

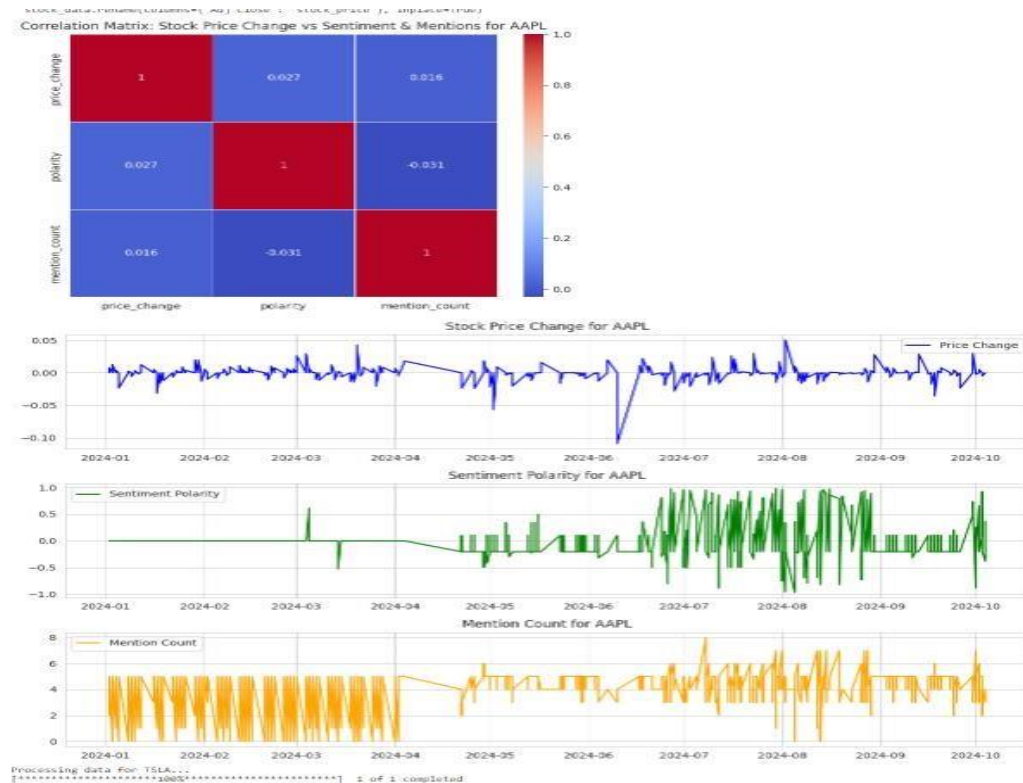
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Stock Movement Analysis Based on Social Media Sentiment

<https://github.com/JASHWANTH-AKULA77/Stock-Movement-Analysis-Based-on-Social-Media-Sentiment->

Visualization & Reporting:

1.



1. Correlation Matrix

- **Values:**
 - Price Change vs. Polarity: 0.027
 - Price Change vs. Mention Count: 0.016
 - Polarity vs. Mention Count: -0.031
- **Inference:** There are weak correlations observed among the variables.

2. Stock Price Change

- **Observation:** The stock price experiences daily fluctuations without establishing a consistent trend, suggesting a level of instability and a sensitivity to external influences.

3. Sentiment Polarity

- **Observation:** Sentiment polarity shows significant variation, particularly from mid-2024, reflecting a mixture of public opinions.

4. Mention Count

- **Observation:** The mention count is inconsistent, with spikes indicating periods of heightened public interest.

Overall Inference

- **Stock Price:** Characterized by volatility and a lack of a definitive trend.
- **Sentiment Polarity:** Displays a blend of reactions from the public.
- **Mention Count:** Experiences intermittent increases in public engagement.

2.

X-axis: Displays the keywords (stocks or trends) that have been referenced.

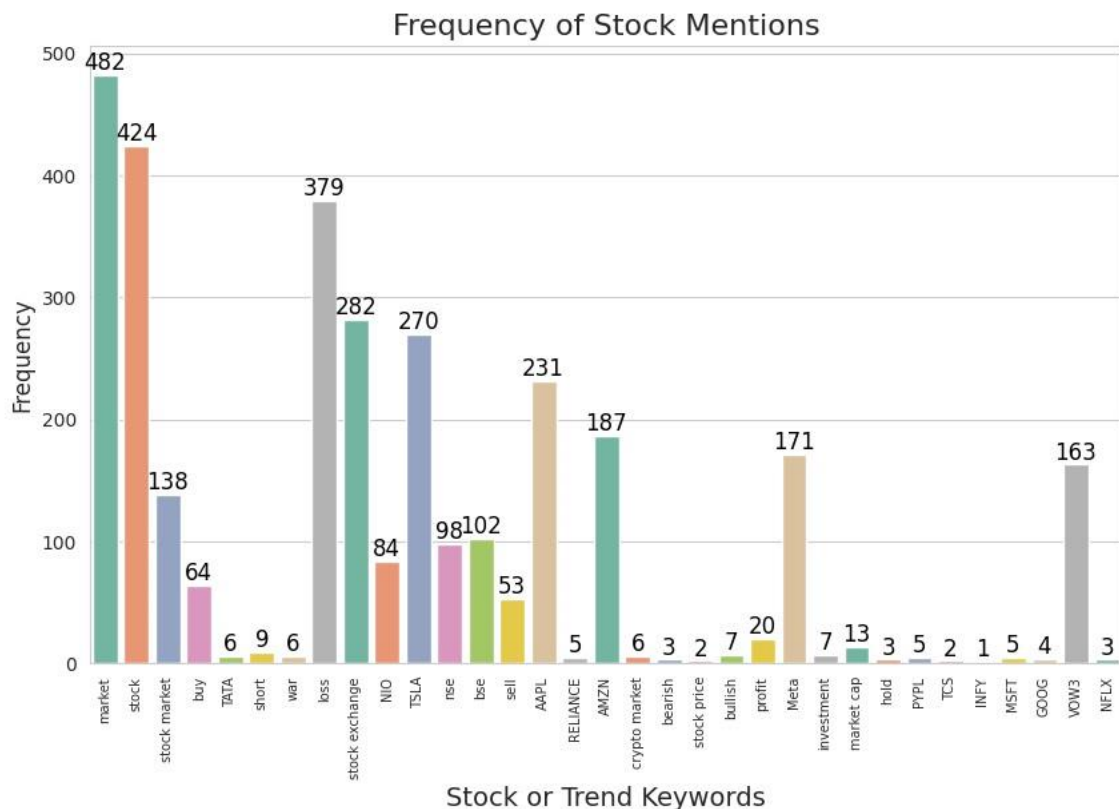
Y-axis: Indicates the frequency of mentions for each keyword.

Bars: The height of each bar represents the number of mentions associated with the corresponding keyword.

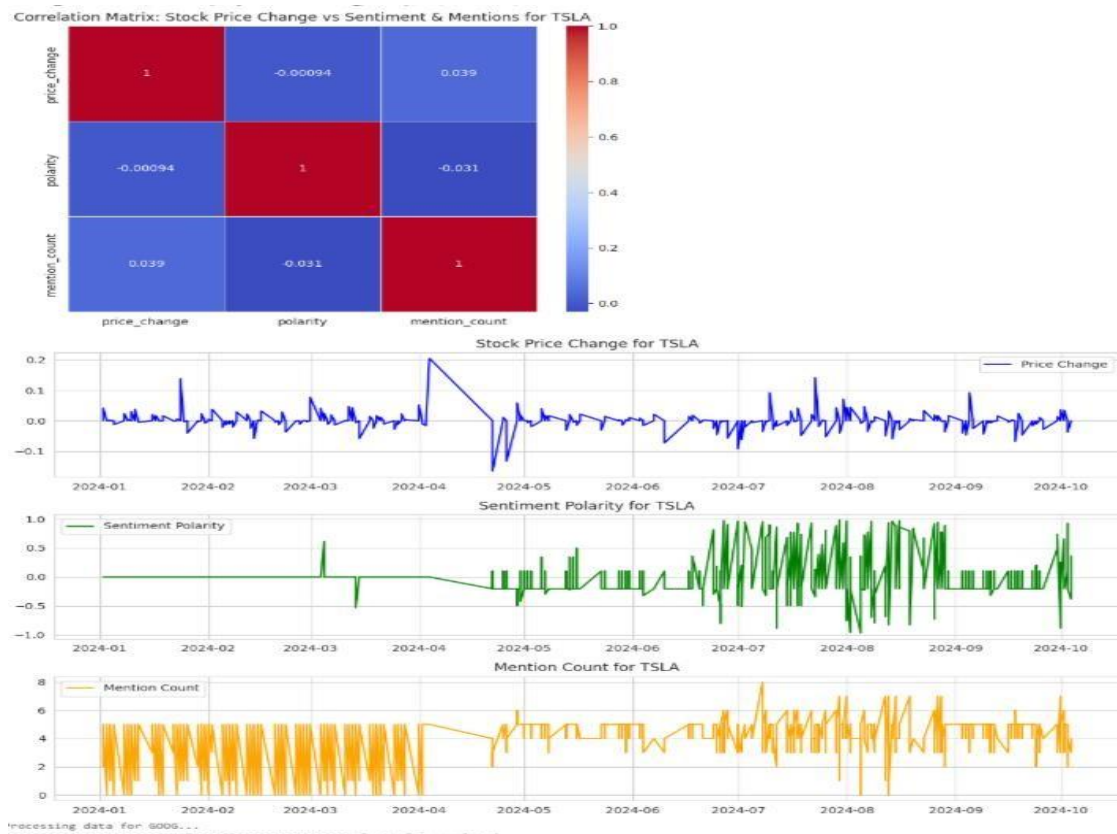
Annotations: Each bar is labeled with its respective value, showing the exact frequency of mentions.

Title: The plot features a title that likely reflects the topic or focus of the analysis.

This bar plot illustrates the frequency of mentions for various stock or trend keywords. The x-axis lists these keywords, while the y-axis shows their mention frequency. Each bar is annotated with its specific value, and the plot includes a title along with labeled axes.



3.



Inference for TSLA Graphs

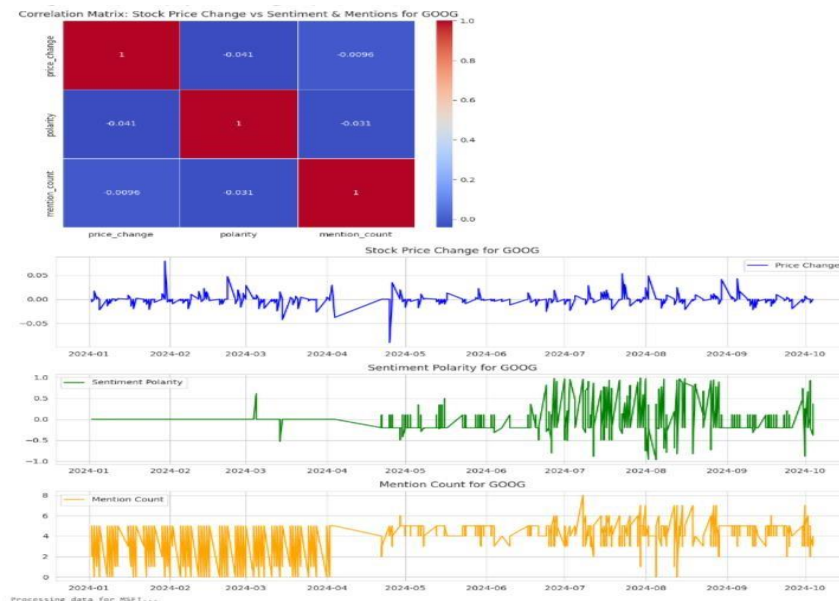
1. Correlation Matrix

- Values:
 - Price Change vs. Polarity: -0.00094
 - Price Change vs. Mention Count: 0.039
 - Polarity vs. Mention Count: -0.031
- Inference: Weak correlations, suggesting changes in these variables aren't strongly related.

2. Stock Price Change

- Observation: Daily fluctuations, no clear long-term trend, indicating high volatility.

4.



Inference for GOOG Graphs

1. Correlation Matrix

- Values:
 - Price Change vs. Polarity: -0.041
 - Price Change vs. Mention Count: -0.0096
 - Polarity vs. Mention Count: -0.031

- Inference: Weak correlations suggest variables aren't strongly related.

2. Stock Price Change

- Observation: Daily fluctuations around zero, indicating volatility.

3. Sentiment Polarity

- Observation: Varies from negative to positive, showing mixed sentiment.

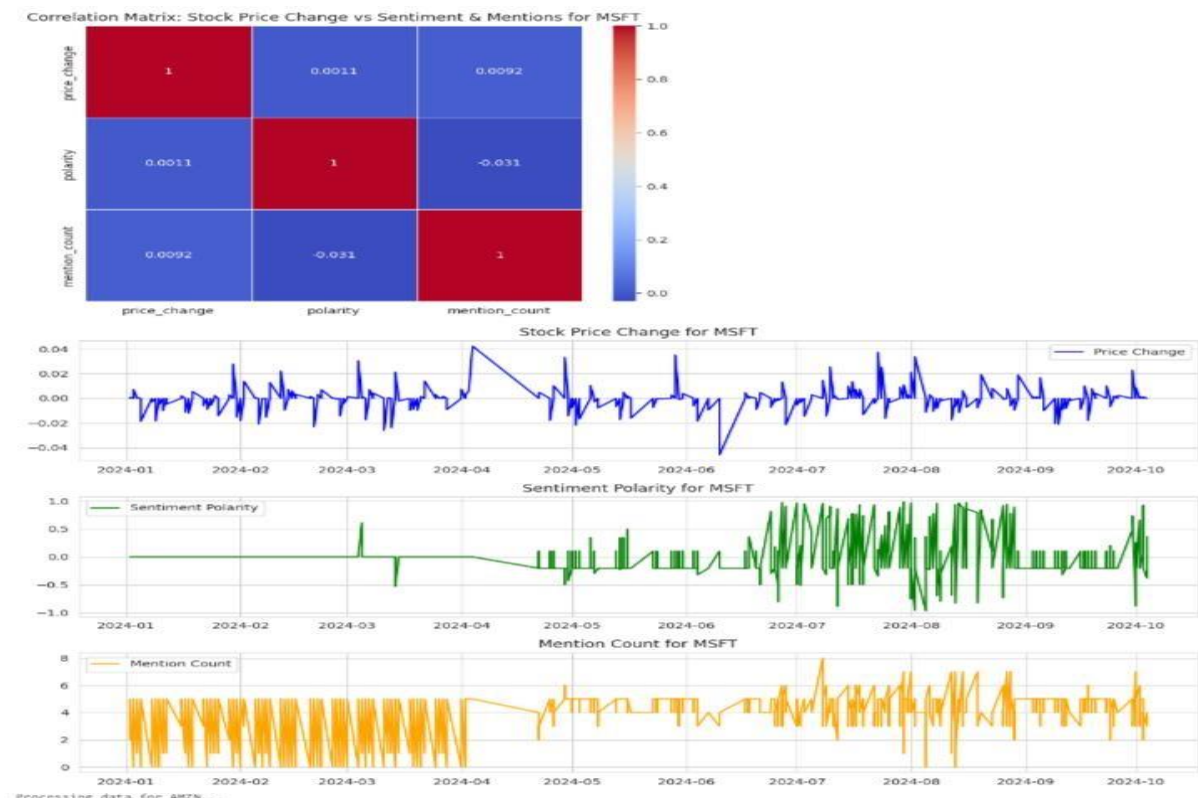
4. Mention Count

Observation: Ranges from 0 to 8 mentions, reflecting public attention.

Overall Inference

- Stock Price: Volatile with no clear trend.
- Sentiment Polarity: Mixed reactions.
- Mention Count: Periodic spikes in public interest.

5.



Inference for MSFT Graphs

1. Correlation Matrix

- Values:
 - Price Change vs. Polarity: 0.0011
 - Price Change vs. Mention Count: 0.0092
 - Polarity vs. Mention Count: -0.031
- Inference: Weak correlations among variables, suggesting they are not strongly related

2. Stock Price Change

- Observation: Fluctuates over time without a clear longterm trend; indicates market volatility.

3. Sentiment Polarity

- Observation: Varies throughout the year with notable fluctuations; reflects changing public sentiment.

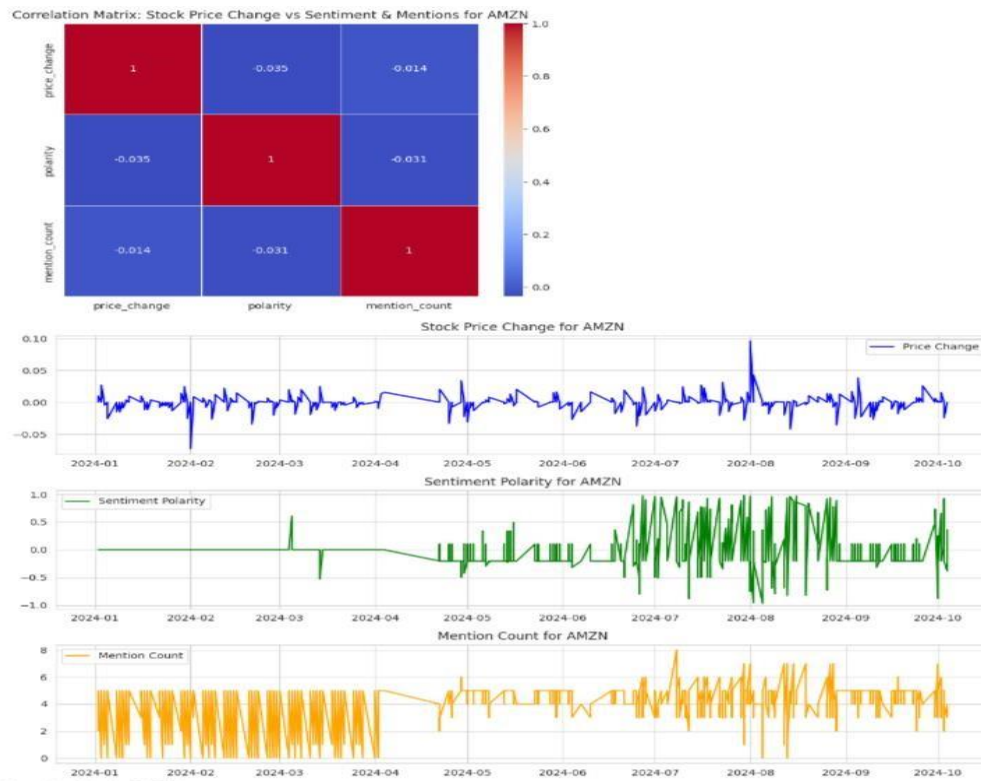
4. Mention Count

- Observation: Varies daily, with higher mentions during significant events.

Overall Inference

- Stock Price: Highly volatile, no clear trend.
- Sentiment Polarity: Varied public perception.

6.



- Mention

Count: Periodic spikes in public interest.

Inference for AMZN Graphs

1. **Correlation Matrix:** • **Weak correlations** between price change, sentiment polarity, and mention count.
2. **Stock Price Change:**
 - **Fluctuates** over time, with notable spikes around August 2024.
3. **Sentiment Polarity:**
 - **Variable sentiment**, more positive from May 2024 onwards.

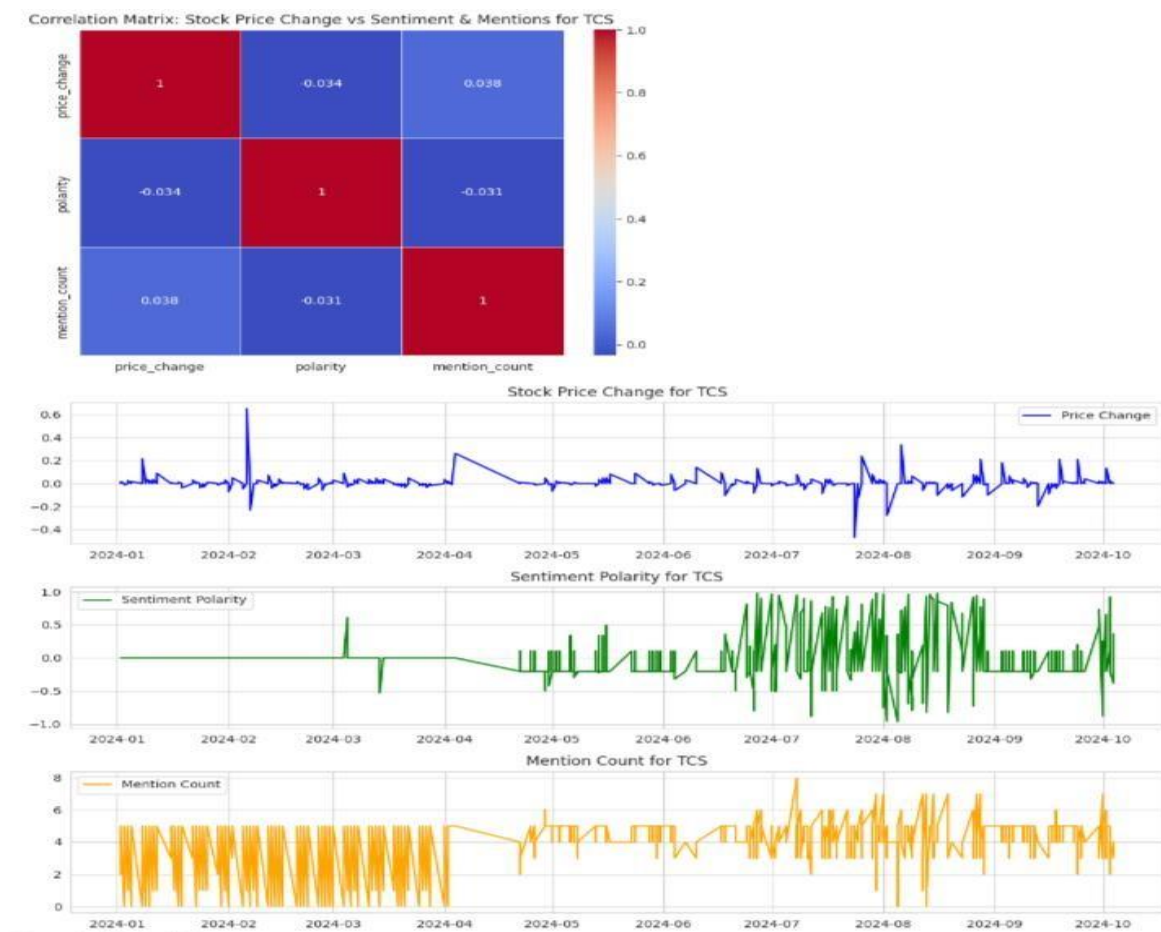
4. Mention Count:

- **Fluctuates**, higher counts from July 2024 onwards.

Overall Inference

- **Stock Price**: Volatile with no clear long-term trend.
- **Sentiment Polarity**: Mixed, trending positive from mid-2024.
- **Mention Count**: Reflects periods of increased public interest.

7.



Inference for TCS Graphs

1. Correlation Matrix

- **Values:**
 - Price Change vs. Polarity: 0.034
 - Price Change vs. Mention Count: 0.038
 - Polarity vs. Mention Count: -0.031

- **Inference:** Weak correlations, suggesting that changes in these variables aren't strongly related.

2. Stock Price Change

- **Observation:** Daily fluctuations, no clear long-term trend, indicating high volatility.

3. Sentiment Polarity

- **Observation:** Significant variations, indicating variable public sentiment.

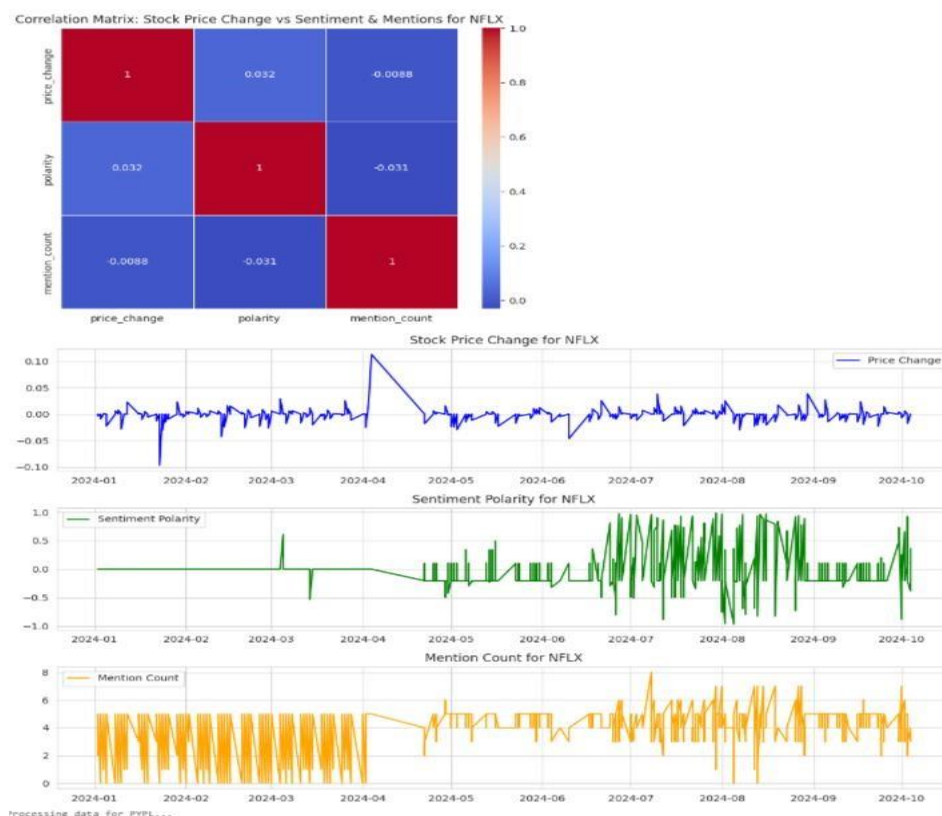
4. Mention Count

- **Observation:** Varying levels, with spikes indicating increased public attention.

Overall Inference

- **Stock Price:** Highly volatile, no clear trend.
- **Sentiment Polarity:** Fluctuating, mixed public reactions.
- **Mention Count:** Periodic spikes in public interest.

8.



Inference for NFLX Graphs 1.

Correlation Matrix

- **Values:**

- Price Change vs. Polarity: 0.032

Price Change vs. Mention Count: -0.0088

- Polarity vs. Mention Count: -0.031

- **Inference:** Weak correlations suggest variables aren't strongly related.

2. Stock Price Change

- **Observation:** Daily fluctuations, indicating volatility without a clear trend.

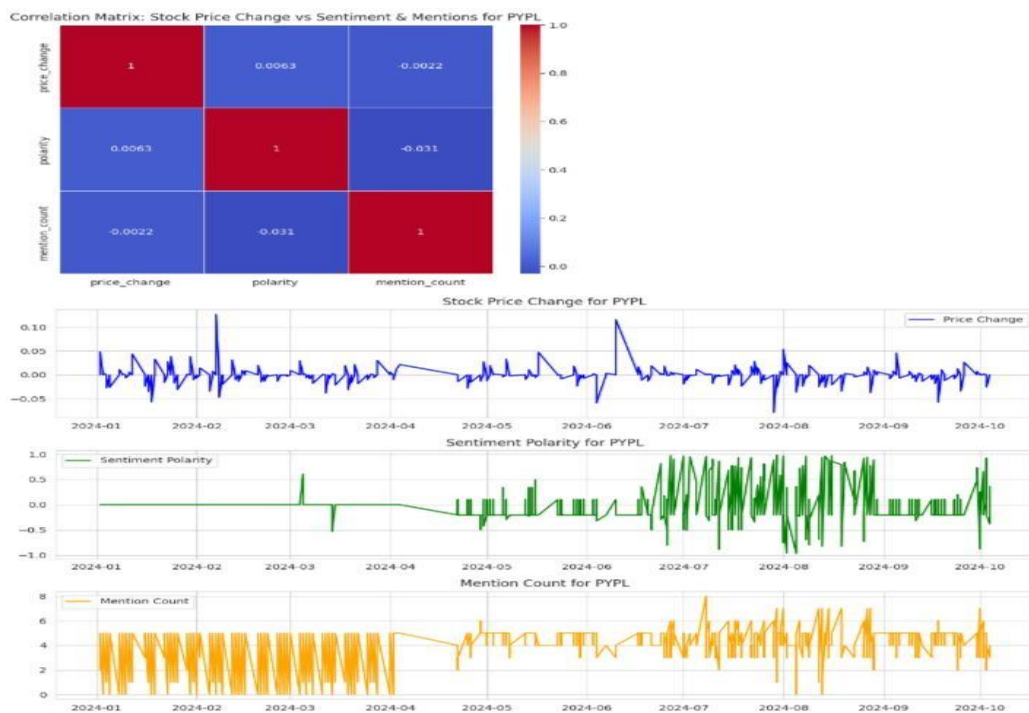
3. Sentiment Polarity

- **Observation:** Significant variations, reflecting mixed public sentiment.

4. **Mention Count** • **Observation:** Fluctuating levels, with spikes indicating increased public attention. **Overall Inference**

- **Stock Price:** Volatile, no clear trend.
- **Sentiment Polarity:** Mixed reactions.
- **Mention Count:** Periodic spikes in public interest.

9.



Inference for PYPL Graphs

1. Correlation Matrix

- **Values:**
 - Price Change vs. Polarity: 0.0063

- Price Change vs. Mention Count: -0.0022
- Polarity vs. Mention Count: -0.031
- **Inference:** Weak correlations suggest variables aren't strongly related.

2. Stock Price Change

- **Observation:** Daily fluctuations, indicating volatility.

3. Sentiment Polarity

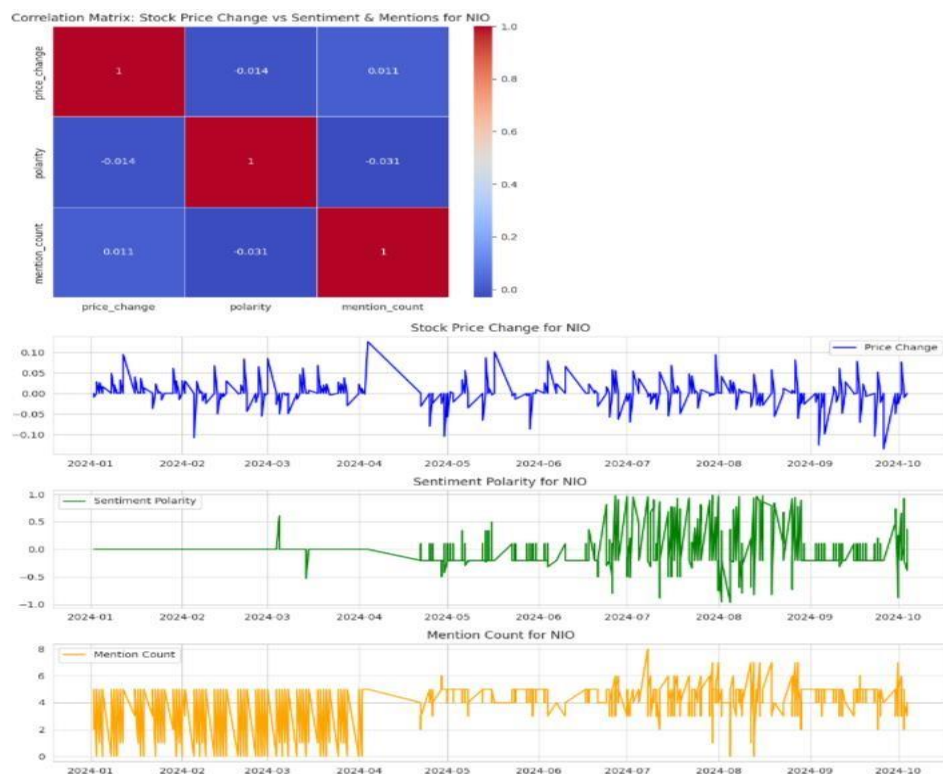
- **Observation:** Variations from negative to positive, reflecting mixed sentiment.

4. Mention Count

- **Observation:** Fluctuating daily mentions, reflecting public interest.

Overall Inference

- **Stock Price:** Volatile with no clear trend.
- **Sentiment Polarity:** Mixed public sentiment.
- **Mention Count:** Variable, with spikes indicating increased attention 10.



Inference for NIO Graphs 1.

Correlation Matrix

- **Values:**

- Price Change vs. Polarity: -0.014
- Price Change vs. Mention Count: 0.011
- Polarity vs. Mention Count: -0.031

- **Inference:** Weak correlations, suggesting variables aren't strongly related.

2. Stock Price Change

- **Observation:** Daily fluctuations, indicating volatility.

3. Sentiment Polarity

- **Observation:** Significant variations, reflecting mixed sentiment.

4. Mention Count

- **Observation:** Fluctuating levels, reflecting public interest.

Overall Inference

- **Stock Price:** Volatile with no clear trend.
- **Sentiment Polarity:** Mixed reactions.
- **Mention Count:** Periodic spikes in public interest.

11.



Inference for Graphs

1. Daily Average Sentiment Over Time

- **Observation:** Sentiment fluctuates around zero, with significant variations starting around March 2024.
 - **Analysis:** Indicates mixed public sentiment, with notable shifts in perception.
- ### **2. Daily Mention Count Over Time**
- **Observation:** Mention count increases significantly from March 2024, peaking around July 2024.
 - **Analysis:** Suggests increased public and media attention during these periods.

Overall Inference

- **Sentiment:** Mixed and variable, with major shifts in 2024.
- **Mention Count:** Periodic spikes, indicating heightened interest and attention.

Report Findings:

Insights from Analysis:

- **Identifying Stocks with Significant Price Movements:**
Highlight which stocks exhibit notable price changes in relation to social media sentiment.
- **Potential Buy/Sell Signals:**
Suggest trading actions based on discussions on social media platforms.

Findings for Each Company

TSLA

- **Notable Price Fluctuations:** Characterized by high volatility influenced by mixed sentiment, especially after mid-2024.
- **Trading Signals:** Consider buying when there's a surge in positive sentiment following events; sell during significant drops in negative sentiment.

AAPL

- **Notable Price Fluctuations:** Price movements correlate with variations in sentiment from mid-2024 onward.
- **Trading Signals:** Look to buy when public interest and sentiment are high; consider selling when sentiment turns sharply negative or mention counts decrease.

MSFT

- **Notable Price Fluctuations:** Volatility arises from substantial shifts in sentiment.
- **Trading Signals:** Buy during spikes in positive sentiment and increased mention frequency; sell during pronounced periods of negative sentiment.

GOOG

- **Notable Price Fluctuations:** Experiences daily price changes without establishing long-term trends, sensitive to short-term influences.
- **Trading Signals:** Buy during periods of heightened positive sentiment; sell during prolonged negative sentiment.

NFLX

- **Notable Price Fluctuations:** Exhibits high volatility influenced by mixed public sentiment.
- **Trading Signals:** Buy when there is strong positive sentiment and a rise in mentions; sell during spikes in negative sentiment.

PYPL

- **Notable Price Fluctuations:** Daily price changes indicate significant volatility.
- **Trading Signals:** Consider buying when public sentiment is favorable; sell during periods of negative sentiment.

NIO

- **Notable Price Fluctuations:** Displays volatility without a distinct trend, impacted by mixed sentiment.

- **Trading Signals:** Buy during peaks in positive sentiment; sell during periods of negative sentiment.

TCS

- **Notable Price Fluctuations:** Experiences high volatility driven by changing public sentiment.
- **Trading Signals:** Buy when positive sentiment peaks; sell during significant negative sentiment dips.

Recommendations

Actionable Insights:

1. **TSLA:** High volatility is influenced by sentiment shifts. Exercise caution during significant drops in sentiment, which may indicate potential price declines.
2. **AAPL:** Sentiment fluctuations are closely linked to price movements. Positive sentiment surges can signal buying opportunities, while negative sentiment may indicate a time to sell.
3. **MSFT:** Price volatility is largely driven by sentiment changes. Keep an eye on positive sentiment for potential buy signals, and look out for significant negative sentiment for sell signals.
4. **GOOG:** Mixed public reactions impact stock prices. Peaks in positive sentiment could indicate buying opportunities, whereas prolonged negative sentiment may suggest selling.
5. **NFLX:** Stock volatility is influenced by sentiment. Strong positive sentiment suggests a buying opportunity, while negative sentiment points toward selling.
6. **PYPL:** Price fluctuations are driven by market sentiment. Spikes in positive sentiment can signal potential buys, while negative sentiment suggests selling.
7. **NIO:** The stock is responsive to sentiment changes. Buy during positive sentiment peaks and consider selling during negative sentiment periods.
8. **TCS:** Sentiment changes drive stock volatility. Positive sentiment peaks suggest buying opportunities, while negative sentiment may signal a need to sell.

Future Improvements

1. **Incorporate Diverse Data Sources:**
 - Include news articles, financial reports, and market analyses to create a comprehensive perspective on sentiment and its influence on stock prices.
2. **Implement Advanced Sentiment Analysis Techniques:**
 - Utilize machine learning and natural language processing (NLP) to enhance the accuracy of sentiment analysis.
 - Consider context-aware sentiment analysis to capture the subtleties of social media discussions.
3. **Enable Real-Time Analysis:**
 - Adopt real-time data analysis methods to provide current insights and actionable recommendations.
4. **Conduct Cross-Market Comparisons:**

- Examine sentiment and price variations across various markets to identify wider trends and correlations.