Cryptocurrency Forecaster Based on Social Media Sentiment
Kartik Patel, Deep Patel, Zhihao Guan, Zhiheng Zhu, Deeptanshu Murdeshwar
(kp605, dp754, zg95, zz216, dsm189)@scarletmail.rutgers.edu
Advisor: Wade Trappe

Goal
- Develop a forecasting tool for cryptocurrencies that takes into account the current sentiment for these same cryptocurrencies across various social media networks. The tool will comprise of:
  - Base Portfolio Application – users can track the changes in the cryptocurrencies they own over time
  - Forecasting Tool – application attempts to predict the trajectory of cryptocurrencies based on relevant data

Methodology
- Data Collection
  - Utilize Python Reddit API Wrapper (PRAW) and Tweepy to stream live social media postings
  - Filter social media postings for relevant data pertaining to certain cryptocurrencies

- Sentiment Analysis
  - Use Natural Language Toolkit (NLTK) to process social media postings and determine sentiment
  - Average sentiment in hourly intervals

- Market Forecaster
  - Utilize historical crypto prices from CryptoCompare API and gathered sentiments to develop models for future trends using scikit-learn

- Front End Application
  - Package as application built with the Vue.js framework using Chart.js charting library

Motivation
- Cryptocurrencies have become increasingly popular over the last few years with more and more people choosing to invest.
- With the speculative nature of cryptocurrencies, this market is akin to the stock market. However, cryptocurrencies are incredibly volatile and traditional stock forecasting tools adopted for the cryptocurrency market are not very accurate.
- Social media has become a significant part of our lives, especially the tech-savvy who are more likely to adopt these new technologies. We believe we can use this correlation between cryptocurrency prices and social media sentiment to create a more accurate forecasting tool.

Research Challenges
- Multithreaded endpoint to utilize a variety of APIs to collect postings from various social media networks
- Filtering collected data of postings that are not relevant for our analysis: spam, bots, giveaways, non-English, etc.
- Develop accurate parameters for our sentiment analysis as well as an accurate rating system using the gathered sentiments to input into our models

Results
- We have found that there is indeed a correlation between social media sentiment and price for certain coins, as people express their opinions about price fluctuations on social media accounts.
- As seen on the provided ETH-BTC chart, negative sentiment is met with harsh downward spikes in price, while positive sentiments are not matched equally in price rise.
- Negative sentiments cause panic in investors, however the positive sentiment does not compensate for this panic

Acknowledgement
We would like to thank Professor Trappe for allowing us to work on a more abstract project where we were able to test the hypothesis we had at the beginning of the semester.

References