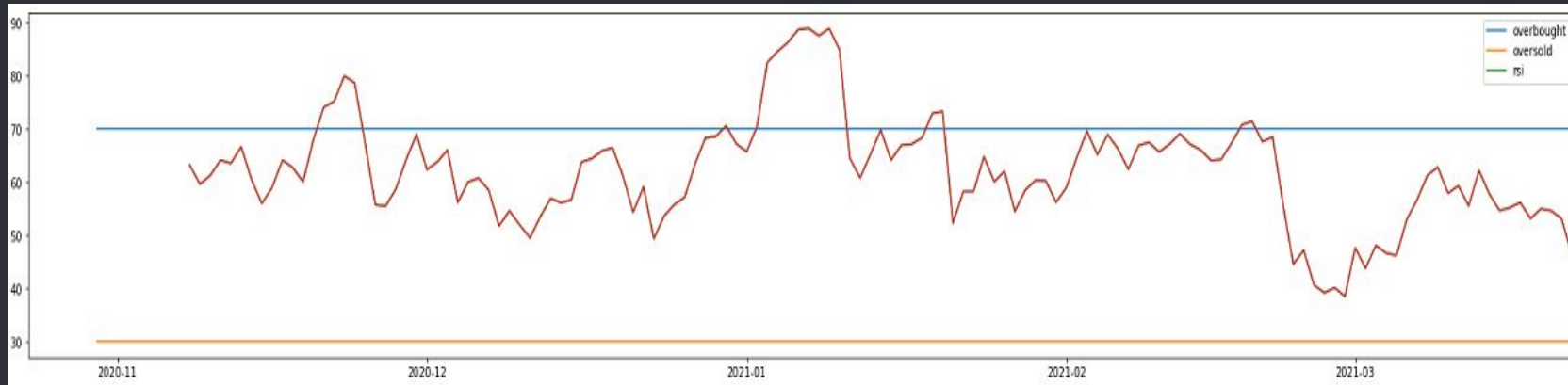
Bollinger Bands

SMA of closing price with upper and lower bands showing rolling standard deviation



RSI - Relative Strength Index

Momentum Indicator that uses the magnitude of price change to determine if overbought or oversold



- Crypto Sentiment

- Crypto News API

- limitations



Data

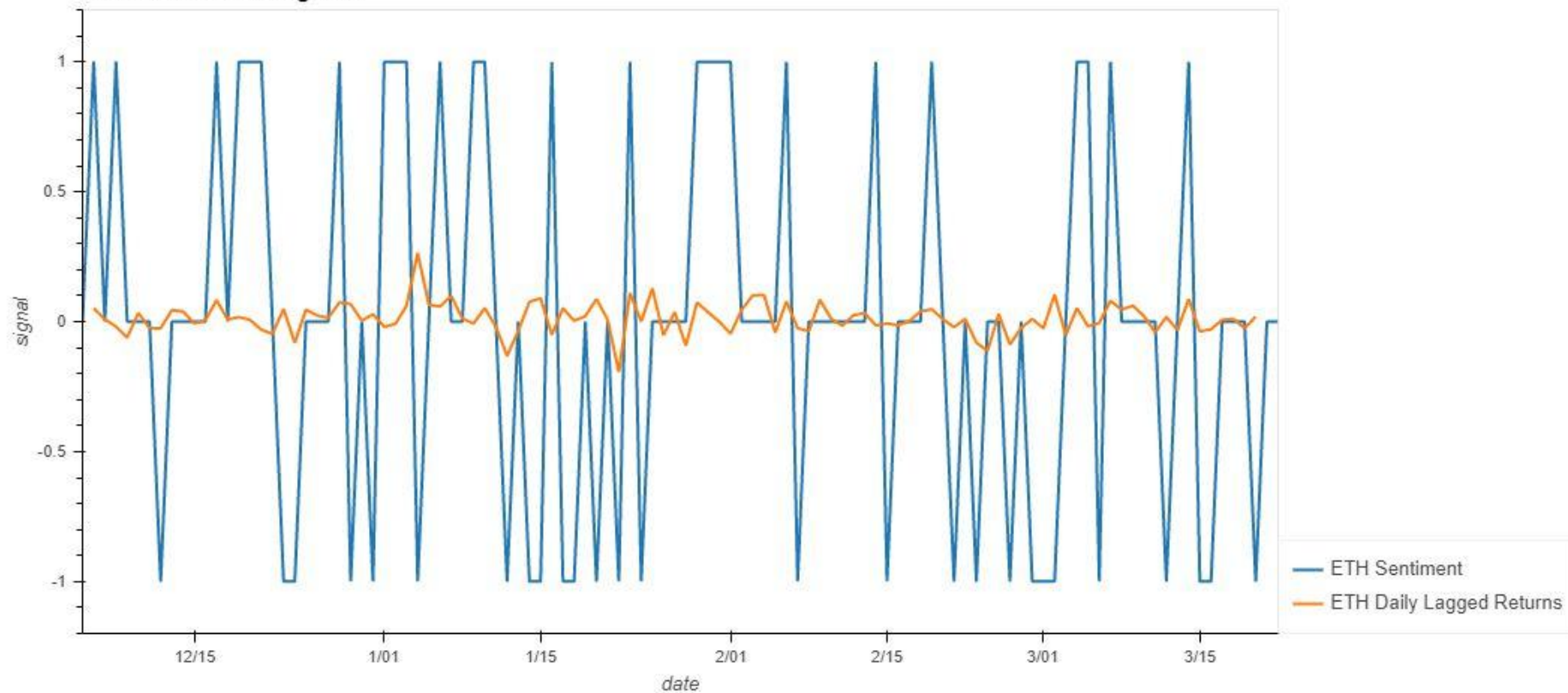
- collection
- exploration

Sentiment

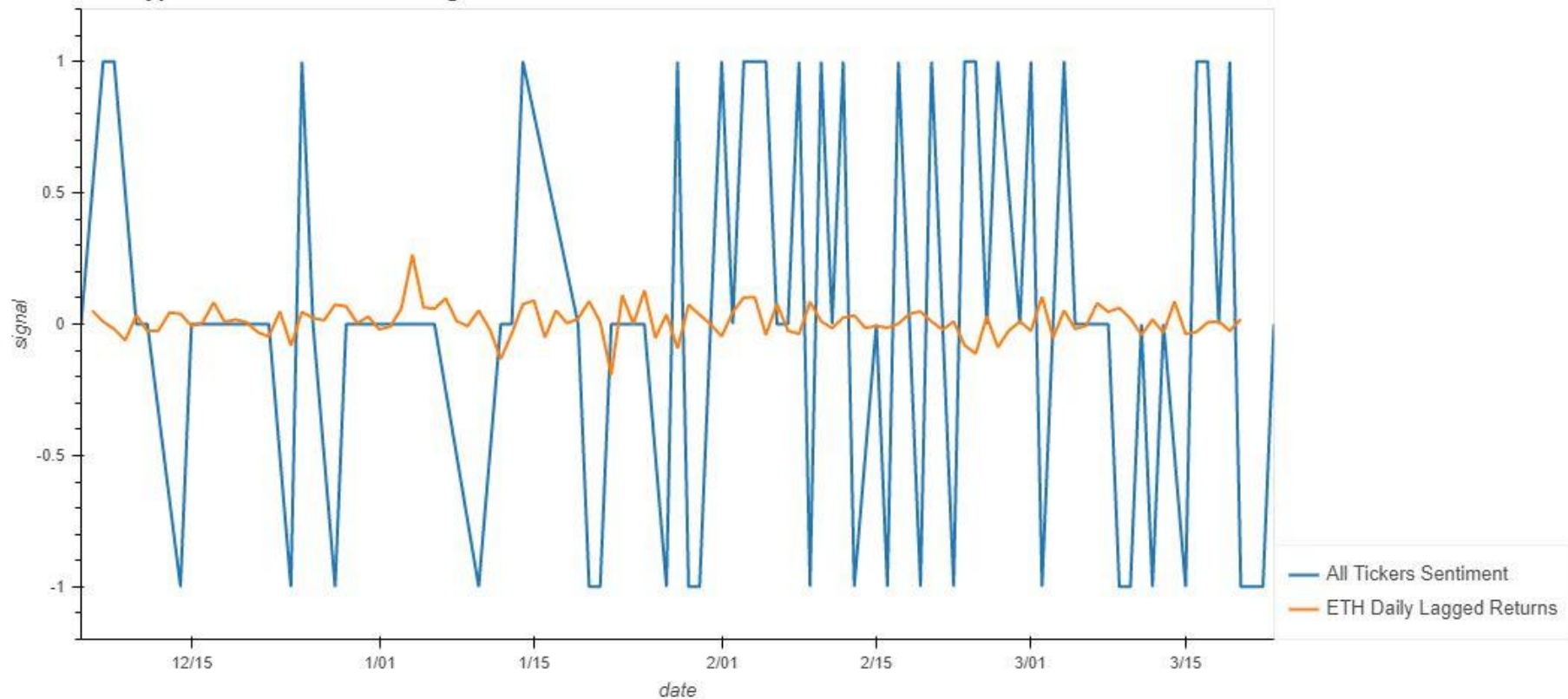
- bearish
- bullish



ETH Bull & Bear Signals



All Crypto Events Bull & Bear Signals



- Machine Learning Algos We Used

Random Forest Classifier

- Based on bagging technique
- Decision trees use different variables or features
- Equally-weighted decision trees

AdaBoost Classifier

- Based on boosting technique
- Used Decision Tree Classifier
- Variably-weighted decision stumps

- Training & Testing (70/30 Split) - Google Colab and Scikit-learn

Technical Signals (on its own)

- Training Start: 4/21/2019
- Training End: 8/20/2020
- Testing Start: 8/21/2020
- Testing End: 3/20/2021

Sentiment Signal (on its own) and Combined Signals

- Training Start: 12/01/2020
- Training End: 2/16/2021
- Testing Start: 2/17/2021
- Testing End: 3/21/2021

Highlights

- Started with the default parameters and adjusted as needed
- Google Colab made it easier and faster to do model tuning

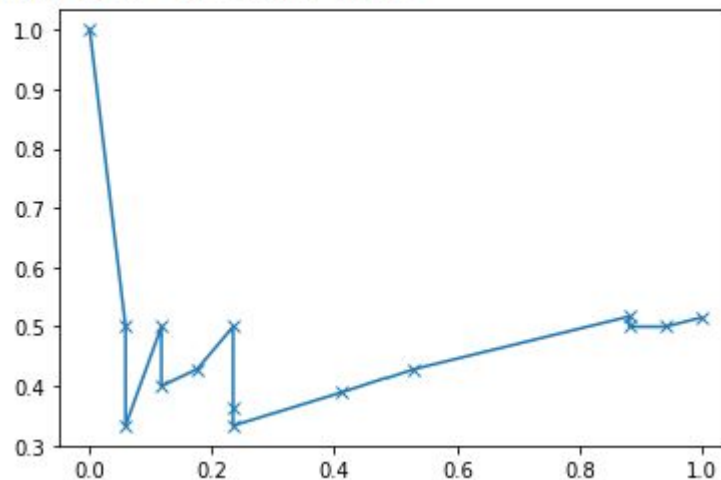
● Machine Learning Algos We Used - Model Evaluation

Random Forest Classifier

- Results for Signals on their own
 - Better overall
 - Extremely well on recall score
- Results for Combined Signals
 - Lower performance than AdaBoost

Technical + Sentiment Signals Result

Precision-Recall Curve
Area Under the Curve: 0.371

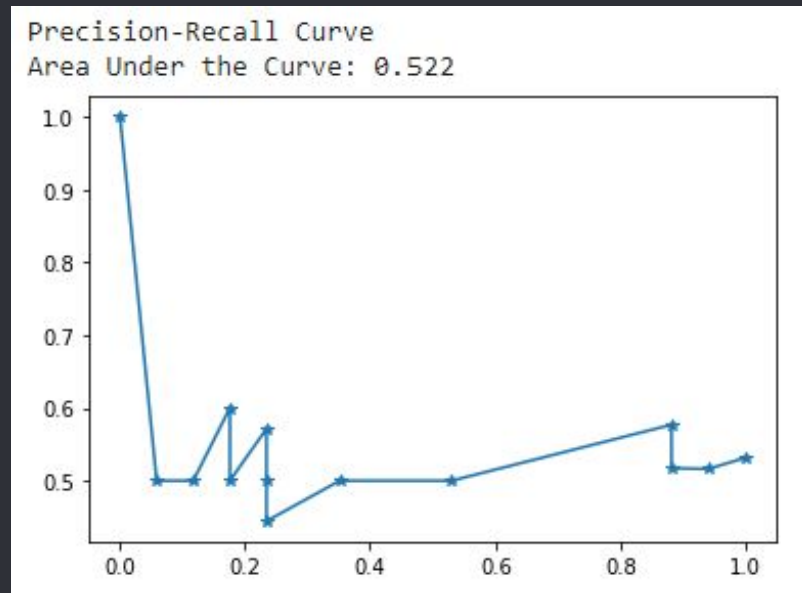


● Machine Learning Algos We Used - Model Evaluation

○ AdaBoost Classifier

- Results for Signals on their own
 - Did not perform as well overall
- Results for Signals Combined
 - Performed better than the Random Forest Classifier

Technical + Sentiment Signals Result



DASHBOARD





PROJECT CONCLUSION | HIGHLIGHTS

Thanks!

○ ANY QUESTIONS?

