

CRYPTOCURRENCY

THE FUTURE?



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**"DOES SOCIAL MEDIA
IMPACT THE VALUE
OF CRYPTOCURRENCY?"**

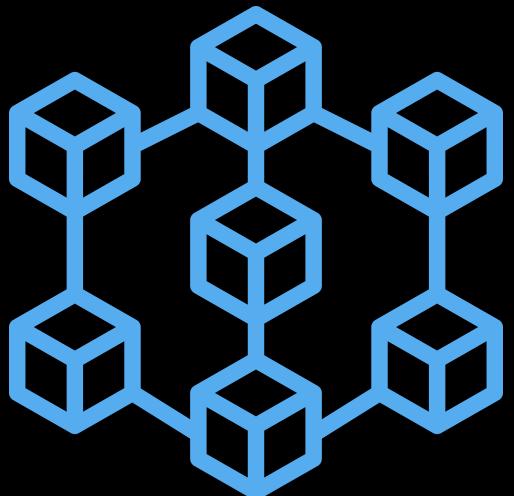


KEY DEFINITIONS



CRYPTOCURRENCY

A digital or virtual asset which is secured by cryptography. Online payment using cryptocurrency uses a virtual "token" which gets marked on a ledger entry. The ledger is on a decentralized network across a high number of computers, which makes it very difficult to counterfeit or reuse.



BLOCKCHAIN

A digital ledger of transactions that is distributed across the network of computer systems that are on the blockchain. Each time a new transaction occurs on that blockchain, the record is added to each participant's ledger. Each transaction is recorded using a unique and immutable cryptographic signature called a hash.



DISTRIBUTED LEDGER TECHNOLOGY (DLT)

A decentralized database managed across a network of computers by multiple participants. Blocks in the chain contain a number of transactions, and every time a new transaction occurs on the blockchain, a record of that transaction is added to every participant's ledger. Blockchain is a type of DLT.

BACKGROUND



Cryptocurrency and blockchain technology have been buzzwords in the media and finance industry since Bitcoin came on the scene in 2009, at a time when many people get their news directly from social media platforms.

From crypto-enthusiasts to crypto-analysts, they can all be found serving up insight on Reddit. Bitcoin has a dedicated subreddit for everything Bitcoin, and WallStreetBets Reddit channel has had a community uprising and subsequent impact on the market this year. From these outlets, cryptocurrency has attracted attention from stay at home dads, to billionaires.

Arguably social media has the ability to impact market fluctuations because it paints the portrait of cryptocurrencies to the masses. If the picture is flattering, it could make the prices go up - negative, and prices could drop. In other words, social media has the power to control the investor's moods. When you factor in the volatility of cryptocurrencies and high usage of platforms like Facebook, Instagram, Twitter, and TikTok, you can see how social media can play a significant role.

OBJECTIVES



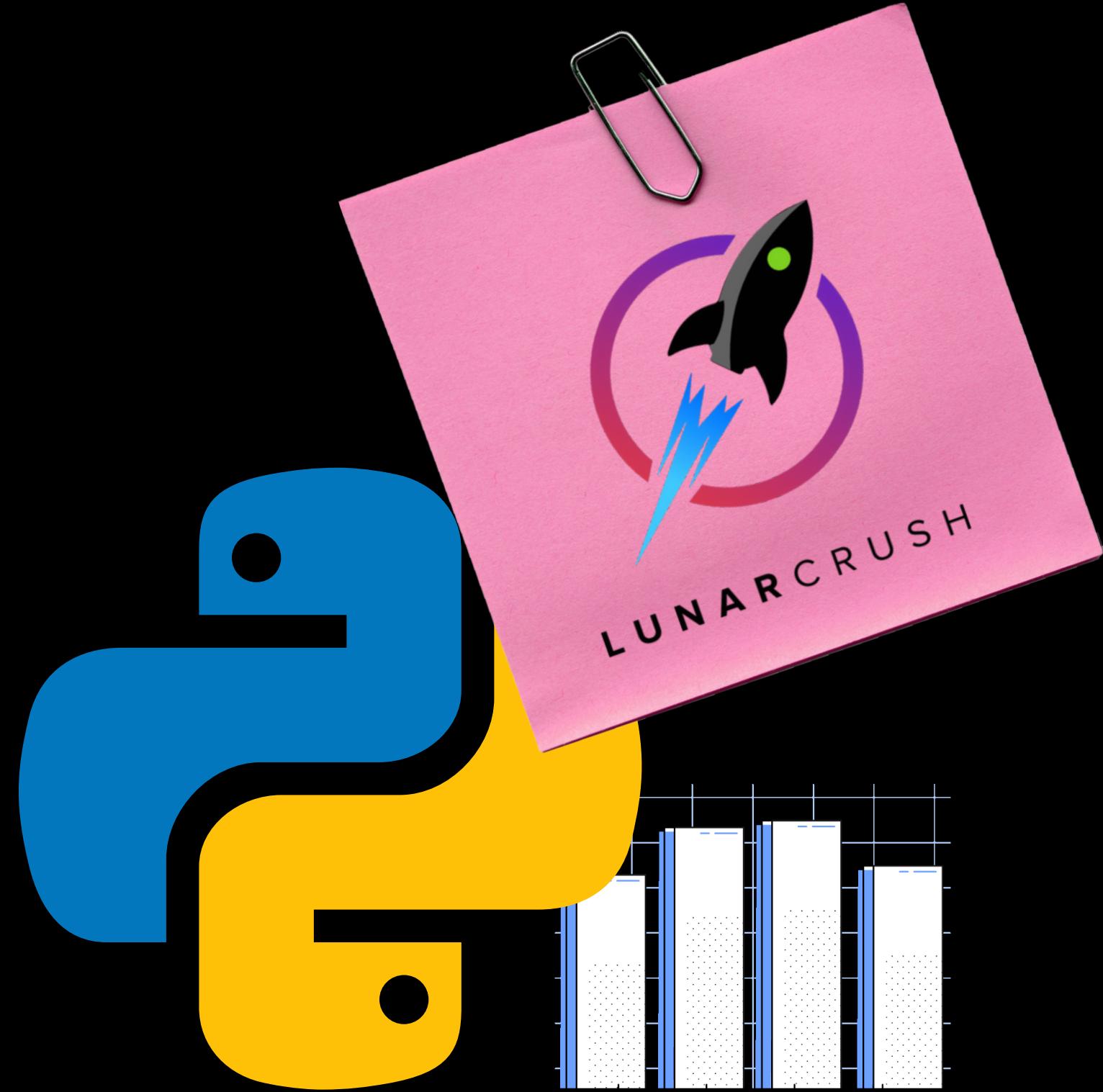
Research cryptocurrency and common cryptocoins

Pull data around market movements and social media buzz around cryptocoins

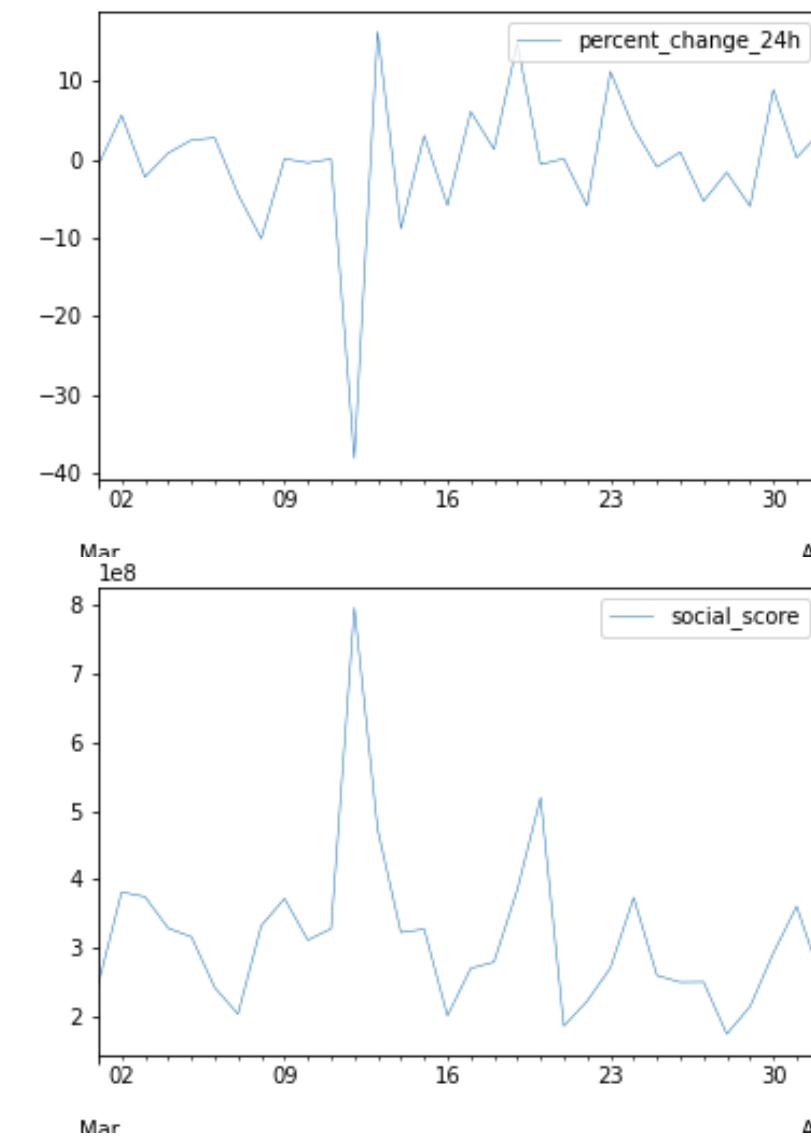
Analyze data to review any correlation between social media volume and market movements

Draw conclusions on cryptocurrency as an investment

BUSINESS UNDERSTANDING
DATA UNDERSTANDING
DATA PREPARATION
EXPLORATORY DATA ANALYSIS
VALIDATION
VISUALIZATION & PRESENTATION



ANALYSIS SUMMARY BITCOIN (BTC)



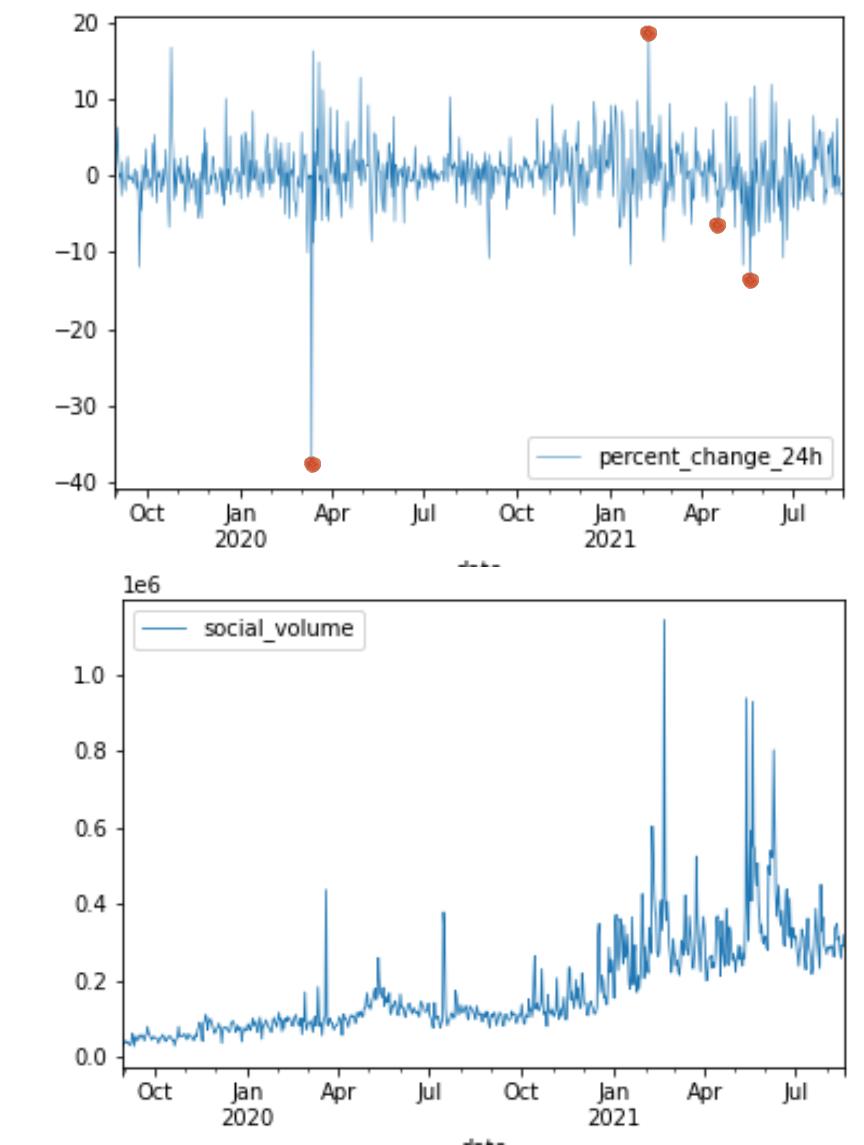
Between 8th - 12th March 2020
Bitcoin dropped in value by more
than 30% while social score
spiked.

In 2021 there was a noticeable outlier between
March - May and the discoveries on the following
particular days are as follows:

8th March 2021 – Tesla buys \$1.5billion worth of
bitcoin (43,000 bitcoin) driving up the price as it
gave investors confidence that one of the world's
most innovative companies trusted in the future of
the currency as an investment. Open: \$39329 Close:
\$46095 Percentage Change: +18%

22nd April 2021 – Capital Gains Tax increase
announcement by Joe Biden sent retail investors
selling their assets in order to avoid having to pay
taxes on it and presumably moving into other
offshore investments. The price opened at \$54189
and closed at \$52017, a 4% decrease.

12 May 2021 – Elon Musk tweeted that bitcoin would
no longer be accepted by Tesla as a cryptocurrency
payment until it uses more sustainable mining
practices. BTC on this day opened at \$55168 and
dropped 11% and closed the day at \$50088. This
could be due to lack of confidence from a huge
investor.



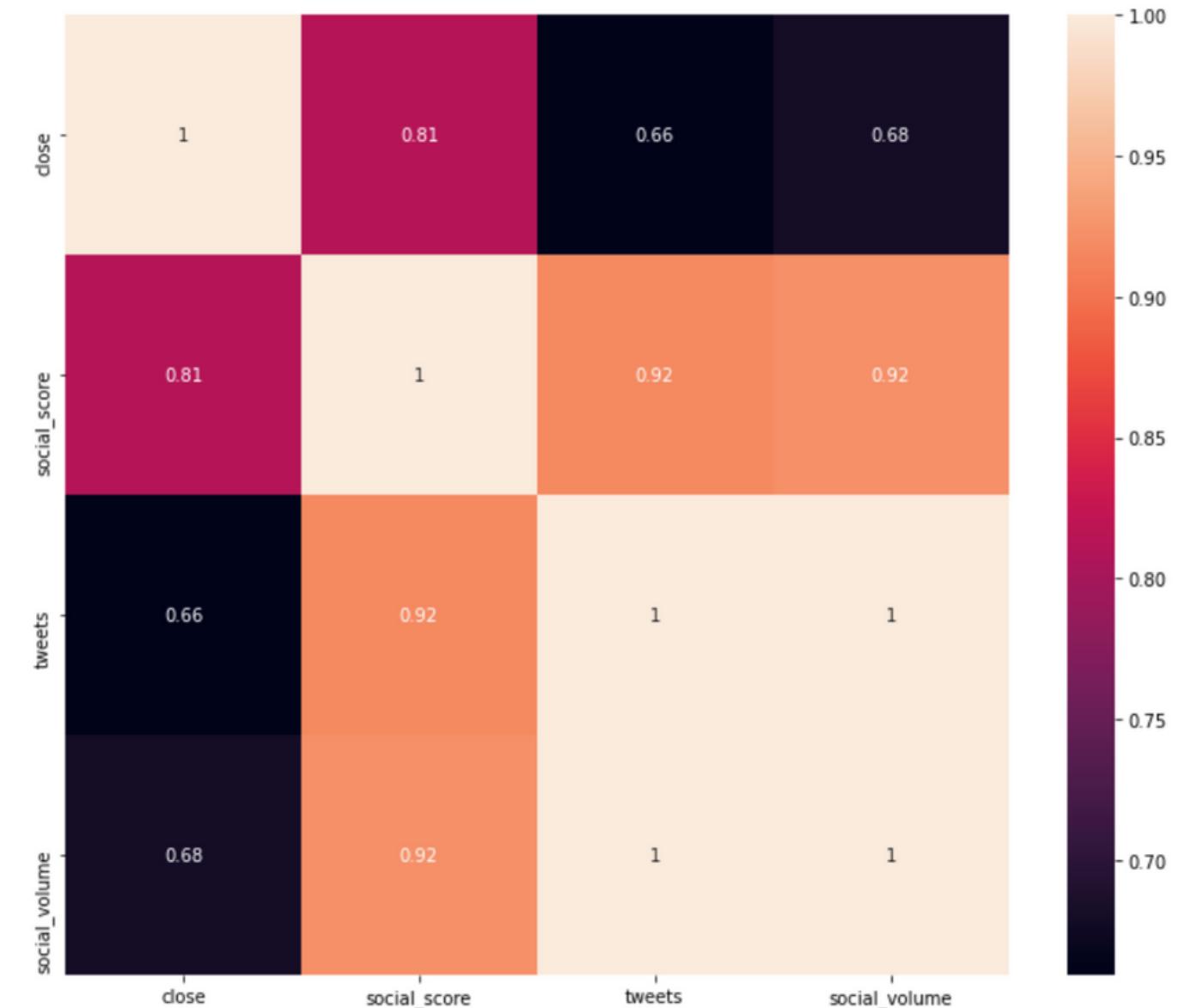
Despite the growth in social
volume over the two year period,
Bitcoin's percentage change
seems to hold strong and more
stable through out this period.

ANALYSIS SUMMARY DOGE COIN (DOGE)

DogeCoin was created in 2013 by software engineers Billy Marcus and Jackson Palmer, originally as a joke to "poke fun at Bitcoin". In January 2021, the price of DogeCoin skyrocketed due to social media activity on Reddit.

The same WallStreetBets thread which explained the concept of short selling to Reddit users and used this community to buy and drive up the value of GameStop stock, also called attention to Dogecoin, which is based on a meme. After this Reddit thread skyrocketed the cryptocoin price from obscurity, social media has continued to have an ongoing effect on the price value and fluctuation.

At its peak, DogeCoin rose by nearly 100% from where its price started at the beginning of January. It has attracted high profile investors like Elon Musk and Mark Cuban and our analysis highlights that spikes in volatility and price frequently coincide in terms of movement



The heatmap shows a significant and material correlation of 0.81 between the close price and social score. Research into the coin itself shows that this correlation cannot be ruled out as a coincidence.

Supported by the asset's initial rise due to social media platform and community focus, and ongoing news and social media volume and content which shows persons of influence directly commenting on their investment status, support of, or opinion of the asset, during times which **coincide with high volatility and price fluctuations and spikes**

ANALYSIS SUMMARY ETHEREUM (ETH)

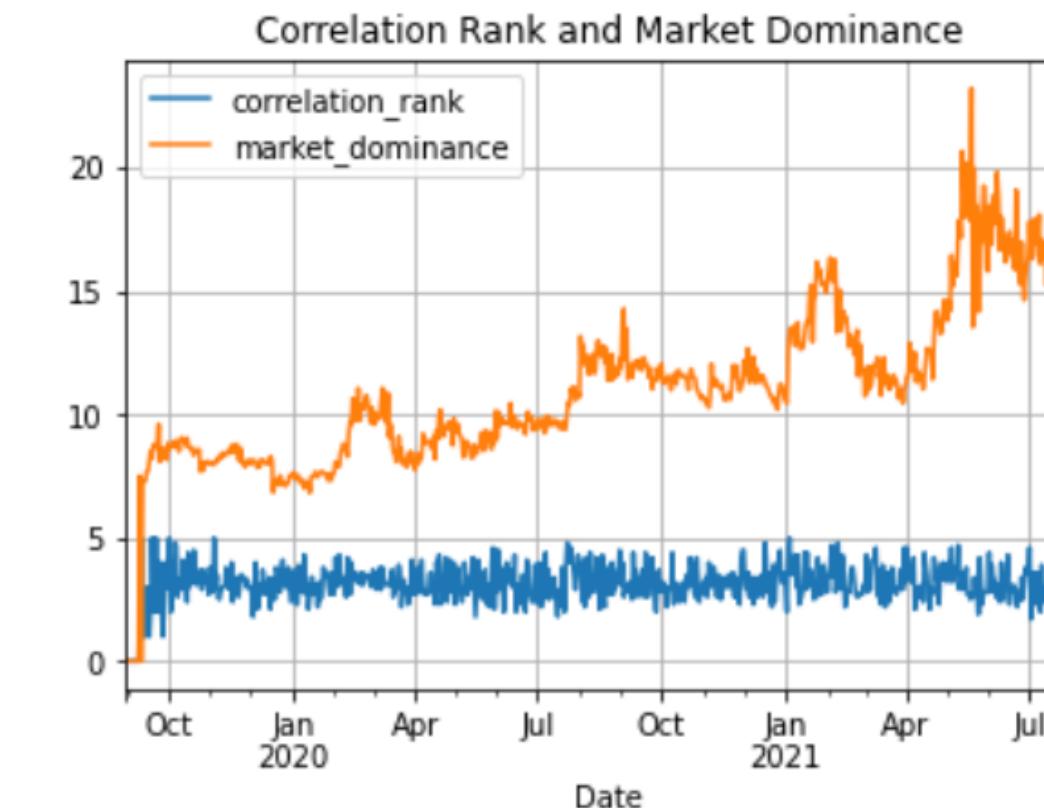
Ethereum is a decentralized, open-source blockchain platform with its own Cryptocurrency. It holds the capacity to host and support other decentralized applications, and hundreds of Cryptocurrencies use Ethereum as the basis for their coins. As a Cryptocurrency, it is second in Market Value to BitCoin as of May 2021.

Based on the data analysis conducted for Ethereum, it was found that social media buzz did not impact the open and close price or volatility of the coin.

Instead, it was rather due to upcoming software or user developments for the coin or knock-on effects from news or conference developments which spiked the coins popularity and as a result, led to social buzz around the coin.

There was a significant change in the closing price for Ethereum in May 2021, where it had been undergoing software updates and user developments in preparation for ETH 2.0 and the upcoming London Hard Fork. There was a point where the coin's price dropped as a knock-on effect of Bitcoin dropping due to Elon Musk tweeting against Bitcoin and China discouraging investors to invest in cryptocurrency.

Overall, we see that Ethereum is a lot more stable and is not directly impacted by social media.



We see increases in social volume in line with the increased closing price but Ethereum's volatility remains predominantly stable with slight rises at points of popularity.

This highlights low correlation between social buzz and volatility of the coin itself

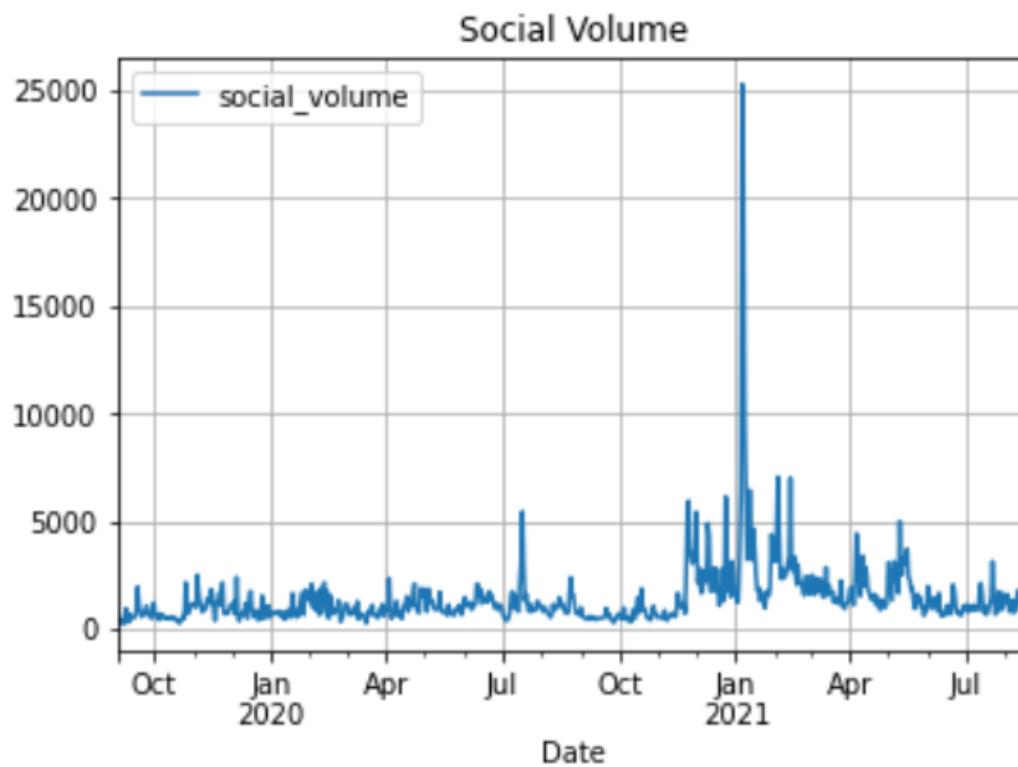


Whilst we see the fluctuation in Ethereum's market dominance, the correlation rank (relating to the coin's social data) is steady, even when the coin has high market dominance.

ANALYSIS SUMMARY STELLAR LUMENS (XLM)

The Stellar coin was an interesting coin to look at as it is not as popular as Bitcoin or Ethereum. In light of this, the **focus was to look at whether the lack of popularity and visibility within social media would affect the open and close price or its market dominance.**

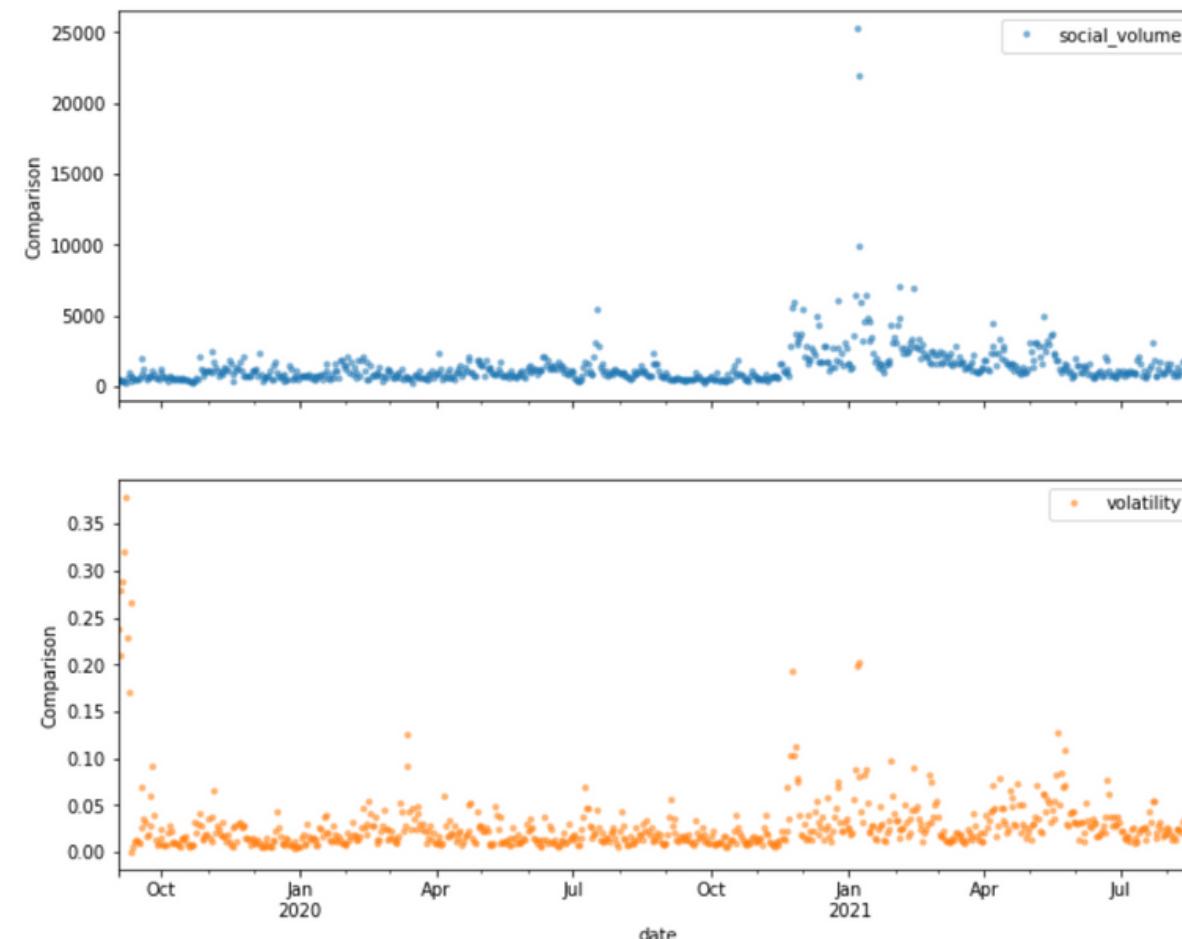
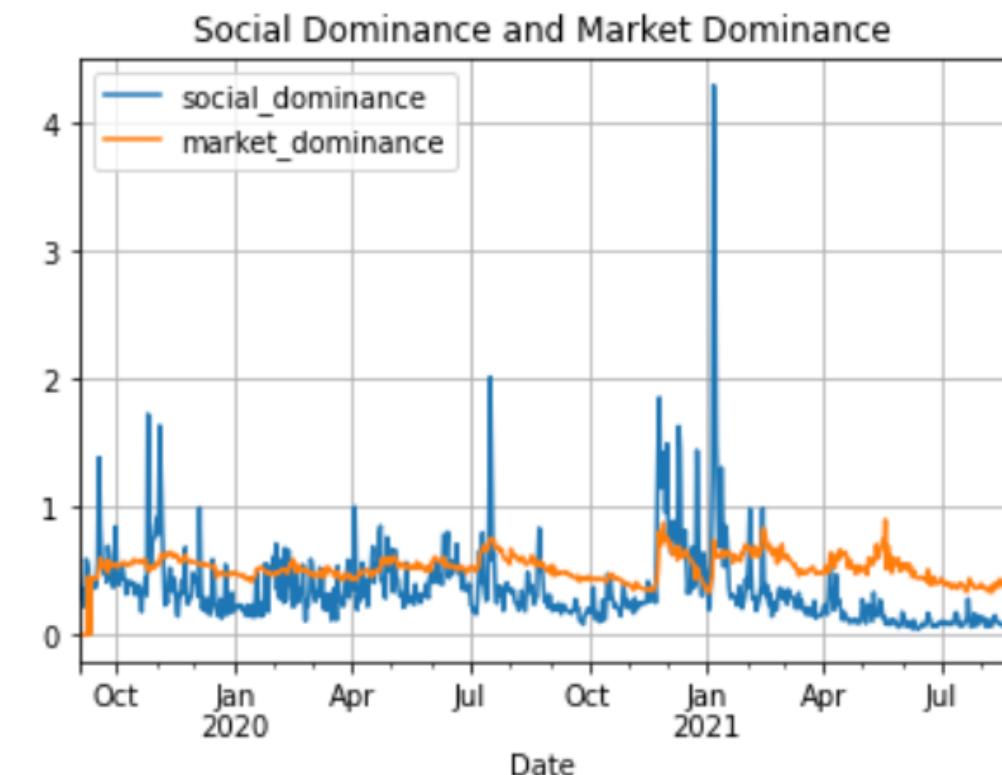
Overall, it was found that because Stellar's social dominance is so little, it has had no effect on its market dominance and even its volatility.



In January 2021, Stellar received some popularity on Reddit, but for negative reasons. This is demonstrated by the sharp spike in social volume.

The Reddit post questioned the stability of Stellar, looking at whether it was profitable. The overall consensus was no.

This appears to be reflected as the reason why in January 2021, there is high social dominance but a plummet in market dominance.



We can see a similar correlation between the coin's social volume and volatility - particularly for the adverse impact that the Reddit post caused January 2021,

KEY FINDINGS: DOES SOCIAL MEDIA IMPACT THE VALUE OF CRYPTOCURRENCY?

BITCOIN (BTC)

- Volatility based more on global events such as pandemic, change in legislation and major player influences such as Tesla.
- A more stable coin in comparison to other coins considering the social media impact.

DOGE COIN (DOGE)

- Price and social score have a material correlation of 0.81
- High price volatility in line with high chatter on social media

ETHEREUM (ETH)

- Ethereum's value is usually impacted by software or user developments like London Hard Fork and ETH 2.0
- Even when social volume increases in line with coin's price, Ethereum's volatility remains stable
- Overall Ethereum remains consistently stable with or without social media buzz

STELLAR LUMENS (XLM)

- Coin's overall low social dominance means it has little effect on coin's market dominance and volatility
- Reddit post in January 2021 had adverse impact as led to increased volatility of the coin
- Value of coin is affected by social media buzz, but overall remains stable without it

CONCLUSION

Our findings show that there is a moderate to high correlation between what is happening in the market and the volume and content of engagement on social media.



More volatile coins such as Dogecoin can be seen as more risky as it is fairly dependent on the current public sentiment. For more seasoned assets such as Bitcoin and Ethereum, although social media and price are correlated, our in depth analysis shows that this is more directly driven by other factors:

- Overall market environment and sentiment
- Capital gains tax regulation
- High profile investors
- Brands that accept the coin as a form of payment or not

Our findings show that although asset prices can be fickle, it is a fast growing market driven by interesting technology and new cryptocoins continue to be introduced and take a stronghold on the market. Whether the cryptocoin is introduced as a joke, or as the hot new way to invest in going to space, both the financial markets and the wider public are willing to invest to see where cryptocurrency goes next.

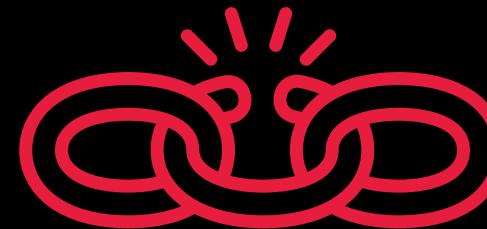
SWOT ANALYSIS



STRENGTHS

Pandas & Matplotlib: We felt fairly confident in using these libraries to perform data cleaning and visualization independently and collaboratively.

Efficient communication: When we encountered errors we were able to communicate and resolve it together. Another strength of our team work and project was efficiency in communication - we were always able to update and share findings via WhatsApp and Slack while not having the time to meet over video call as regularly as we intended.



WEAKNESSES

Knowledge on subject matter: No prior knowledge on the subject matter of cryptocurrency industry resulting in conflict of interest and a team member leaving to join another team where she felt more confident in offering her skills for a more familiar business case. Despite losing a member we gained another member to the team and continued to pursue cryptocurrency as we felt there was an opportunity to learn about this subject.

NumPy: We would have liked to utilize these libraries more but due to lack of time and experience we were not able to use to it extensively.

Consistent design & formatting: We did not have a standardized approach to the format resulting in more work for the integration stage.

SWOT ANALYSIS



OPPORTUNITIES

Documentation: Reading and implementing the documentation in order to extract more meaningful data for the project.

Python: Deeper understanding of Python to have more tools for better performance and practice.

Time Management & Organization: Allowing appropriate time for each aspect of the data analysis project cycle.

Cryptocurrency: Learning about Cryptocurrency and the market.



THREATS

Organization: Due to restricted availability for task delegation and changes within the team

Lack of Time: A lot of work to do in short space of time

Consolidation of learning: Jupyter Notebook and other libraries could not have been used meaningfully