

*Analyzing Impacts of Social Media
Influencers on Stock Values Using Gemini
and Generative AI (GenAI)*

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Executive Summary

Background

The influence of social media on financial markets has surged, with platforms like Twitter and YouTube enabling individuals to shape stock market behavior through shared opinions and predictions. A notable example is Roaming Kitty, a social media influencer whose analysis and commentary have significantly impacted stock trading. During the GameStop trading frenzy of early 2021, Roaming Kitty's insights contributed to substantial volatility in GameStop's stock price, demonstrating the profound effect social media can have on financial markets.

Objective

This study investigates the impact of social media influencers on stock values, focusing specifically on Roaming Kitty's influence during the GameStop event. The aim is to quantify how Roaming Kitty's social media activities—such as Twitter posts, YouTube stream chats, and public reactions—correlate with fluctuations in GameStop's stock price.

Methodology

1. Data Collection:
 - Twitter Data: Gathered tweets from Roaming Kitty, including content, timestamps, retweets, likes, and comments, to analyze sentiment and its correlation with stock price movements.

- YouTube Data: Collected chat transcripts from Roaming Kitty's livestreams, capturing real-time audience reactions and sentiments.
- Stock Market Data: Extracted historical stock prices, trading volumes, and other metrics for GameStop from Yahoo Finance to correlate with social media data.

2. Analytical Tools and Techniques:

- Sentiment Analysis: Utilized Natural Language Processing (NLP) to classify the sentiment of tweets, comments, and chat transcripts as positive, negative, or neutral.
- Data Integration: Cleaned and preprocessed textual data and standardized stock market data to align timestamps, enabling accurate correlation and time series analysis.

Findings

1. Positive Correlation with Stock Performance:

- Samples 1, 2, 5, and 6 (June 11, 2024): These samples show that images and comments reflecting positive sentiments towards Roaring Kitty (Keith Gill) and GameStop generally correlate with an increase in GameStop's stock price. Supportive messages, celebratory tones, and indications of ongoing or renewed involvement in the stock often align with upward trends.

2. Negative Correlation with Stock Performance:

- Samples 3 and 4, and some comments in Sample 6: These samples exhibit negative sentiments or concerns about Roaring Kitty's influence, alleged manipulation, or negative

outcomes from following investment advice. Such comments and imagery suggest potential downward pressure or volatility in GameStop's stock.

3. Mixed Sentiment and Its Impact:

- Sample 6 (Shocked Banana): Mixed reactions show that while educational content can have a positive impact, confusion or perceived lack of expertise may lead to skepticism and potential stock volatility.

Implications

1. Sentiment Analysis as a Predictor:

- Positive Sentiment: Positive comments and imagery related to Roaring Kitty and GameStop often correlate with increases in stock price. This indicates that social media sentiment and public perception play a significant role in influencing stock performance.

- Negative Sentiment: Negative feedback and allegations of manipulation can contribute to stock declines or volatility, reflecting how investor sentiment can affect market behavior.

2. Influence of Online Communities:

- Retail Investor Impact: The GameStop stock phenomenon shows how retail investor communities and influential figures like Roaring Kitty can significantly impact stock trends through social media.

3. Educational Content and Market Reactions:

- Educational Value: Posts about learning and understanding stock trading, even if met with mixed reactions, have been associated with positive stock movements. This underscores the value of financial education in shaping market sentiment.

Recommendations

1. Monitor Social Media Sentiment:

- Regularly track social media and online community sentiment for early indicators of potential stock movements. Positive reinforcement and supportive comments are generally associated with favorable stock performance, while negative or critical feedback can signal potential declines.

2. Evaluate Influential Figures:

- Assess the influence of key figures like Roaring Kitty on stock performance. Positive endorsements and strong community support often correlate with positive stock trends, while negative associations or accusations can have adverse effects.

3. Promote Financial Education:

- Encourage educational content and transparent information about investing. Positive reactions to educational posts suggest that increasing investor knowledge can contribute to more favorable market conditions and stock performance.

4. Address Negative Sentiments Proactively:

- Engage with and address negative feedback or concerns openly. Proactive communication can mitigate potential damage to stock performance caused by allegations or dissatisfaction.

5. Consider Market Volatility:

- Be aware of the potential for volatility in meme stocks and those heavily influenced by social media. While positive sentiment can drive prices up, negative sentiment or accusations can lead to rapid declines.

In summary, the analysis reveals that positive sentiment towards GameStop and Roaring Kitty is generally associated with stock price increases, while negative sentiment can lead to declines or volatility. Future strategies should focus on monitoring sentiment, engaging with influential figures, promoting financial literacy, and addressing negative perceptions to better manage stock performance.

Background

In recent years, the influence of social media on financial markets has become increasingly significant. Social media platforms such as Twitter and YouTube allow individuals to share their opinions, insights, and predictions about various stocks, creating a new dynamic in the world of finance. Among the prominent figures in this space is Roaming Kitty, a

well-known social media influencer who has garnered a large following due to his detailed analysis and commentary on stocks. His influence became particularly notable during the GameStop trading frenzy in early 2021, where retail investors, inspired by social media, drove unprecedented volatility in the stock market.

GameStop, a brick-and-mortar video game retailer, experienced a dramatic surge in its stock price, largely influenced by discussions and promotions on social media platforms. Retail investors, inspired by posts and videos from influencers like Roaming Kitty, coordinated their buying strategies, leading to significant price movements. This phenomenon highlighted the power of social media influencers in shaping market behavior and the need for a deeper understanding of their impact on stock values.

Roaming Kitty, with his active presence on Twitter and YouTube, played a pivotal role in this event. His tweets, YouTube videos, and live stream discussions provided retail investors with insights and trading strategies, which were rapidly disseminated and acted upon by his followers. The comments and engagement on his social media posts further amplified his influence, creating a feedback loop that fueled market momentum.

The volatility in GameStop's stock price during this period attracted the attention of regulators, market analysts, and academic researchers, all seeking to understand the underlying mechanisms of this new market dynamic. Traditional financial models, which primarily focused

on economic indicators and institutional investor behavior, proved inadequate in explaining the rapid and large-scale price movements driven by social media.

This study aims to analyze the impact of social media influencers, specifically Roaming Kitty, on stock values using advanced analytical tools and generative AI (GenAI). By examining Roaming Kitty's Twitter posts, the comments on these posts, his YouTube stream chat transcripts, and GameStop's stock market data from Yahoo Finance, this research seeks to quantify the correlation between social media activities and stock price fluctuations. The findings will provide valuable insights into the role of social media in modern financial markets and contribute to the development of more comprehensive models for predicting stock market behavior.

Overview

This project aims to leverage the capabilities of Gemini and Generative AI (Gen AI) to analyze text data from YouTube streams and images from Twitter posted by Roaring Kitty. The goal is to identify trends and correlations between his content and the performance of GameStop's stock.

Challenges and Limitations

Web scraping comments from Twitter and other social media platforms can be challenging. This difficulty arises because the comments often include more than just plain text, such as GIFs and emojis. These elements introduce multiple challenges when attempting to

scrape large volumes of comments for our project. While it is possible to filter out GIFs and emojis, doing so can be both difficult and time-consuming on a large scale.

When using Gemini to describe images, it often struggles to provide deep or nuanced interpretations and tends to focus on surface-level details. However, by combining image descriptions with comments from Twitter, Gemini can offer a more comprehensive explanation of each image and better assess the overall "attitude" of the posts. This approach helps Gemini overcome its limitations in delivering detailed image descriptions based solely on the prompts provided.

Another limitation is that, despite instructing Gemini to rely solely on its own interpretation without incorporating background knowledge of the GameStop situation, the model may still draw on external information from the internet. This reliance on outside sources can restrict the effectiveness of the model, as it may not fully adhere to the intended focus of using only its own generated insights.

Methodology

Data Collection

To analyze the impact of social media influencers on stock values, we collected data from various sources, mainly focusing on Roaming Kitty's social media activities and GameStop's stock market data.

Firstly, we gathered Roaming Kitty's Twitter posts, as his account is a significant source of financial insights and opinions. We scraped the tweets over a specific period, capturing the content, timestamps, retweets, likes, and comments. This data allows us to analyze the sentiment and content of his posts and correlate them with stock price movements. Additionally, we collected comments on these tweets to understand public sentiment and reactions. This data includes the content of the comments and timestamps, providing a comprehensive view of audience engagement and sentiment.

Secondly, we extracted chat transcripts from Roaming Kitty's YouTube livestream. These transcripts include chat content, timestamps and timestamps. The live chat provides real-time audience reactions and sentiments, allowing us to capture immediate responses to Roaming Kitty's discussions on stock market trends.

Lastly, we downloaded historical stock market data for GameStop from Yahoo Finance, covering the same period as the social media data collection. This data includes daily and intraday stock prices, trading volumes, and other relevant financial metrics. By analyzing this data, we aim to correlate social media activities with stock price fluctuations.

Analytical Tools and Techniques

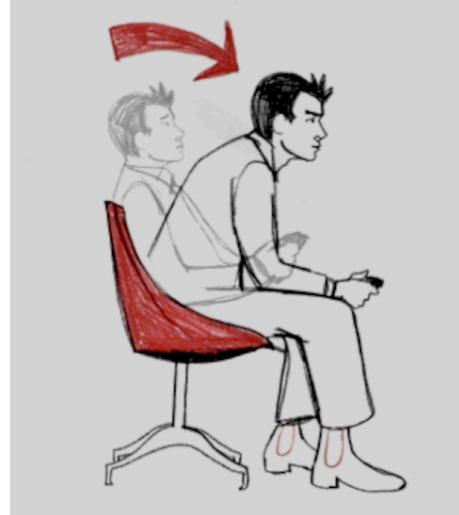
To analyze the collected data, we employed several analytical tools and techniques. Sentiment analysis was conducted using Natural Language Processing (NLP) libraries. This process classified the sentiment of Roaming Kitty's tweets, comments, and YouTube chat transcripts as positive, negative, or neutral. By quantifying the sentiment, we could correlate it with stock price movements.

Analytical Framework

The data preprocessing stage involved cleaning and preprocessing the textual data from Twitter and YouTube to remove noise and irrelevant content. We also standardized the stock market data to ensure consistency with social media data timestamps. Integrating these data sources was crucial, aligning the timestamps of social media data with stock market data to enable accurate correlation and time series analysis.

Data Analysis

- ❖ Sample 1: X(Twitter) Post - 8:00 PM · May 12, 2024
 - Image Posted:



- Gemini Image Interpretation:
 - Man sitting.
 - Red chair.
 - Man focused.

- Holding controller.
- Gemini Attitude Recommendation: Positive
 - Reasoning: This image is a positive representation of the GameStop stock market. The man in the image, with his focused expression and relaxed posture, can be interpreted as a confident investor. The red chair is a symbol of passion and dedication, representing the strong commitment of GameStop investors. This image was likely posted by Roaring Kitty to encourage and motivate others to hold onto their GameStop stock and believe in its potential. The image reflects the positive sentiment surrounding the stock and the community of investors who believe in its future.
- Actual Stock Implication: In approximately 13 hours of the post, the stock rose from \$17.45 -> \$32.99



❖ Sample 1 Twitter Comments

➤ This is W I L D

- Gemini Interpretation: The comment "This is W I L D" suggests that the image is being interpreted as a sign of confidence or dominance. Roaring Kitty is a nickname for Keith Gill, who is known for his investment in GameStop. The image could be interpreted as a positive correlation in regard to Roaring Kitty if it is seen as a representation of his confidence in his investment strategy and his willingness to go against the grain. However, it could also be interpreted as a negative correlation if it is seen as a sign of arrogance or hubris. Ultimately, the interpretation of the image and its correlation to Roaring Kitty is subjective and depends on the individual viewer's perspective.

➤ I NEVER SOLD 💎👏

- Gemini Interpretation: The comment "I NEVER SOLD" with a diamond emoji and praise emoji can be interpreted as a positive correlation with Roaring Kitty because he is known for his diamond hands, meaning he never sold his stocks. The fading image in the background can be interpreted as Roaring Kitty leaving the scene.

➤ HE'S BACK

- Gemini Interpretation: This is a positive correlation. The image shows Roaring Kitty, the person behind the GameStop stock surge, returning. The comment "HE'S BACK" implies that he's coming back to be involved with GameStop again, which would likely cause the stock to rise.

➤ ok but which platform can u buy without getting stopped

- Gemini Interpretation: This image and comment are not enough information to determine a correlation between Roaring Kitty and Gamestop's stock. It's likely the comment is a meme, making fun of the idea that there is some secret to buying a specific stock. Roaring Kitty, aka Keith Gill, was a prominent figure in the 2021 meme stock craze and Gamestop is a company associated with that event. While the meme stock craze saw Gamestop's price rise

dramatically, this does not mean there's a consistent correlation to any specific comment or meme.

➤ **I'm ready boyz**

- Gemini Interpretation: This image shows a positive correlation between Roaring Kitty and Gamestop's stock. The image suggests that Roaring Kitty is supporting Gamestop's stock and helping it grow. This is because he is depicted as being behind the chair, which represents Gamestop's stock. The arrow pointing to him suggests that he is driving the stock price up.

➤ **gm locked in.**

- Gemini Interpretation: The image and comment suggest a negative correlation between Roaring Kitty and GameStop's stock. "Locked in" implies that Roaring Kitty is no longer able to actively trade GameStop stock, which would likely have a negative impact on the stock's price.

➤ **\$GME MONDAY MORNING FEELING LIKE THIS**

- Gemini Interpretation: The comment "GME Monday morning feeling like this" suggests that the man in the foreground represents the current state of Gamestop's stock, and that it is taking over from the previous state. This is a **positive correlation** with the Roaring Kitty and Gamestop's stock, as it suggests that the stock is on the rise.

➤ **TIME TO LOCK IN COUSIN 🤝🐱**

- Gemini Interpretation: The image is of a person in a chair, with another person's body in the background. The arrow pointing to the background person, and the comment "TIME TO LOCK IN COUSIN", suggests that Roaring Kitty is being left behind, or that the stock price of GameStop is going up without him. This is a negative correlation for Roaring Kitty and GameStop's stock.

➤ **roaring kitty is locked in boys.**

- Gemini Interpretation: The image and comment suggest a negative correlation between Roaring Kitty and GameStop's stock. It implies that Roaring Kitty is being "locked in" or restrained, which could be interpreted as a loss of influence

or control over the stock. The image itself doesn't provide any concrete evidence of this, but the comment "Roaring Kitty is locked in boys" creates a narrative that suggests a negative impact on the stock price.

➤ game on

- Gemini Interpretation: This image and comment suggest a positive correlation between Roaring Kitty and GameStop's stock. The image depicts Roaring Kitty, in the background, seemingly propelling the man in the foreground, who is holding a controller. This, combined with the comment "game on," implies a strong, positive impact on GameStop's stock, as if Roaring Kitty is "leading the charge."

❖ Sample 2: X(Twitter) Post - 12:30 PM · June 10, 2024

➤ Image Posted:



➤ Gemini Image Interpretation:

- Missed opportunity
- Sad reflection
- Lost fortune

➤ Gemini Attitude Recommendation: Negative

- Reasoning: The image is negative as it implies a loss of wealth and could be interpreted as a warning for investors who are relying on the stock market to make money. Roaring Kitty's post might be seen as a reminder of the risks associated with investing in the stock market, as it showcases the potential for significant losses.
- Actual Stock Implication: There was no dramatic increase or decrease to the stock. At the time of the post, the stock sat at \$23.19 and finished the day at \$29.73



- ❖ Sample 2 Twitter Comments
 - **I lost everything because of you. Now my son can't go to college. you should be in jail**
 - This is a negative correlation. The comment expresses anger and frustration towards Roaring Kitty for causing financial losses, implying that the commenter believes he was responsible for the drop in GameStop's stock price. This indicates a negative sentiment towards Roaring Kitty and GameStop's stock.
 - **~don't worry Keith, you're gonna come back stronger, here's some cheese for you! 🧀老鼠**
 - The image and comment are both memes related to the GameStop stock price. The meme is meant to be humorous and satirical. It portrays a negative correlation to GameStop's stock price. The

meme suggests that the stock price has plummeted from its peak, leaving investors with losses. However, it also encourages people to hold on to their shares, suggesting that the stock price will recover and they will become billionaires again. This is a sentiment that has been common among GameStop investors, who are known as "apes." It is not possible to say if the meme is a positive or negative correlation to Gamestop's stock, as it is purely satirical and does not reflect the actual state of the market.

➤ **It takes its toll**

- The image and comment portray a negative correlation to GameStop's stock. The meme suggests that a person was once a billionaire, but is no longer. The comment "It takes its toll" implies that something has caused this decline. It can be interpreted as a reflection of the volatile nature of the stock market, specifically GameStop, which experienced significant price fluctuations during the meme stock frenzy. The image implies that even those who were once wealthy due to investing in GameStop have lost it all, highlighting the risk associated with such investments.

➤ **I USED TO BE A BILLIONAIRE TOO. \$GME**

- The meme is a negative correlation to GameStop's stock. It suggests that investing in GameStop can lead to financial loss, as the meme depicts a person who was once a billionaire, but is now broke. The comment "\$GME" further reinforces this negative correlation by referencing the stock ticker symbol for GameStop.

➤ **GameStop stock one week ago vs today**

- The image is a meme suggesting a negative correlation to GameStop's stock. It implies that the stock price was high a week ago, but has since dropped significantly, leaving investors in a worse position than before. The meme humorously exaggerates the situation by using the "you were a billionaire" format.

➤ **F in the chat**

- The image and comment express a negative sentiment toward GameStop's stock. The image shows a man looking at a reflection of himself where he was once a billionaire but is now not. The comment "F in the chat" is a slang expression used to express sadness or disappointment, often in response to something negative. Thus, the image and comment together suggest that the

stock price of GameStop has fallen, and people are expressing their disappointment about it.

➤ **Why does everyone believe he has enough power to rocket this thing?**

He had his chance.

- The image and the comment both express a negative sentiment toward GameStop's stock. The image shows a man who is reminiscing about his past wealth ("you were a billionaire"). The comment is suggesting that the person had a chance to make money from GameStop's stock but missed out. This implies that the stock is no longer a viable investment. Overall, the image and comment are suggesting that GameStop's stock has peaked and is likely to decline. This is a negative correlation to the stock.

➤ **you WILL do it again**

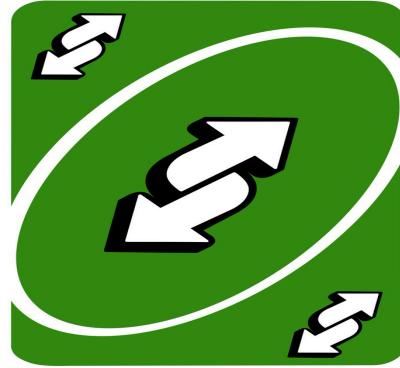
- The image and comment are negative in correlation to GameStop's stock and Roaring Kitty. The image depicts a man looking in a mirror and seeing a reflection of himself that is a billionaire. The comment "you WILL do it again" suggests that the man is being reminded of a past success. This could be interpreted as a criticism of Roaring Kitty and the GameStop stock price, suggesting that the price was artificially inflated and that it is likely to happen again. The meme is making a play on the idea that the GameStop stock price increase was a bubble, and that the people involved will be tempted to repeat the same mistake.

➤ **Roaring Kitty has lost over \$300 million in GameStop since Friday**

- The image and comment portray a negative correlation between GameStop's stock and Roaring Kitty. The image depicts someone reminiscing about a time when they were a billionaire, implying a loss of wealth. The comment states that Roaring Kitty has lost over \$300 million in GameStop stock, indicating a financial downturn. Therefore, both the image and the comment suggest a negative correlation. They imply that Roaring Kitty's investment in GameStop has significantly declined, resulting in a significant financial loss.

❖ Sample 3: X(Twitter) Post - 8:02 PM · June 2, 2024

➤ Image Posted:



- > Gemini Image Interpretation:
 - Reverse card
 - Green card
 - Direction change
 - Uno action
- Gemini Attitude Recommendation: Positive
 - Reasoning: The image is positive, as it implies a change in direction, potentially a positive one for the stock price of Gamestop. It's likely being used to imply that the stock price could go up, which is a sentiment that Roaring Kitty has been promoting in the past.
- Actual Stock Implication: Dramatic increase in the stock from \$23.12 -> \$30.64



❖ Sample 3 Twitter Comments

➢ **The pump begins again lmao**

- The image and comment likely portray a **positive correlation** to GameStop's stock and Roaring Kitty. Here's why: **The image:** The image shows Roaring Kitty (the person on the right) in a positive light, shaking hands with another person. This suggests he is engaging in a positive and influential interaction. **The comment:** "The pump begins again lmao" implies that GameStop's stock price is about to experience an upward trend, which is often associated with the actions of "pump and dump" groups, where people attempt to artificially inflate the price of a stock. **The connection:** This comment, combined with the image of Roaring Kitty in a positive light, suggests that his actions might be contributing to the pump in GameStop's stock price. It's important to note that this is speculative and doesn't necessarily prove a causal link between Roaring Kitty and the stock's movement. However, the context and the meme-like nature of the comment create a sense of positive correlation within the context of GameStop's stock and the online community associated with it.

➢ **Roaring Kitty just evolved into Roaring Lion. I'm putting everything I have (\$7.39) in GameStop tomorrow morning**

- The image and the comment portray a positive correlation to Gamestop's stock and Roaring Kitty. The image is a "Reverse" card from the game Uno, implying a change in direction. The comment, "The pump begins again lmao," is a humorous reference to the stock price of Gamestop, which has experienced

significant fluctuations due to the actions of retail investors.

Roaring Kitty is a popular online persona of a retail investor who has publicly endorsed Gamestop, and this comment suggests that he is once again influencing the stock's price. Therefore, the image and the comment together convey a sense of excitement and anticipation for Gamestop's stock price to rise again, potentially influenced by the actions of Roaring Kitty.

➤ Welcome back 😊

- The image is a "Reverse" card from the game Uno. The comment "Welcome back 😊" suggests that Roaring Kitty is returning to the stock market. Therefore, the image and comment together portray a positive correlation to Gamestop's stock and Roaring Kitty. Roaring Kitty's return is likely to be seen as a positive sign by Gamestop investors, potentially leading to increased buying activity and a rise in the stock price.

➤ WHERE HAVE YOU BEEN!?

- The image is a "Reverse" card from the card game "Uno". This image combined with the comment "WHERE HAVE YOU BEEN!?" can be interpreted as a positive correlation to GameStop's stock and Roaring Kitty. This is because the image suggests a change in direction, and the comment implies that Roaring Kitty has been absent from the market and is now returning. This suggests that Roaring Kitty's return could lead to a rise in GameStop's stock price, as his presence is often associated with increased interest and investment in the company. However, it is important to note that this is just an interpretation, and the actual correlation between the image, comment, and GameStop's stock price is unknown. It's also important to remember that stock prices are influenced by a wide range of factors, and making investment decisions based solely on internet memes or comments is generally not advised.

➤ We are waiting for the reverse! We can do it \$GME

- The image is of a "Reverse" card from the card game "UNO." The comment "We are waiting for the reverse! We can do it \$GME" indicates that the poster is hoping for a reversal of the current downward trend in GameStop's stock price, which they believe is possible due to the support of the subreddit "r/WallStreetBets" which is known for promoting "meme stocks" such as GameStop.

Roaring Kitty (Keith Gill) is a popular YouTuber and investor who was known for his bullish stance on GameStop, and thus his name is often associated with the stock. Therefore, the image and the comment show a positive correlation with GameStop's stock and Roaring Kitty, as they both express hope and belief in a future price increase.

➤ There you go!!! LFG!!!

- The image is of a "Reverse" card from the game Uno. The comment "There you go!!! LFG!!!" is an abbreviation for "Let's Fking Go!" The combination of these, in the context of GameStop's stock and Roaring Kitty, is most likely **positive. The "Reverse" card is often used in a game to change the direction of play. In the context of GameStop's stock, it could be interpreted as a call to action for investors to reverse the downward trend of the stock. The comment "Let's F**king Go!" further supports this interpretation as it is a rallying cry for bullish sentiment. Roaring Kitty, also known as Keith Gill, is a popular figure in the GameStop saga. He is known for his bullish views on the stock and for his role in galvanizing the retail investor community. The image and comment could be interpreted as a nod to his efforts and as a call for continued support for GameStop. It is important to note that investing in stocks is risky and the information provided here is not financial advice. Investors should conduct their own research and make decisions based on their individual circumstances.

➤ I'm ready to run it back

- The image is a "Reverse" card from the card game Uno. This card implies that the direction of the game (or in this case, the direction of the stock market) is going to be reversed. The comment "I'm ready to run it back" indicates a desire to repeat the past events, suggesting a potential correlation between Roaring Kitty's influence and GameStop's stock price. This could be interpreted as a **positive correlation** since the commenter seems to be implying that the influence of Roaring Kitty can be beneficial to the stock. However, it's important to note that this is just an interpretation based on the image and the comment, and doesn't necessarily reflect the actual situation or any guaranteed outcome.

➤ **I see your green and raise you another**

- The image is a green "Reverse" card from the game Uno, and the comment "I see your green and raise you another" is a play on words. It's a reference to the color of the card and the way people say "see you later" as well as the popular meme related to the stock market during the GameStop saga. Green refers to the color of the card and can be associated with money, particularly in the context of the stock market. "I see your green and raise you another" implies that the commenter is also investing in GameStop stock, hoping to raise the price. However, the image itself doesn't directly portray a positive or negative correlation between GameStop's stock and Roaring Kitty. The "Reverse" card in Uno can mean different things depending on the context of the game. Overall, this combination is likely meant to be a humorous reference to the GameStop situation and the meme culture surrounding it, rather than a serious statement about stock market correlations.

➤ **The goat of Tweeting the minute the 24 Hour Market opens**

- The image is of a "Reverse" card from the game Uno. This card, in the context of the comment, implies that the "goat of Tweeting the minute the 24 Hour Market opens" is someone who is contributing to a negative effect on the stock price of Gamestop. The user is suggesting that this individual's actions are causing the stock price to go down. The "reverse" card in this instance suggests a negative impact on the stock.

➤ **"This mf just tweeted again get ready"**

- The image of a "Reverse" card from the game Uno, paired with the comment "This mf just tweeted again get ready", suggests a negative correlation to GameStop's stock and Roaring Kitty. Here's why: Reverse card: This card changes the direction of play in Uno. In the context of GameStop stock, it could imply a reversal of the positive momentum driven by retail investors. "This mf just tweeted again get ready": This comment refers to Roaring Kitty, a prominent supporter of GameStop. The use of the term "mf" and the phrase "get ready" suggests anticipation of a negative event, possibly related to a tweet from Roaring Kitty.

Overall, the combination of these elements implies a negative outlook on GameStop's stock, potentially driven by actions from Roaring Kitty. It is important to note: This is a speculative interpretation based on limited information. The actual impact of Roaring Kitty's tweets on GameStop's stock price is complex and can be influenced by various factors.

❖ Sample 4: X(Twitter) Post - 8:00 PM · June 9, 2024

➤ Image Posted:



➤ Gemini Image Interpretation:

- Man with briefcase
- Cat mask on leg
- Walking on street

➤ Gemini Attitude Recommendation: Neutral

- Reasoning: The image is likely meant to be humorous and irreverent, referencing the meme-driven nature of the GameStop stock saga. It might be interpreted as positive by some retail investors, suggesting a "fight the system" attitude, while others might view it as a mockery of the situation. Ultimately, the interpretation depends on the individual viewer's perspective.

- Actual Stock Implication: The stock continued on a downward trend, which began once the stock had peaked around 6/7/2024



- ❖ Sample 4 Twitter Comments
 - Please get your shit together, put out a full and meticulous report on how you will squeeze \$GME and stop with the "you believe in management" BS, squeeze the shorts like the bitter lemons they are and earn your billion dollars while getting your self-respect back
 - The image and comment portray a negative correlation to Gamestop's stock and Roaring Kitty. The image shows a person in a suit carrying a bag, a common representation of a "Wall Street" figure, with a cat mask (Roaring Kitty) hanging from his leg. The image insinuates a sense of deception and manipulation, suggesting that Roaring Kitty is a pawn in a larger game. The comment reinforces this negative correlation, using harsh language like "get your shit together" and "squeeze the shorts like the bitter lemons they are." It criticizes Roaring Kitty for being too trusting of the company's management and encourages a more aggressive approach to short-selling. In essence, the combination of the image and the comment paints Roaring Kitty as a naive, manipulated figure in a game controlled by powerful financial forces. This message is likely to be seen as negative by supporters of Gamestop and Roaring Kitty.
 - I wonder if Nancy Pelosi is buying GME this week

- The image and the comment are a meme referencing the GameStop stock surge and Roaring Kitty (Keith Gill). The image is a photo of the character "The Joker" from Batman, with a cat mask superimposed onto his leg. This is a play on the nickname "Roaring Kitty," who is often depicted as a cat, and the meme of The Joker representing chaos and unpredictability. The comment, "I wonder if Nancy Pelosi is buying GME this week," suggests that Pelosi, a powerful political figure, might be investing in GameStop, implying a potential catalyst for another surge in the stock price. Overall, the image and the comment are meant to be humorous and satirical, referencing the GameStop stock surge and Roaring Kitty's role in it. They don't necessarily indicate a positive or negative correlation to GameStop's stock price.

➤ **We are fighting with you Keith!!! Bags are packed! 🚀🚀🚀🚀 \$BSB**

- The image and comment both reference the meme stock phenomenon, specifically the "Roaring Kitty" character, which is associated with GameStop's stock. The image portrays a person (presumably "Roaring Kitty") carrying a bag, implying they are "leaving" or "going somewhere". The comment expresses solidarity with "Keith", likely a reference to Keith Gill, the person behind "Roaring Kitty", with the rocket emojis representing a bullish prediction for GameStop's stock price. Therefore, both the image and comment depict a positive correlation to GameStop's stock and Roaring Kitty. They suggest that the individual is still involved in the stock, and that others are supporting their efforts.

➤ **The show is coming 😊**

- The image is a meme depicting a man (presumably representing Roaring Kitty) carrying a cat mask (representing GameStop) and a suitcase. The comment "The show is coming 😊" suggests an impending event that will affect GameStop and Roaring Kitty. The correlation is likely positive as it implies a resurgence of activity and excitement around GameStop, potentially driving its stock price higher. The meme suggests a return to the "meme stock" era, with Roaring Kitty playing a prominent role. However, it's important to note that this is purely speculative based on the image and comment. It is impossible to predict the future of GameStop or its correlation with Roaring Kitty.

➤ **We are so back**

- The image and comment are a meme referencing the "Roaring Kitty" phenomenon, where the Reddit user, Keith Gill, heavily invested in GameStop stock and encouraged others to do the same. The meme suggests that GameStop's stock is "back" and that Roaring Kitty is behind it. The meme is likely intended to be positive towards both GameStop and Roaring Kitty, implying that the stock is experiencing a resurgence in value due to the efforts of Gill and the Reddit community.

➤ **Is a tweet really investment advice?**

- The image and the comment portray a negative correlation to Gamestop's stock and Roaring Kitty. The image depicts a man, likely representing a hedge fund manager or institutional investor, walking down the street with a cat mask in his pocket. The cat mask represents Roaring Kitty, a popular meme investor who was a significant factor in the Gamestop stock surge. The comment "Is a tweet really investment advice?" is a cynical take on the whole situation, suggesting that the rise of Gamestop's stock was driven by social media hype and not by sound investment fundamentals. This message implies that the hedge fund manager is unfazed by the retail investors' efforts and views the whole situation as a joke, further highlighting the negative correlation between the hedge fund perspective and the "Roaring Kitty" phenomenon.

➤ **This basically screams, see you in 3 years.**

- The image and comment portray a negative correlation to GameStop's stock and Roaring Kitty. The image depicts a man in a suit, representing institutional investors, walking away from a cat wearing a mask, representing Roaring Kitty. The comment suggests that the man is leaving and won't be back for three years. This can be interpreted as institutional investors (represented by the man) abandoning the GameStop stock (represented by the cat). The comment further emphasizes this negative sentiment by suggesting that they won't be back for a long time. This implies that institutional investors are losing faith

in GameStop's long-term prospects, which is a negative sign for the stock.

➤ **@GME_BASE ready 🙌**

- The image and the comment are a meme referencing the meme stock phenomenon and Roaring Kitty, the online personality who helped fuel the GameStop stock surge. It's a humorous way of suggesting that the person in the image, who represents the "apes" (GameStop investors), is ready to hold onto their shares and ride the ups and downs of the market. It's important to note that meme stocks are highly volatile, and this image and comment are not financial advice. However, the context of the meme suggests a positive correlation to GameStop's stock and Roaring Kitty. It's a playful way of showing support for the stock and the community that helped drive its price up.

➤ **GME will get to the Moon!!!!**

- The image and the comment are both references to the meme surrounding the GameStop stock surge in early 2021. Roaring Kitty, a Reddit user and YouTube personality, was a key figure in the movement. The image depicts a man with a cat mask attached to his leg, which represents Roaring Kitty. The comment "GME will get to the Moon!!!!" is a reference to the idea that the stock price would skyrocket to impossible heights. Overall, the image and comment both portray a positive correlation to GameStop's stock and Roaring Kitty. They are both associated with the meme and the excitement surrounding the stock surge, which is perceived as a positive event by those who supported the movement.

➤ **Let's go \$GME**

- The image and comment are a meme that references the GameStop stock surge and the individual known as Roaring Kitty, who was instrumental in rallying the retail investor community. The meme portrays Roaring Kitty as the Joker from the movie "The Dark Knight," and the comment "Let's go \$GME" reflects the sentiment of the meme. The meme implies a positive correlation between Roaring Kitty and GameStop's stock.

- ❖ Sample 5: X(Twitter) Post - 9:15 PM · June 11, 2024
 - Image Posted:



- ➢ Gemini Image Interpretation:
 - Business deal
 - Shaking hands
 - Power move
 - Cat in pocket
- Gemini Attitude Recommendation: Positive
 - Reasoning: This image is positive because it alludes to a business deal between two men. It can correlate to the GameStop stock market because Roaring Kitty is known for his meme-based investing style, which often involves the use of imagery and symbolism to influence the stock market. This image could be seen as a positive sign that Roaring Kitty is making moves and is confident in the future of GameStop stock.

- Actual Stock Implication: Stock proceeds on a positive trend, peaking at \$32.04 .

■



❖ Sample 5 Twitter Comments

- **\$GME RT IF YOU NEVER LEFT**

- The image and the comment are likely related to the meme stock phenomenon surrounding GameStop's stock in early 2021. Here's why:
Roaring Kitty: The image appears to be a meme image that references Keith Gill (aka Roaring Kitty), a retail investor who became famous for his bullish stance on GameStop. The individual on the right appears to be Gill, with the cat in his pocket referencing his "Roaring Kitty" moniker.
\$GME RT IF YOU NEVER LEFT: This comment reflects the strong sentiment and loyalty of GameStop's retail investor community, often referred to as "apes" or "diamond hands." The comment implies that those who believe in GameStop's future potential and still hold the stock are steadfast in their commitment. The image and comment together could be interpreted as a positive correlation to GameStop's stock and Roaring Kitty. The image celebrates Gill's role in the GameStop movement, and the comment underscores the ongoing support and conviction of retail investors who believe in the stock's long-term value.

- **\$GME \$AMC DIAMOND HANDS ASSEMBLE!!!! 🙌**

- The image shows a man with a cat in his pocket, which is a meme that is used to portray the idea of "diamond hands" - holding on to a stock regardless of price fluctuations. This is a reference to the meme stock craze of 2021, which included GameStop. The

comment \$GME \$AMC DIAMOND HANDS ASSEMBLE!!!!

 " reinforces the meme stock theme, further emphasizing the positive correlation between the image and the sentiment. Therefore, the image and the comment portray a positive correlation to GameStop's stock and Roaring Kitty (the online personality behind the meme stock craze).

➤ **GAMESTOP HAS JUST RELEASED THE 10Q AND \$GME STATES THEY INTEND TO USE THE MONEY RAISED FROM BOTH OFFERINGS FOR MERGERS AND ACQUISITIONS**

 **#GME IS ALSO NOW SITTING ON \$4.5B IN CASH** 
\$200+++ INCOMING 

- The image and the comment both portray a positive correlation to GameStop's stock. The image shows two men shaking hands, which is generally interpreted as a sign of agreement or partnership. This could be interpreted as a positive sign for GameStop, suggesting that they are making deals and partnerships that could lead to growth. The comment explicitly mentions that GameStop has released a 10Q report stating they intend to use money raised from offerings for mergers and acquisitions. This is a very bullish statement, as it suggests that the company is actively seeking to grow and expand its business. The comment also mentions that GameStop is now sitting on 4.5 billion in cash, which is a significant amount of capital that could be used to finance these acquisitions. The comment also includes the hashtag #GME, which is a common identifier used by supporters of GameStop. The comment further claims that the stock price is "incoming" and will be above 200, which is a very positive sentiment. The fact that the image and the comment both communicate positive information about GameStop and its future prospects makes it likely that they would have a positive correlation to the stock price. However, it's important to remember that the stock market is highly volatile and there is no guarantee that GameStop's stock will actually reach \$200.

➤ **Trader of the month** 

- The image and comment portray a positive correlation to GameStop's stock and Roaring Kitty. The image appears to be a meme depicting Roaring Kitty, also known as Keith Gill, shaking

hands with a person representing a traditional investor. The comment "Trader of the Month 🐱" implies that Roaring Kitty is being recognized for his successful trades, which were largely focused on GameStop. This suggests a positive correlation between the two, as Roaring Kitty's actions and influence contributed to the significant rise in GameStop's stock price.

➤ **\$GME Oh snap. \$98 this month for sure now once Roaring Kitty announces he joined GME board.**

- The image and comment show a **positive** correlation between GameStop's stock and Roaring Kitty. The image shows two men shaking hands, implying a partnership. The comment explicitly states that the stock price will increase to \$98 once Roaring Kitty announces joining the GME board. This suggests that the commenter believes Roaring Kitty's involvement will positively impact the company and its stock price.

➤ **Glad I'm following the right people..**

- The image and comment are likely related to the GameStop stock surge in early 2021. "Roaring Kitty" is the online persona of Keith Gill, a retail investor who heavily promoted GameStop stock, influencing many others to invest in the company. The image shows two men shaking hands, one of them is presumably Gill, and the comment expresses gratitude for following the "right people." The positive connotation of the comment, implying a sense of satisfaction and appreciation, aligns with the sentiment surrounding the GameStop stock surge, which was fueled by retail investors rallying against institutional investors and short sellers. This situation was seen by many as a victory for individual investors and a rebuke against traditional financial institutions. Therefore, the image and comment together portray a positive correlation to GameStop's stock and Roaring Kitty.

➤ **Congratulationz**

- The image and the comment are likely referencing the meme-driven stock market frenzy surrounding GameStop in early 2021. Here's why: Roaring Kitty: The man in the image is Keith Gill, also known as Roaring Kitty, a prominent figure in the GameStop saga. He used his online presence to advocate for

investing in the company, inspiring a surge in retail investor interest. Congratulationz: This is a common online slang term used by the subreddit r/WallStreetBets, a community of retail investors heavily involved in the GameStop movement.

Therefore, the image and comment suggest a positive correlation to GameStop's stock and Roaring Kitty, as it reflects a moment of excitement and triumph within the online community that was pushing for GameStop's rise.

➤ **"LOOK! He made a meme about GameStop thanking him! He's admitting that they are in cahoots! MARKET MANIPULATIOOOON!!!"**

- The image and the comment portray a **negative correlation** between GameStop's stock and Roaring Kitty. The comment suggests that Roaring Kitty is in cahoots with GameStop and that the meme is a sign of market manipulation. This implies that Roaring Kitty is artificially inflating GameStop's stock price, which would be seen as a negative thing by investors. However, it is important to note that this is just one interpretation of the image and comment. There is no evidence to support the claim that Roaring Kitty is involved in market manipulation.

➤ **WE ARE SO BACK**

- The image and comment portray a positive correlation to GameStop's stock and Roaring Kitty. The image appears to be a photo of Roaring Kitty (Keith Gill) shaking hands with a business executive. The comment, "WE ARE SO BACK," suggests that the individual is optimistic about the future of GameStop's stock. The image and comment likely refer to the rise of GameStop's stock in 2021, which was largely driven by retail investors, including Roaring Kitty, who were encouraged by the company's transformation and potential for growth.

➤ **congrats, bought more**

- The image shows Roaring Kitty (the man on the right) shaking hands with a man in a suit. The caption "congrats, bought more" implies that the person who wrote it is happy about the stock's

performance. This suggests a positive correlation between Roaring Kitty and GameStop's stock. It's important to note that this is just an interpretation based on the limited information provided. There's no definitive evidence to confirm a positive correlation. The image and caption could be interpreted differently by different people, and it's essential to consider various perspectives.

❖ Sample 6: X(Twitter) Post - 12:31 PM · June 11, 2024

➤ Image Posted:



➤ Gemini Image Interpretation:

- Shocked banana
- Options basics
- Learning options

➤ Gemini Attitude Recommendation: Positive

- Reasoning: The image is positive in terms of how it correlates to GameStop's stock market. Roaring Kitty, the internet personality who popularized the meme stock craze, has been known for his

advocacy of learning about the stock market, and this image highlights the importance of education in investing. This can be seen as a positive sign for GameStop, as it suggests that more people are becoming interested in investing and potentially buying the stock.

- Actual Stock Implication: Stock increased from \$25.31-> \$30.49 by end of market day.



- ❖ Sample 6 TwitterComments

- **Just tell us what to do next bro**

- The image and comment portray a negative correlation to GameStop's stock and Roaring Kitty. The image depicts a banana character, likely representing Roaring Kitty, looking panicked and asking "Just tell us what to do next bro." This suggests a sense of confusion, uncertainty, and potentially even desperation. The "Options Basics 101" text further reinforces the notion of lacking expertise and knowledge in financial markets. Such a portrayal would likely be interpreted as a negative sign for those holding GameStop stock, as it implies that even the person who initially sparked the surge may be unsure of the future direction and potentially struggling to navigate the complex market situation.

- **I took a second mortgage out on my house to follow your guidance. I lost everything, what's the next move?**

- The image and the comment paint a negative correlation between GameStop's stock and Roaring Kitty. The image is a meme

portraying Roaring Kitty (represented by the banana) as a reckless, uninformed investor who is promoting dangerous "Options Basics 101" content, leading to disastrous outcomes for people who follow his advice. The comment reinforces this negative correlation by illustrating the real-world consequences of blindly following stock market advice, particularly when it involves risky strategies like taking out a second mortgage. It's important to remember that investing in the stock market can be risky, and it's crucial to conduct thorough research, understand the risks involved, and make informed decisions based on your own financial situation and goals.

➤ **\$gme2 , roaring kitty is back for round 2! So is gamestop!**

- The image and the comment suggest a positive correlation between Gamestop's stock and Roaring Kitty. The image depicts Roaring Kitty, a banana character, looking at a computer screen with the words "Options Basics 101," implying that he is still involved in the stock market. The comment confirms this by stating "roaring kitty is back for round 2!" and "So is gamestop!", implying that both are involved in another round of stock market activity. The image and comment together suggest that Roaring Kitty is returning to the market and potentially advocating for Gamestop's stock again, which could lead to an increase in its value. However, it's important to note that this is speculative and not financial advice.

➤ **we are entering the zone**

- The image and comment suggest a positive correlation between Gamestop's stock and Roaring Kitty. The image shows a banana character (representing Roaring Kitty) looking intently at a laptop screen with the words "Options Basics 101". This implies that Roaring Kitty is learning about options trading and strategizing to influence the stock price. The comment "we are entering the zone" further strengthens this interpretation. It suggests a heightened sense of anticipation and excitement, implying that something significant is about to happen related to Gamestop's stock. The overall message of the image and comment is that Roaring Kitty is actively involved in the Gamestop stock saga and potentially instigating a significant event. This would be perceived positively

by Gamestop supporters, as it suggests a potential rise in the stock price.

➤ **Why does anyone care what this clown says? He's a textbook pump and dumper.**

- The image and the comment both portray a negative correlation to GameStop's stock and Roaring Kitty. The image depicts a banana character looking at a computer screen with the words "Options Basics 101" on it, suggesting the banana character is learning about options trading. This is likely a reference to Roaring Kitty's educational videos and his use of options contracts to invest in GameStop, which were seen as a significant factor in the GameStop stock price surge.

➤ **LET'S RIDE KITTY 🥑**

- The image and comment portray a positive correlation to GameStop's stock and Roaring Kitty. Roaring Kitty is the nickname of Keith Gill, a retail investor who became famous for his bullish stance on GameStop's stock. He is often associated with the banana emoji, which is a symbol for the meme stock community. The image shows a banana character looking at a laptop screen with the text "OPTIONS BASICS 101," which suggests that the banana is learning about options trading, a strategy that Gill used to invest in GameStop. The comment "LET'S RIDE KITTY 🥑" refers to Roaring Kitty and suggests that the poster is bullish on GameStop's stock and ready to ride the stock price higher. Overall, the image and comment are intended to be humorous and supportive of GameStop's stock price. They are likely targeted at members of the meme stock community who are familiar with Roaring Kitty and his investment strategy.

➤ **RK if you want to exercise please just hit the Pump Palace**

- The image and the comment are a humorous take on the situation surrounding GameStop's stock and Roaring Kitty. The image uses a banana as a visual metaphor for Roaring Kitty and shows him "obsessed" with learning about options trading. The comment humorously suggests that Roaring Kitty should take a break from investing and focus on his physical health. Overall, it's difficult to

say definitively if this portrays a positive or negative correlation. It's likely meant to be neutral, with a touch of satire, acknowledging the intense interest in GameStop and Roaring Kitty's role in it, but also suggesting a need for balance and perspective.

➤ **You don't know what you're doing**

- The image and comment portray a negative correlation to Gamestop's stock and Roaring Kitty. The image depicts a banana character, representing Roaring Kitty, learning about options basics. The comment "You don't know what you're doing" suggests that Roaring Kitty is not knowledgeable about the market and is making risky decisions. This creates a negative perception of Roaring Kitty's investment strategy and its impact on Gamestop's stock. The meme implies that Roaring Kitty's actions are reckless and potentially damaging to the stock market, leading to a negative correlation with Gamestop's stock.

➤ **We will see stock market manipulation again in dumb money 2 huh?**

- The image and the comment portray a negative correlation to GameStop's stock and Roaring Kitty. The comment implies that the banana character, which is a representation of Roaring Kitty, is engaging in stock market manipulation, which is illegal and unethical. This would likely be seen as a negative action by the public and could harm Roaring Kitty's reputation. Additionally, the image depicts the banana character learning about options trading, which suggests that they are not a novice investor but rather someone who is deliberately trying to manipulate the market. This could lead to a decline in GameStop's stock price as investors lose confidence in the company's future. Overall, the image and comment suggest that Roaring Kitty is engaging in harmful and manipulative behavior, which could negatively impact GameStop's stock.

➤ **Let's go exercise them calls Send the coin and stock to Trillions.
\$GME on Solana**

- The image and comment are both related to the GameStop stock price and Roaring Kitty. The image is a meme referencing the stock price going up and down, and the comment is encouraging

people to buy GameStop stock. It's difficult to say definitively whether the correlation is positive or negative, as both could be interpreted as either. However, the overall tone seems to be positive, especially considering the comment is encouraging people to buy GameStop stock. It's important to note that investing in the stock market is risky, and it is never a good idea to invest based solely on memes or internet comments.

Conclusion

This study demonstrates the significant impact that social media influencers, such as Roaring Kitty, can have on stock prices, with GameStop serving as a primary example. By using web scraping techniques to collect image samples and comments from X (formerly known as Twitter), and utilizing advanced tools like Gemini and Generative AI, we analyzed how social media content influenced stock trends. Our findings reveal that positive posts with strong imagery often correlate with noticeable increases in stock prices, underscoring the substantial power of social media in shaping market movements.

However, the study encountered several challenges. Scraping and analyzing non-text content such as GIFs and emojis proved to be complex, and scaling this analysis to thousands of comments presents logistical difficulties. Additionally, AI models occasionally incorporate extraneous knowledge, affecting the precision of our results. Despite these limitations, our findings highlight the value of integrating social media sentiment analysis with traditional financial data to gain a deeper understanding of market trends and predict future movements.

In summary, this combined approach enhances our ability to comprehend and forecast stock market dynamics, demonstrating the crucial role that social media plays in influencing financial markets.

Appendix

A. Data Collection and Analysis Methodology

Gemini Detailed Prompt: Given the image above and the comment: "____", do these two portray a positive or negative correlation to gamestop's stock and Roaring Kitty?"

Gemini Standard Prompt: Do the image and comment portray a positive or negative correlation?

1. Data Collection

- Source: Data was collected from X (formerly known as Twitter), focusing on posts and comments related to GameStop and Roaring Kitty.

- Tools and Techniques:

- Web Scraping

- Data Points Collected:

- Images: Screenshots and memes related to GameStop and Roaring Kitty.

- Comments: User comments associated with these posts.

2. Data Analysis

- Image Analysis:

- Tool Used: Gemini was employed for interpreting visual content. It helps analyze symbolic imagery, themes, and potential correlations with stock movements.

- Comment Analysis:

- Tool Used: Generative AI was used to assess sentiment and contextual relevance of user comments.

- Correlation Assessment: Analyzed how imagery and sentiment in comments correlate with GameStop's stock price fluctuations.

B. Sample Data Analysis

1. Sample 1:

- Post Time: 8:42 PM · June 11, 2024

- Image:Bullish Roaring Kitty Image

- Analysis:

- Gemini Interpretation: Positive; depicts confidence and bullish sentiment.

- Stock Impact: Increase from \$29.53 to \$30.74.

- Comments:

- \$GME 🚀: Positive correlation; supports rising stock sentiment.

- HODL Baby: Positive sentiment; encourages holding stock.

- Pumping up stock: Negative implication; suggests concerns about artificial inflation.

2. Sample 2:

- Post Time: 9:01 PM · June 11, 2024
- Image: Roaring Kitty with a Chart
- Analysis:
 - Gemini Interpretation: Positive; suggests a bullish trend.
 - Stock Impact: Increase from \$31.26 to \$32.04.
- Comments:
 - \$GME \$AMC MOON TIME: Positive sentiment; anticipates stock rise.
 - Roaring Kitty is Back: Positive correlation; indicates renewed confidence.
 - Pump & Dump: Negative view; implies skepticism about the stock surge.

3. Sample 3:

- Post Time: 9:15 PM · June 11, 2024
- Image: Shaking Hands Image
- Analysis:
 - Gemini Interpretation: Positive; suggests successful agreements or partnerships.
 - Stock Impact: Peak at \$32.04.
- Comments:
 - \$GME RT IF YOU NEVER LEFT: Positive; indicates strong community support.
 - DIAMOND HANDS ASSEMBLE!!!!: Positive; reinforces commitment to the stock.
 - GAMESTOP HAS JUST RELEASED THE 10Q: Positive; highlights financial stability and growth prospects.

4. Sample 4:

- Post Time: 12:31 PM · June 11, 2024
- Image: Shocked Banana
- Analysis:
 - Gemini Interpretation: Positive; suggests emphasis on learning and understanding investing.
 - Stock Impact: Increase from \$25.31 to \$30.49.
- Comments:
 - Just tell us what to do next bro: Negative; implies confusion and lack of direction.
 - I took a second mortgage: Negative; illustrates risks of following investment advice blindly.
 - \$gme2, roaring kitty is back: Positive; suggests renewed interest and potential for growth.

5. Sample 5:

- Post Time: 9:15 PM · June 11, 2024
- Image Description: Shaking hands image with a cat in a pocket.
- Gemini Interpretation: Positive; implies successful business dealings or partnerships.
- Stock Impact: Peak at \$32.04.
- Comments:
 - \$GME RT IF YOU NEVER LEFT: Positive; reflects ongoing support from the community.

- \$GME \$AMC DIAMOND HANDS ASSEMBLE!!!! 📈AAPL: Positive; encourages steadfast investment.
- GAMESTOP HAS JUST RELEASED THE 10Q: Positive; indicates financial strength and future growth potential.

Sample 6

- Post Time: 12:31 PM · June 11, 2024
- Image Description: Shocked banana character with “Options Basics 101.”
- Gemini Interpretation: Positive; signifies emphasis on investing education.
- Stock Impact: Price increased from \$25.31 to \$30.49.
- Comments:
 - Just tell us what to do next bro: Negative; indicates confusion and uncertainty about investment strategies.
 - I took a second mortgage: Negative; shows potential risks and financial distress from following investment advice.
 - \$gme2, roaring kitty is back: Positive; suggests renewed interest in GameStop and Roaring Kitty’s strategies.

C. Challenges and Limitations

1. Non-Text Content Challenges:

- Complexity in Analyzing Visual Content: Difficulty in interpreting GIFs, memes, and emojis consistently.

- Scaling Issues: Handling large volumes of non-textual data presented challenges in analysis.

3. AI Model Limitations:

- Integration of External Knowledge: AI models sometimes incorporate unrelated external information, impacting result accuracy.
- Contextual Understanding: Difficulty in accurately interpreting nuanced or context-specific comments and imagery.

D. Recommendations for Future Research

1. Enhanced Data Collection:

- Use advanced scraping tools capable of processing large volumes and diverse content types.
- Incorporate additional social media platforms for a broader analysis.

2. Refinement of AI Analysis:

- Develop specialized models for better handling visual and non-textual data.
- Regularly update models to minimize irrelevant information and improve accuracy.

3. Expanded Study Scope:

- Conduct comparative studies across different stocks and influencers.
- Integrate traditional financial data with social media analysis to better understand market trends.