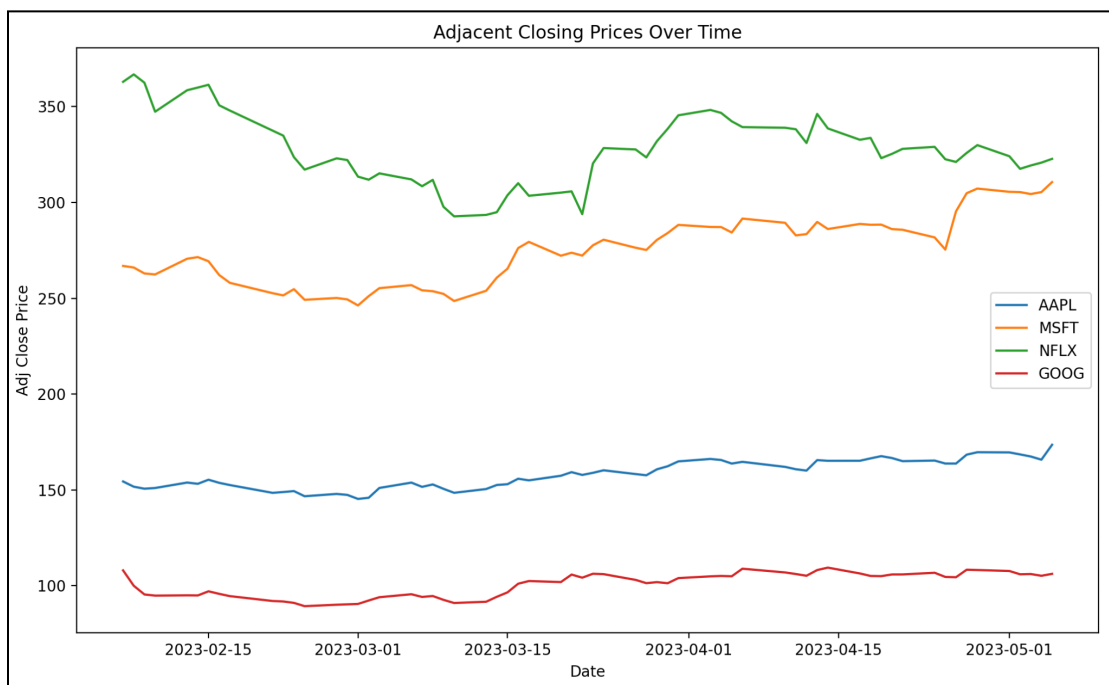


# STOCK PRICE ANALYSIS FOR APPLE, MICROSOFT, NETFLIX, AND GOOGLE

This report contains plots to analyze and compare the performance of these companies in the stock market.

For the analysis, I have mostly used the variable 'Adj Close'. Adjusted Close price takes into account factors such as dividends, stock splits, and new stock offerings to give a more accurate picture of a stock's value over time.

## 1) Trends in Adjacent Closing Prices Over The Past 3 Months For Each Company

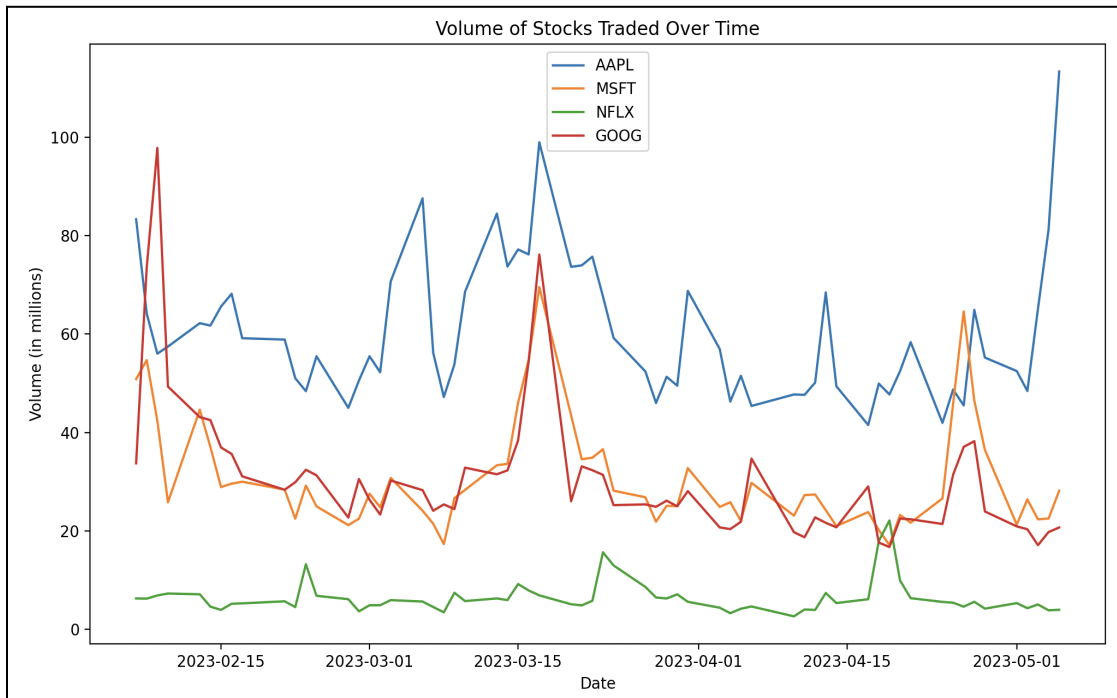


In the provided "Trends in Adjacent Closing Prices Over The Past 3 Months" plot, we observe the stock price movements of Apple, Microsoft, Netflix, and Google.

Apple's stock price shows a steady upward trend, indicating positive performance and potentially attracting investors. Microsoft also exhibits a similar pattern with gradual growth. Netflix, on the other hand, experiences a decline in stock price over the three-month period, suggesting a potential loss in investor confidence. Google's stock price demonstrates a relatively stable trajectory with minor fluctuations.

Overall, Apple and Microsoft show promising trends in their stock prices, indicating potential investment opportunities. Netflix's declining trend suggests caution, while Google's stable performance may appeal to more risk-averse investors.

## 2) Trends in Volume of Stocks Traded Over The Past 3 Months For Each Company



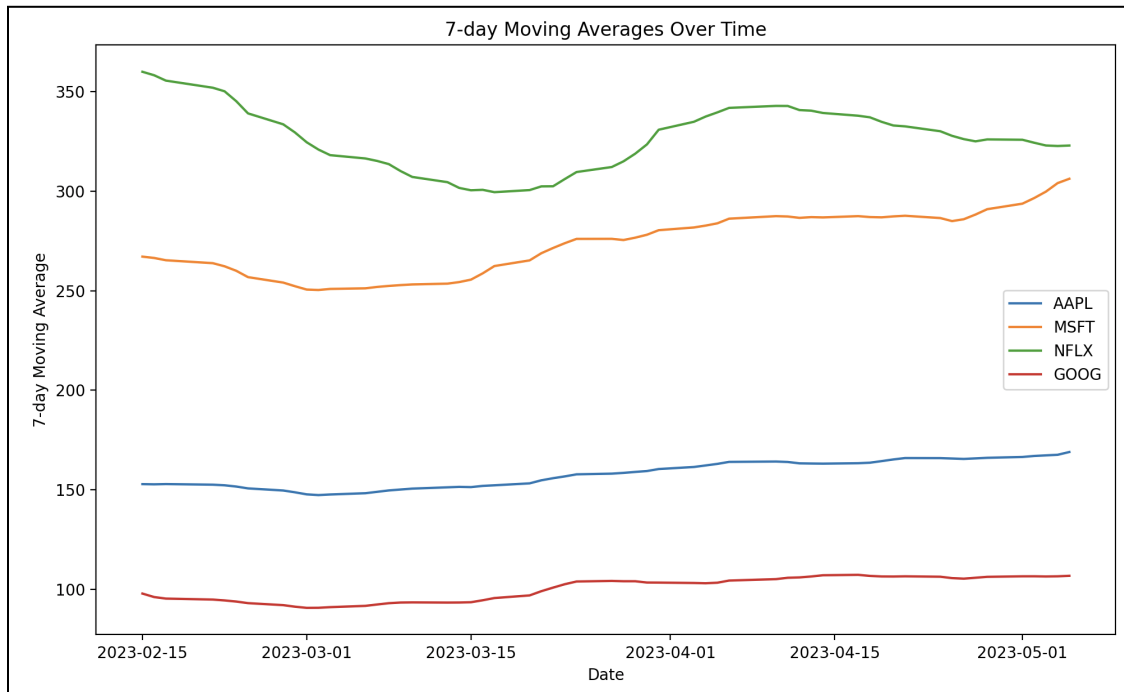
Based on the provided graph, we can observe certain trends and patterns in the volume of stocks traded for AAPL, MSFT, NFLX, and GOOG over the past three months.

AAPL shows a relatively consistent and high volume of trades throughout the period, indicating sustained investor interest. MSFT also demonstrates a consistent volume, albeit at a slightly lower level than AAPL.

On the other hand, NFLX exhibits a declining trend in volume, possibly indicating a decrease in investor activity or interest in the stock. GOOG's volume seems to fluctuate, with some periods of higher trading activity and others with lower activity.

Overall, AAPL and MSFT appear to be more stable and consistently traded stocks, while NFLX and GOOG show some variations in volume. These trends may suggest different levels of investor confidence and market dynamics for each company.

### 3) 7-day Moving Averages Over The Past 3 Months For Each Company

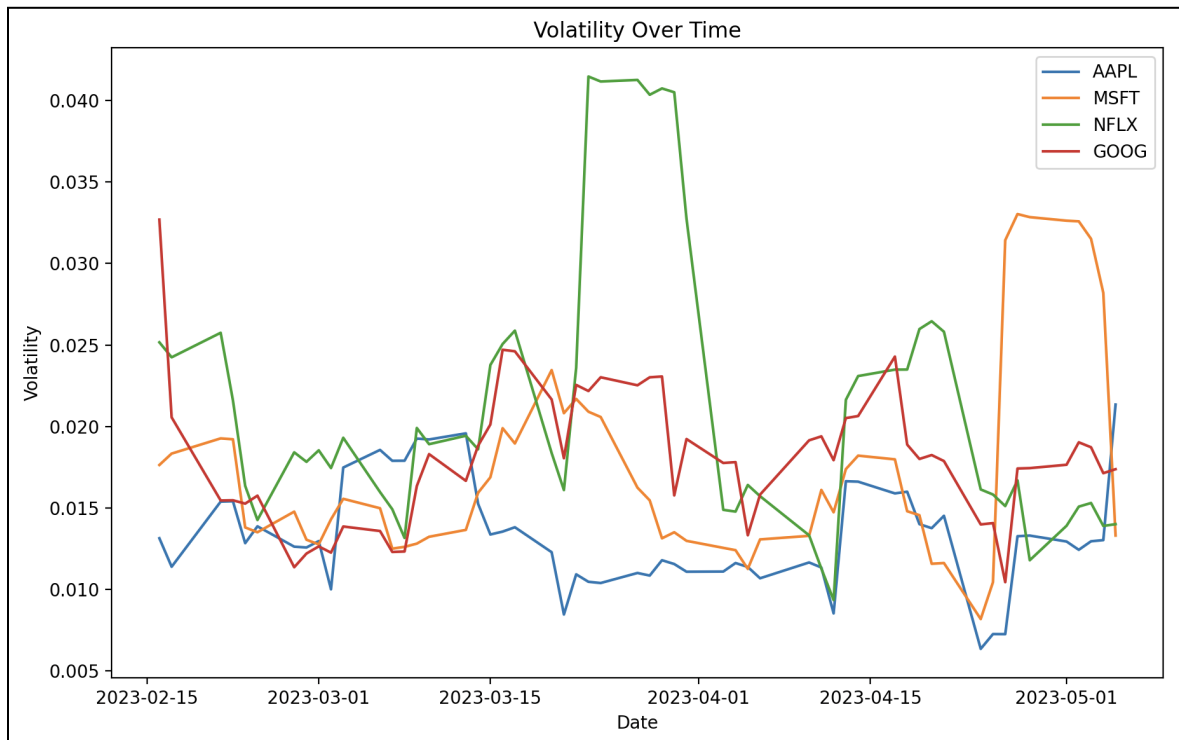


Based on the plot of the 7-day moving averages over the past 3 months for AAPL, MSFT, NFLX, and GOOG, we can see that the market is mostly stable. This indicates that there isn't much change in their stock prices.

AAPL and GOOG show relatively stable moving averages compared to NFLX and MSFT, which exhibit more volatility. NFLX had the highest moving average, followed by MSFT, AAPL, and GOOG. However, the graph for NFLX is angled a bit downwards indicating that the price is moving down overall. There seems to be a general upward trend in the moving averages for all the other company companies, suggesting overall growth in their stock prices during the analyzed period.

Based on these observations, one could conclude that the stock market, as represented by these companies, has been generally positive with some overall growth, but with varying levels of volatility and performance among the individual companies.

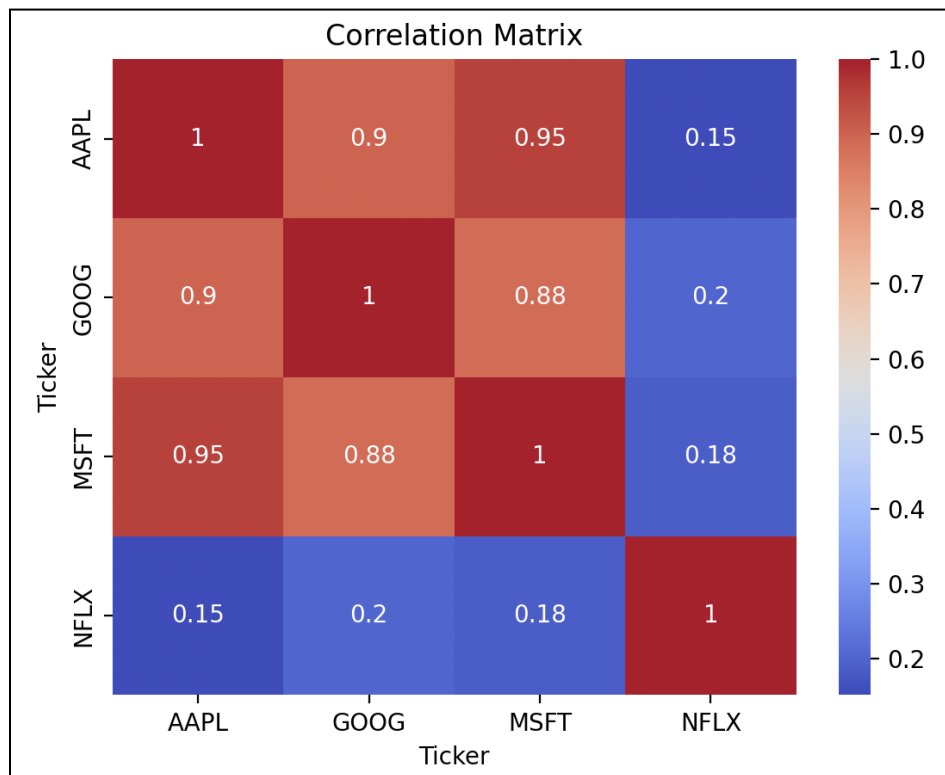
#### 4) Volatility Over The Past 3 Months For Each Company



Based on the "Volatility Over Time" plot, we can observe some trends and patterns over the past 3 months. Apple and Microsoft show relatively stable volatility, with minor fluctuations around 0.025 and 0.030 respectively. Netflix exhibits a sudden increase in volatility, starting around 0.015 and reaching approximately 0.040 by the end of the period. This suggests increasing market uncertainty for Netflix. This also indicates higher fluctuations in Netflix's stock performance compared to other companies. Google demonstrates a moderate volatility, fluctuating between 0.010 and 0.035. It experiences significant ups and downs, indicating a more volatile stock performance.

Based on these observations, we can conclude that Netflix has been the most volatile, while the others have shown relatively stable volatility. Netflix has experienced growing market uncertainty. These trends may reflect specific market factors impacting each company, such as product launches, financial performance, or industry dynamics.

## 5) Correlation Matrix to examine the relationships between different stock prices

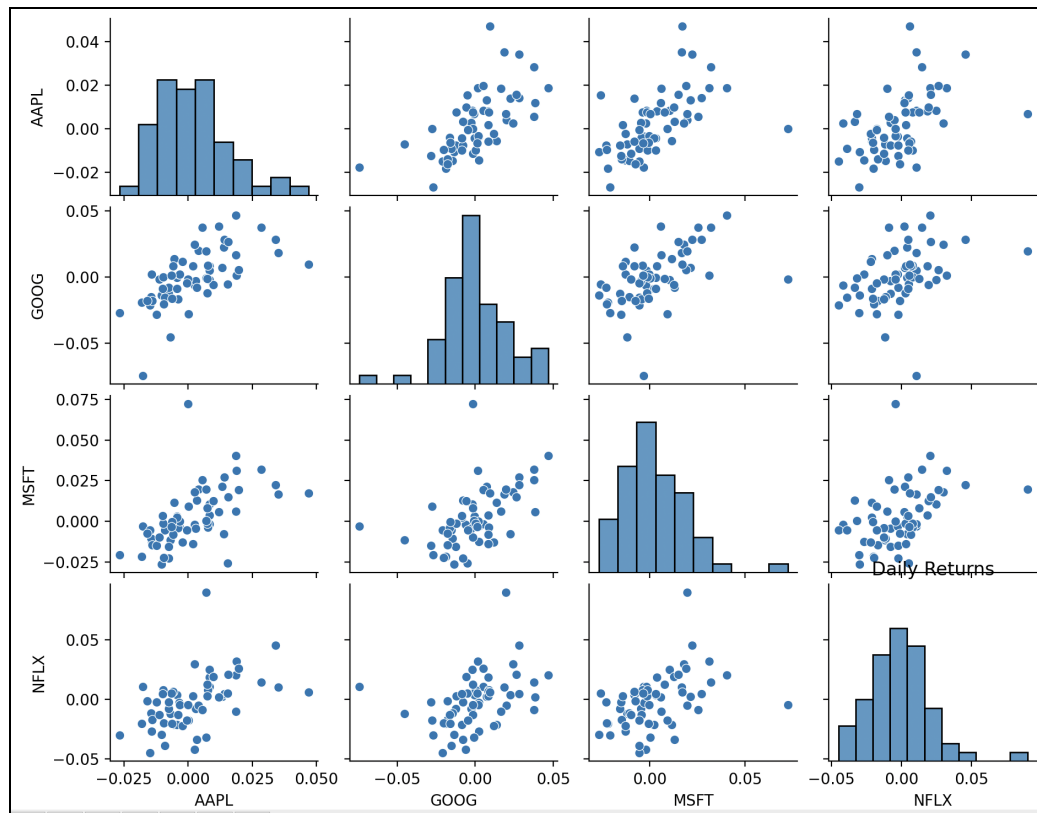


Based on the correlation values in the matrix, we can observe that:

- Apple (AAPL) and Google (GOOG) have a strong positive correlation of 0.95, indicating that their stock prices tend to move in a similar direction.
- Apple (AAPL) and Microsoft (MSFT) also exhibit a strong positive correlation of 0.9, suggesting a similar relationship in their stock prices.
- Google (GOOG) and Microsoft (MSFT) have a moderately positive correlation of 0.88, indicating some similarity in their stock price movements.
- Netflix (NFLX) shows a weak positive correlation with Apple (AAPL), Google (GOOG), and Microsoft (MSFT), with correlation values of 0.2, 0.15, and 0.18 respectively.
- The correlation between Netflix (NFLX) and other companies is relatively weak, indicating less similarity in their stock price movements.

Therefore, based on this correlation matrix, it appears that Apple (AAPL), Google (GOOG), and Microsoft (MSFT) may have more similar stock price movements compared to Netflix (NFLX).

## 6) Pair Plot Showing the Daily Returns of each stock



The plot above is a scatter matrix (or pair plot) of the daily returns of each stock. This can help us see how the daily returns of each pair of stocks relate to each other. Each scatter plot in this matrix shows the relationship between the daily returns of a pair of stocks, which can help us see if there are any correlations between the performances of different stocks. For example, if two stocks tend to move in the same direction, they would have a positive correlation, and the scatter plot would show an upward trend.

From the plot, it appears that there are positive returns for AAPL, GOOG, MSFT, and NFLX, indicated by the dots above 0. On the other hand, there are negative returns for some stocks, shown by dots below 0. By comparing the positions of the dots for each stock, we can observe possible correlations.

### **ANALYSIS CONCLUSION:**

Over the past three months, Apple and Microsoft have shown promising trends with steady growth in their stock prices, indicating potential investment opportunities. Google's stock price has been relatively stable, appealing to risk-averse investors. Netflix, however, experienced a

decline in stock price and increased volatility, suggesting a potential loss in investor confidence and growing market uncertainty. The volume of stocks traded for Apple and Microsoft was consistent, indicating sustained investor interest, while Netflix showed a declining trend. Correlation analysis revealed that Apple, Google, and Microsoft have similar stock price movements, unlike Netflix. Overall, the stock market represented by these companies has been generally positive with some growth, but with varying levels of volatility and performance among the individual companies.