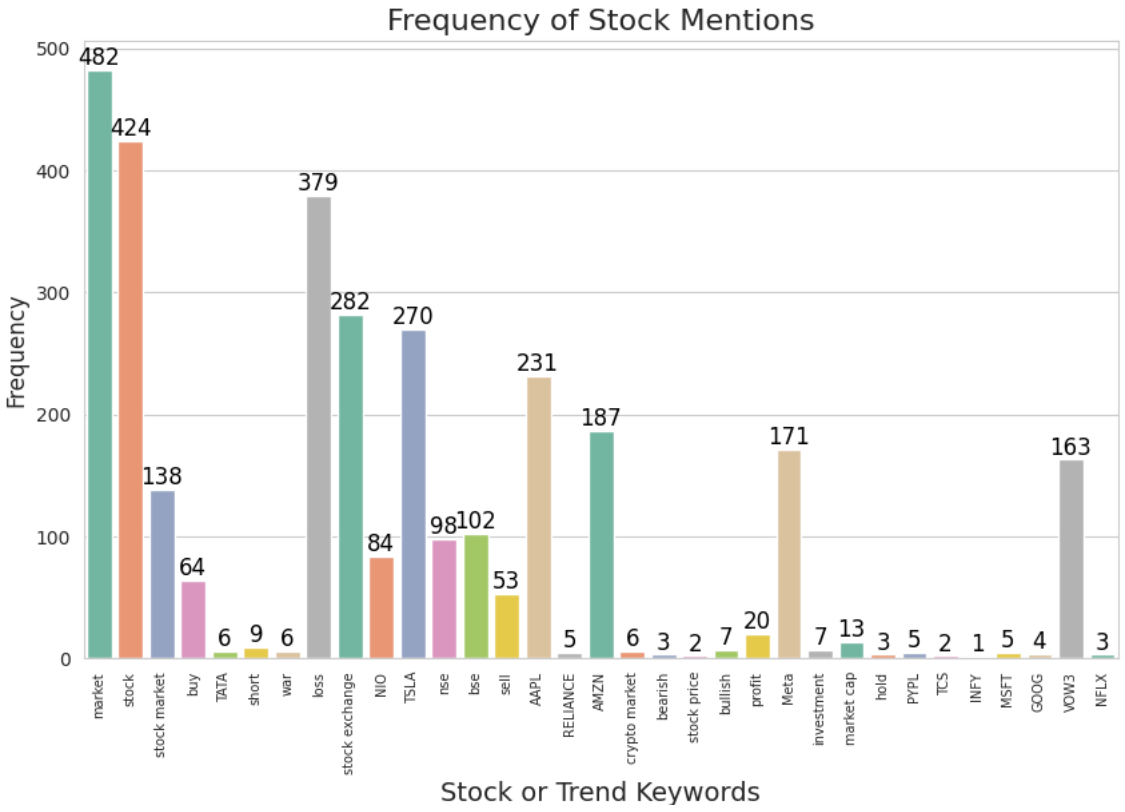
STOCK MOVEMENT ANALYSIS BASED ON SOCIAL MEDIA SENTIMENT

Visualization & Reporting:

1.



X-axis: Lists the keywords (stocks or trends) that were mentioned.

Y-axis: Represents the frequency of mentions of each keyword.

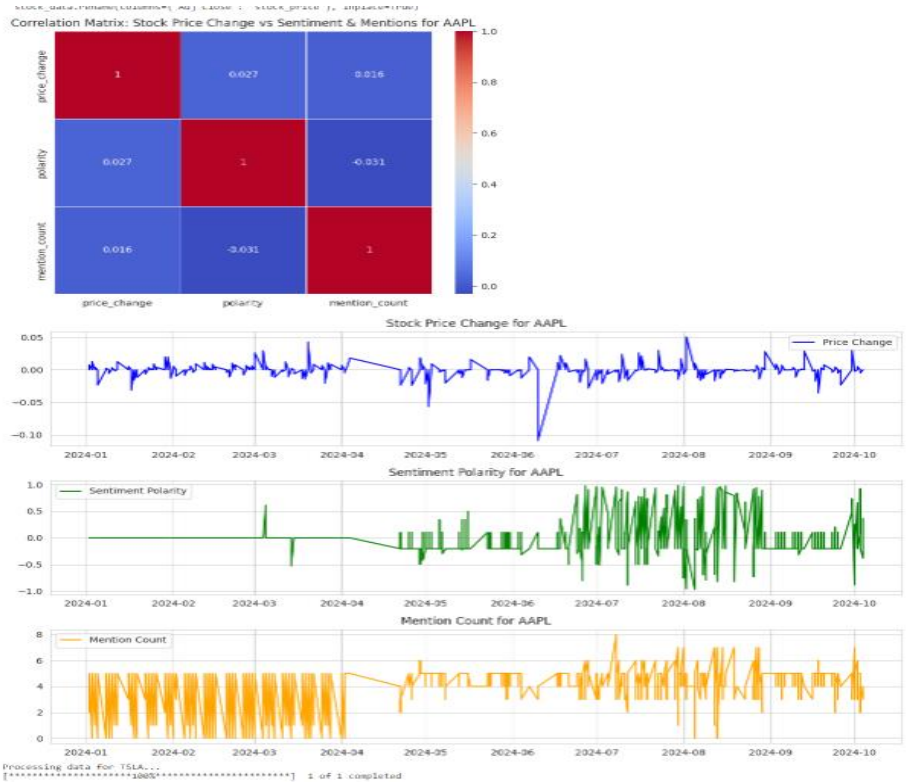
Bars: The height of each bar corresponds to the frequency of mentions of the corresponding keyword.

Annotations: The bars are annotated with their respective values, indicating the exact frequency of mentions.

Title: The plot has a title, likely indicating the topic or focus of the analysis.

bar plot that visualizes the frequency of mentions of various stocks or trend keywords. The x-axis lists the keywords, while the y-axis represents their frequency. The bars are annotated with their respective values, and the plot includes a title and labeled axes.

2.



Inference for AAPL Graphs

1. Correlation Matrix

- Values:
    - Price Change vs. Polarity: 0.027
    - Price Change vs. Mention Count: 0.016
    - Polarity vs. Mention Count: -0.031
- Inference: Weak correlations among variables.

2. Stock Price Change

- Observation: Fluctuates daily without a clear trend; indicates instability and sensitivit y to external factors.

3. Sentiment Polarity

- Observation: Varies significantly, especially from mid-2024, indicating mixed public reactions.

4. Mention Count

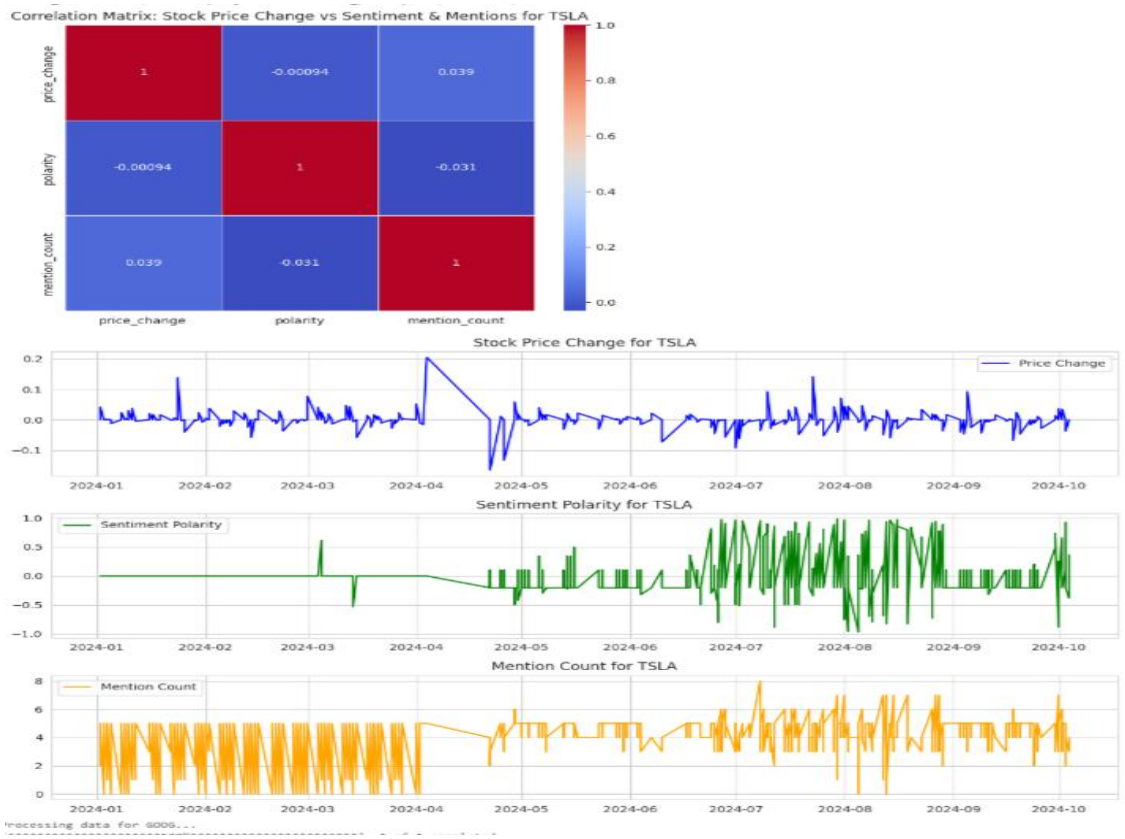
- Observation: Fluctuates, with higher mentions suggesting periods of increased public attention.

Overall Inference

- Stock Price: Volatile, no clear trend.

- Sentiment Polarity: Mixed reactions.
- Mention Count: Periodic spikes in public interest.

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 rel ated.

2. Stock Price Change

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

3. Sentiment Polarity

- Observation: Significant variations, especially after mid-2024, indicating variable public sentiment.

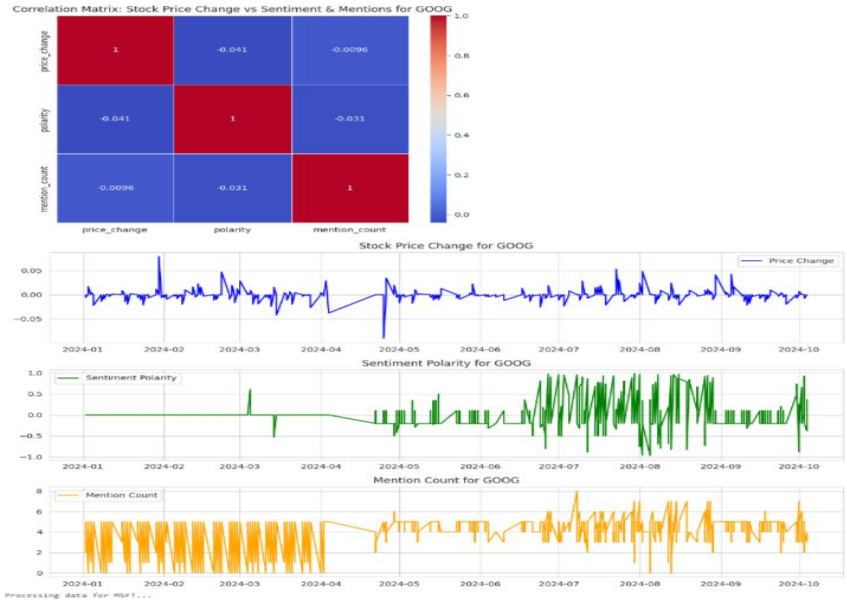
4. Mention Count

- Observation: Varying levels, with high mention counts during specific events.

Overall Inference

- Stock Price: Highly volatile, no clear trend.
- Sentiment Polarity: Fluctuates significantly, mixed public reactions.
- Mention Count: Periodic spikes in public attention.

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.

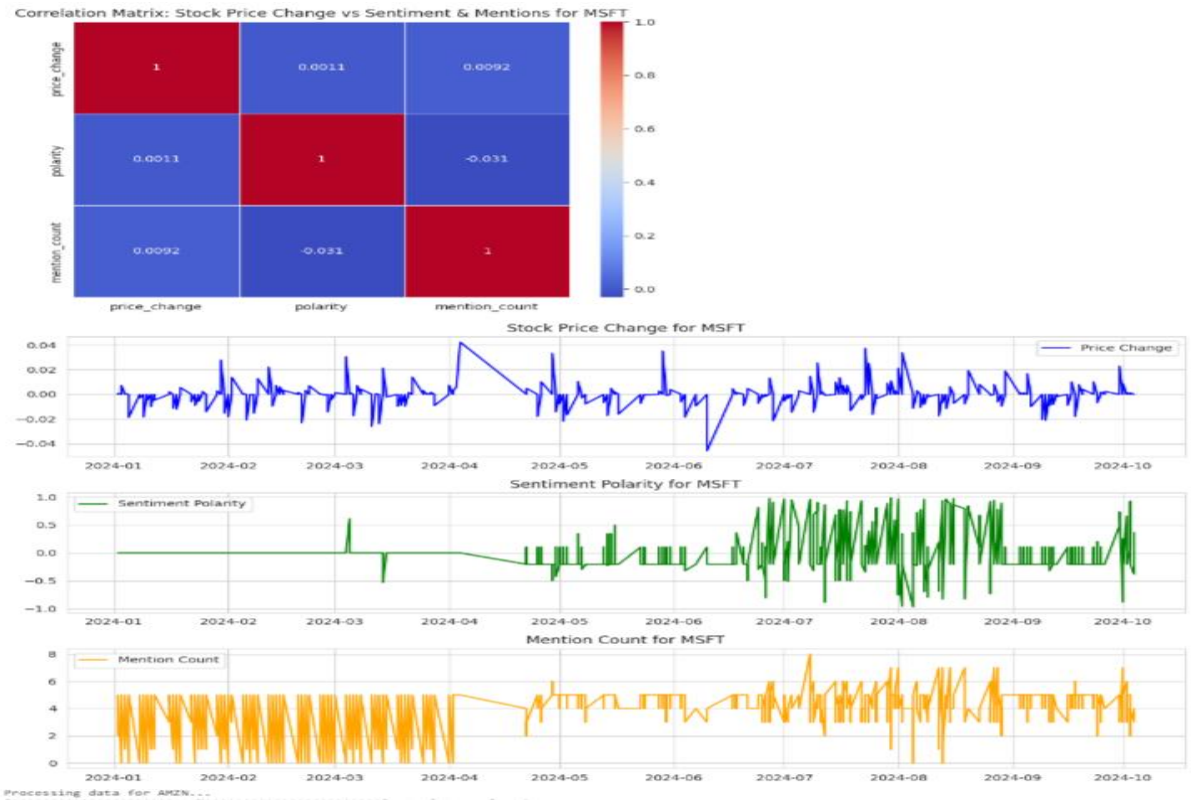
4. Mention Count

- 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 long-term trend; indicates market volatility.

3. Sentiment Polarity

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

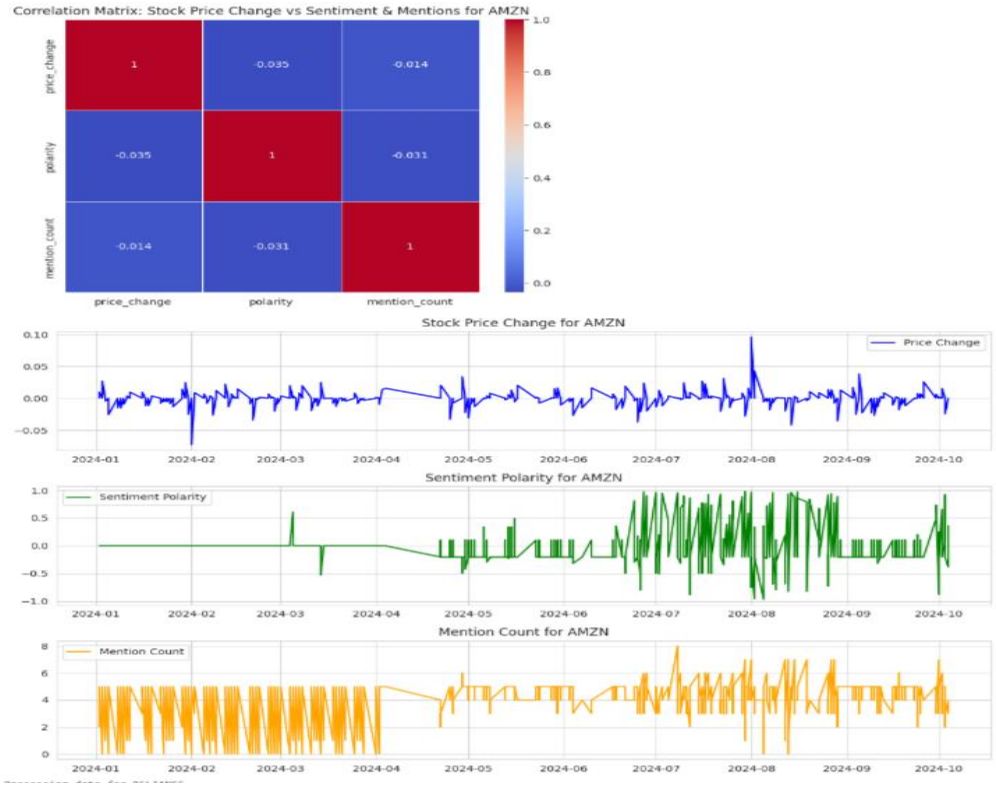
4. Mention Count

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

Overall Inference

- Stock Price: Highly volatile, no clear trend.
- Sentiment Polarity: Varied public perception.
- Mention Count: Periodic spikes in public interest.

6.



Inference for AMZN Graphs

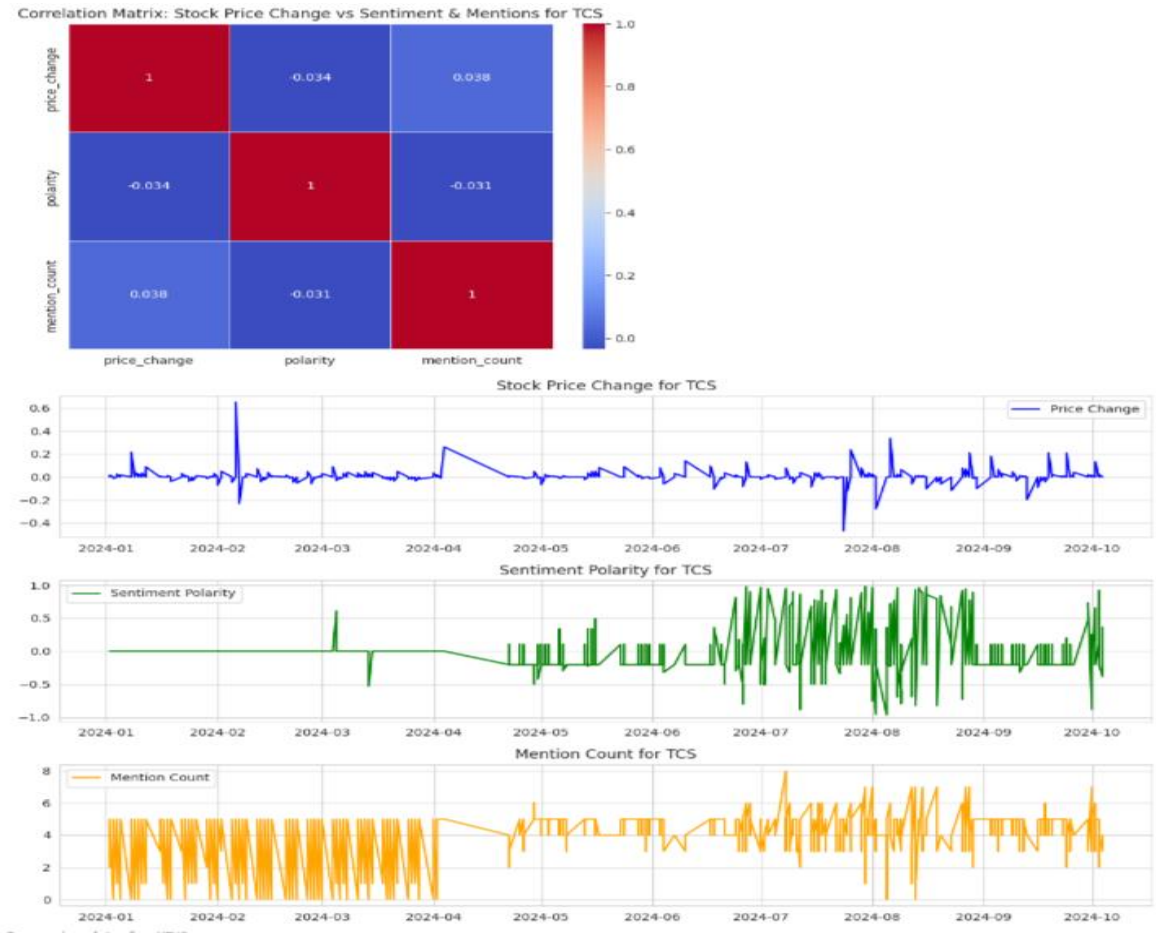
1. **Correlation Matrix**:
    - **Weak correlations** between price change, sentiment polarity, and mention cou nt.
2. **Stock Price Change**:
    - **Fluctuates** over time, with notable spikes around August 2024.
3. **Sentiment Polarity**:
    - **Variable sentiment**, more positive from May 2024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

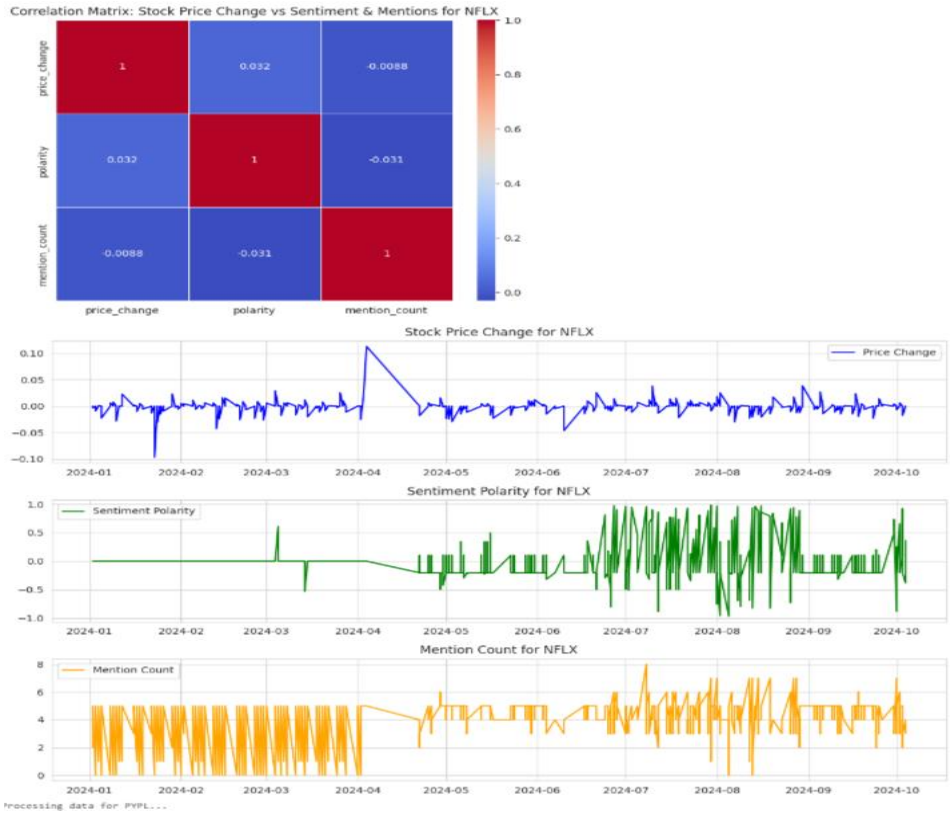
4. Mention Count

- **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**

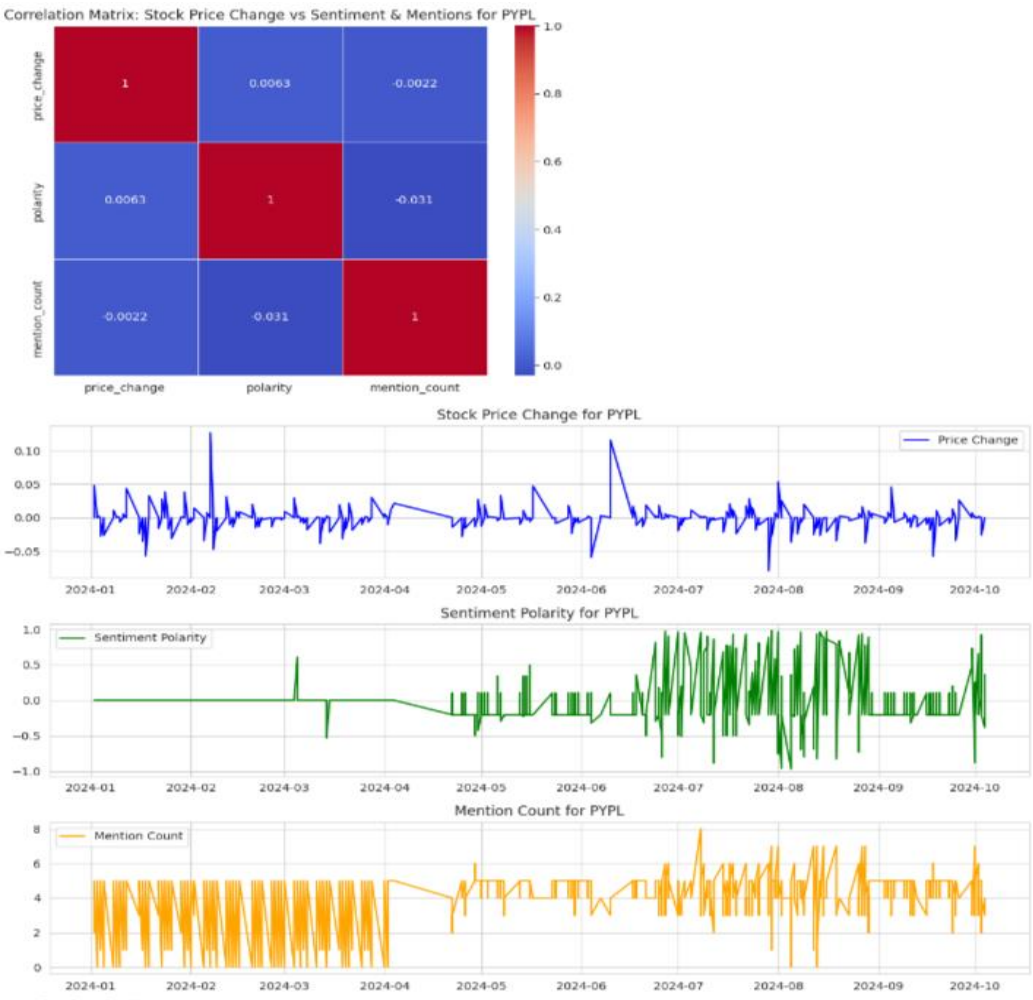
- **Observation**: Daily fluctuations, indicating volatility without a clear trend.

3. **Sentiment Polarity**
    - **Observation**: Significant variations, reflecting mixed public sentiment.
4. **Mention Count**
    - **Observation**: Fluctuating levels, with spikes indicating increased public attent ion.

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.

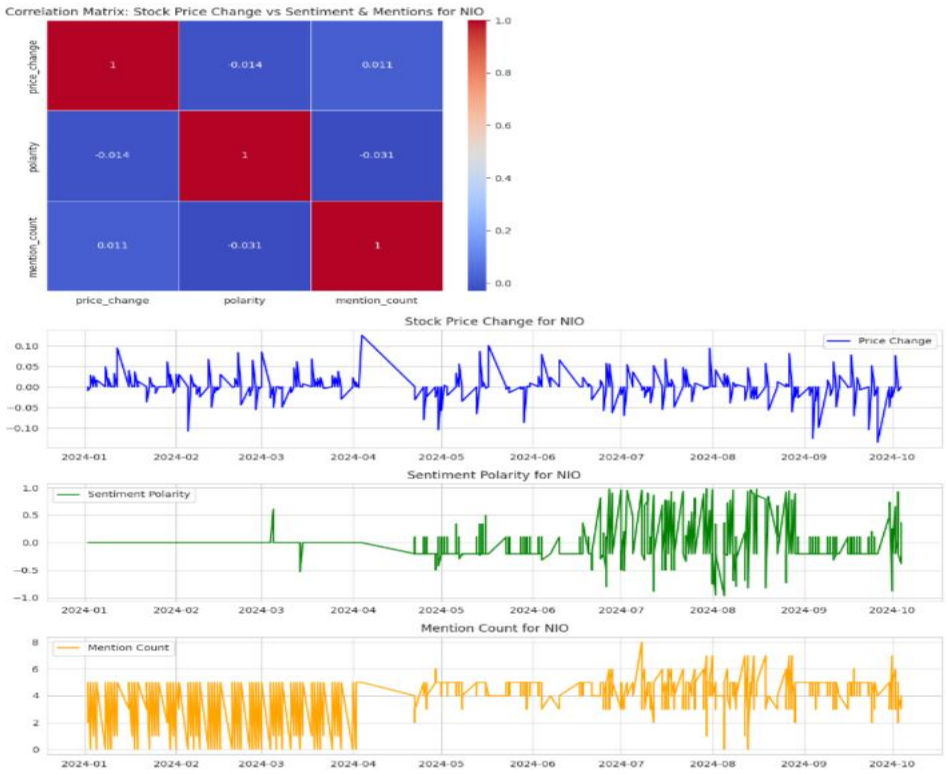
4. Mention Count

- **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

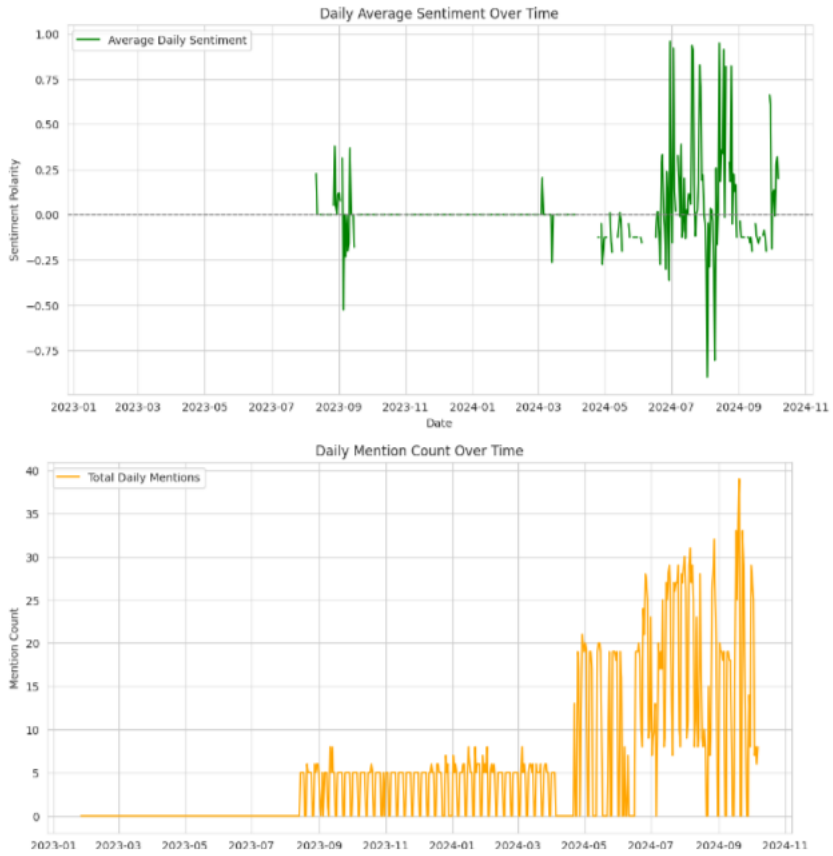
    - Price Change vs. Mention Count: 0.011
    - Polarity vs. Mention Count: -0.031
- **Inference**: Weak correlations, suggesting variables aren't strongly related.

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 sta rting 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, peakin g 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:

Provide insights based on the analysis, such as: ○ Which stocks show significant changes in price based on social media sentiment. ○ Possible buy/sell signals based on social media discussions.

Report Findings for Each Company

TSLA

- **Significant Price Changes**: High volatility influenced by mixed sentiment, particularl y after mid-2024.
- **Buy/Sell Signals**: Buy when positive sentiment spikes post-events; sell during significant negative sentiment dips.

AAPL

- **Significant Price Changes**: Fluctuations correlating with sentiment variations from mid-2024.
- **Buy/Sell Signals**: Buy during increased public attention and positive sentiment; sell w hen sentiment is highly negative or mentions drop.

MSFT

- **Significant Price Changes**: Volatility driven by notable sentiment shifts.
- **Buy/Sell Signals**: Buy during positive sentiment spikes and higher mention counts; se ll during significant negative sentiment periods.

GOOG

- **Significant Price Changes**: Daily fluctuations without long-term trends, sensitive to short-term factors.
- **Buy/Sell Signals**: Buy during positive sentiment spikes; sell during sustained negativ e sentiment.

NFLX

- **Significant Price Changes**: High volatility with mixed sentiment influencing price.
- **Buy/Sell Signals**: Buy during periods of high positive sentiment and mentions; sell du ring negative sentiment spikes.

PYPL

- **Significant Price Changes**: Daily fluctuations indicate volatility.
- **Buy/Sell Signals**: Buy when public sentiment is positive; sell during negative sentime nt periods.

NIO

- **Significant Price Changes**: Volatile with no clear trend, influenced by mixed public s entiment.
- **Buy/Sell Signals**: Buy during spikes in positive sentiment; sell during periods of negti ve sentiment.

TCS

- **Significant Price Changes**: High volatility, driven by variable public sentiment.
- **Buy/Sell Signals**: Buy during positive sentiment spikes; sell during negative sentimen t dips.

Recommendations

Actionable Insights:

1. **TSLA**: High volatility with sentiment influencing price changes. Traders should take caution during significant sentiment dips as it may signal potential price drops.
2. **AAPL**: Sentiment shifts correlate with stock price changes. Positive sentiment spikes could indicate buying opportunities, while negative sentiment may signal the time to s ell.
3. **MSFT**: Volatility driven by sentiment shifts. Watch for positive sentiment for buy sig nals and significant negative sentiment for sell signals.
4. **GOOG**: Mixed reactions affect prices. Positive sentiment peaks could signal buying, while sustained negative sentiment suggests selling.
5. **NFLX**: Sentiment influences stock volatility. High positive sentiment indicates buyin g; negative sentiment suggests selling.
6. **PYPL**: Market sentiment drives price changes. Positive sentiment spikes signal potent ial buys; negative sentiment suggests selling.
7. **NIO**: Stock reacts to sentiment swings. Buy during positive sentiment peaks; sell duri ng negative sentiment periods.
8. **TCS**: Sentiment drives volatility. Positive sentiment peaks indicate buying; negative s entiment signals selling.

Future Improvements:

1. **Integrate Data from Multiple Sources**:
    - Incorporate news articles, financial reports, and market analysis to get a holisti c view of sentiment and its impact on stock prices.
2. **Advanced Sentiment Analysis Techniques**:
    - Use machine learning algorithms and natural language processing (NLP) to en hance sentiment analysis accuracy.
    - Include context-aware sentiment analysis to better understand the nuances in social media disc ussions.
3. **Real-Time Analysis**:
    - Implement real-time data analysis to provide up-to-date insights and recommendations.
4. **Cross-Market Comparison**:
    - Analyze sentiment and price changes across different markets to identify broader trends and correlations.