Final Report:

The Effects of Google Search Trends on Cryptocurrencies

Problem Statement

Since Cryptocurrencies first came onto the market in 2009, they have garnered an immense amount of praise and criticism. Supporters of cryptocurrency have heralded them as being a decentralized currency that has protection from inflation and is self-governed and managed. Critics have expressed concern over its environmental impact, its uses in illegal activities and its high volatility.

Whichever your stance on cryptocurrency may be, it is certainly a topic that many people have expressed their opinion on online. In fact, recently Elon Musk has made headlines by announcing that Bitcoin, Ethereum, and Dogecoin was going to be an acceptable mode of payment for their future project of landing on Mars. Having all this attention and people talking about these coins shot the prices up overnight to record highs.

I think that this is an aspect of cryptocurrencies that is worth exploring. Do people's interest in cryptocurrencies affect the price of the coin? And can we use this data to make predictions about the price of cryptocurrencies?

Datasets

- CCi30 Index – The CCi30 is a rules-based index designed to objectively measure the overall growth, daily and long-term movement of the blockchain sector. We were looking to mimic this index
- Top 30 cryptocurrencies from Yahoo Finance – To mimic the CCi30 index we pulled data from the Yahoo Finance API. To measure the price of stock, we pulled daily 'Closing' price of each stock.
    - Stocks included in our data: ['BTC-USD', 'ETH-USD', 'USDT-USD', 'BNB-USD', 'ADA-USD', 'DOGE-USD', 'XRP-USD', 'USDC-USD', 'DOT1-USD', 'HEX-USD', 'UNI3-USD', 'BCH-USD', 'LTC-USD', 'SOL1-USD', 'LINK-USD', 'MATIC-USD', 'THETA-USD', 'XLM-USD', 'VET-USD', 'ETC-USD', 'TRX-USD', 'ICP1-USD', 'FIL-USD', 'XMR-USD', 'EOS-USD', 'AMP1-USD', 'AAVE-USD', 'SHIB-USD', 'ALGO-USD', 'CRO-USD']
- Google Search Trends Dataset – Looked at popularity of search terms from top crypto currencies- "Bitcoin", "Ethereum", 'XRP", "Dogecoin".

Data Wrangling

Originally, I was pulling daily stock data from Yahoo Finance API from 1/1/2015 to 8/1/2021 which gave us 2401 rows and 30 columns. However, many cryptocurrencies did not exist in 2015. There were some columns of stock closing prices that had over 1500 or more missing values. Removing the rows and columns with many missing values left us with 1025 rows and 19 columns. For any other missing values found in the middle of the dataset, we used forward fill to take the last closing price and fill missing values with those values.

Our Google Trends Dataset was measured as weekly data, so we had to resample our Yahoo Stock Data into weekly data. Our dataset now has 148 rows with 5 columns.

Analysis

PCA

Further Research

Recommendations

Final Project report as PDF. The report should clearly explain the problem, your approach, and your findings. Include ideas for further research, as well as up to 3 concrete recommendations on how your client can use your findings. Please give the document an app