Stock Market Analysis & Prediction

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Tools: Python, ML, SQL, Excel

1. Project Objective

• Analyze historical stock data for AAPL, MSFT, NFLX, and GOOG.
• Identify trends, correlations, and volatility.
• Build a machine learning model to predict the next day's closing price.

2. Dataset Overview

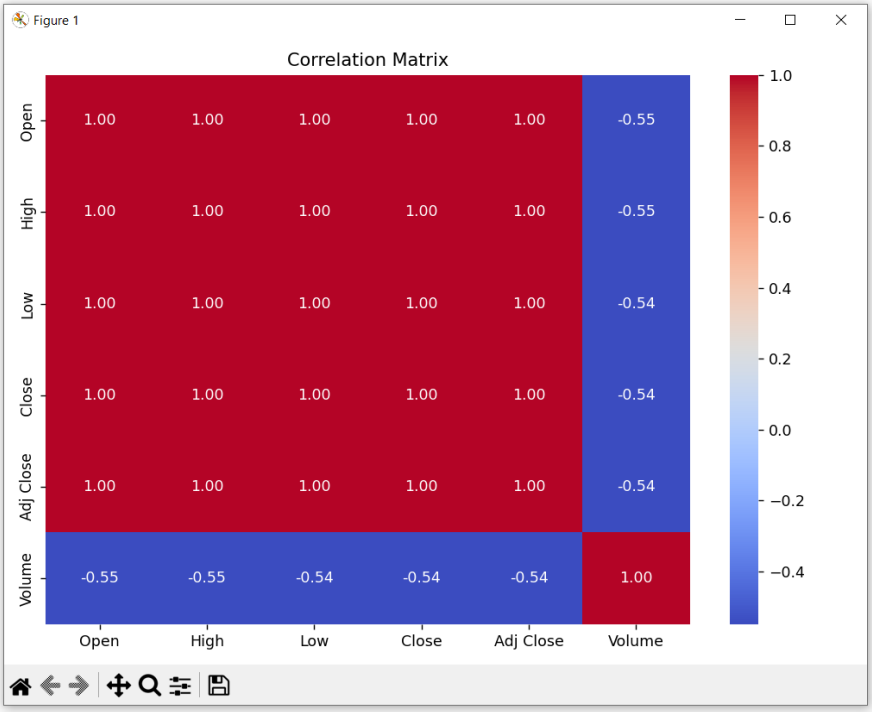
Rows: 248 | Columns: 8
Columns: Ticker, Date, Open, High, Low, Close, Adj Close, Volume
No missing values after cleaning.

3. Data Cleaning

• Converted Date to datetime format.
• Converted price & volume columns to numeric.
• Removed invalid rows (NaN).
• Sorted by Ticker & Date.
• Added indicators: MA(7), MA(30), Volatility(7), Volatility(30), Returns.

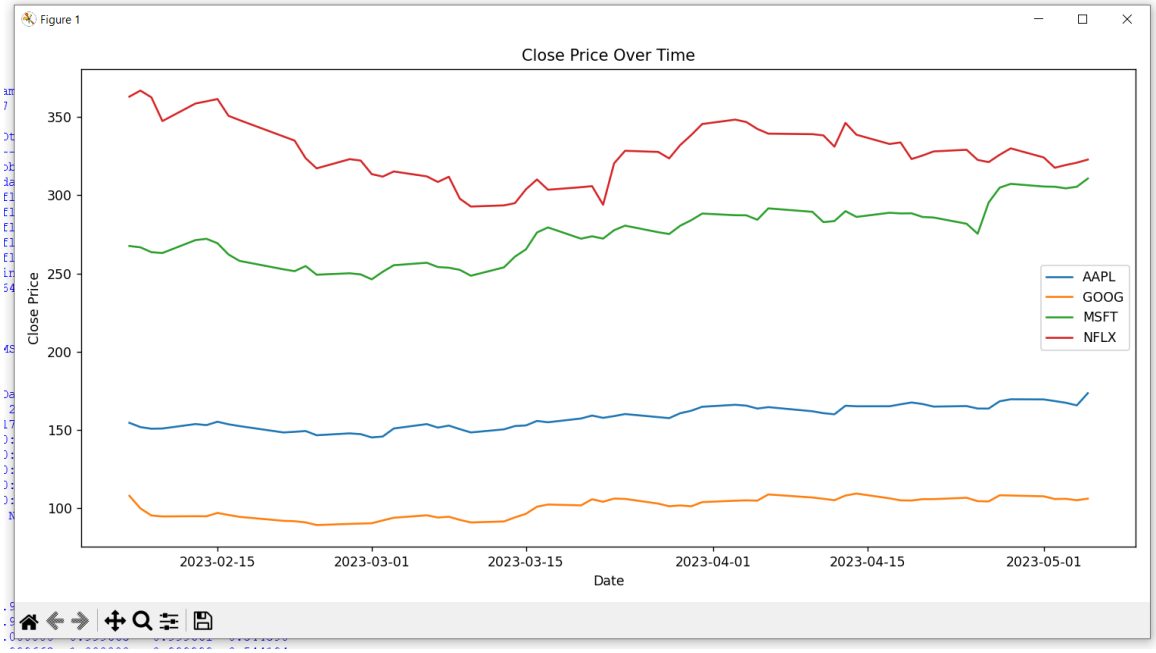
4. Correlation Analysis

Price columns are highly correlated (~1.00).
Volume has a negative correlation (~ -0.54) with prices



5. Price Trends

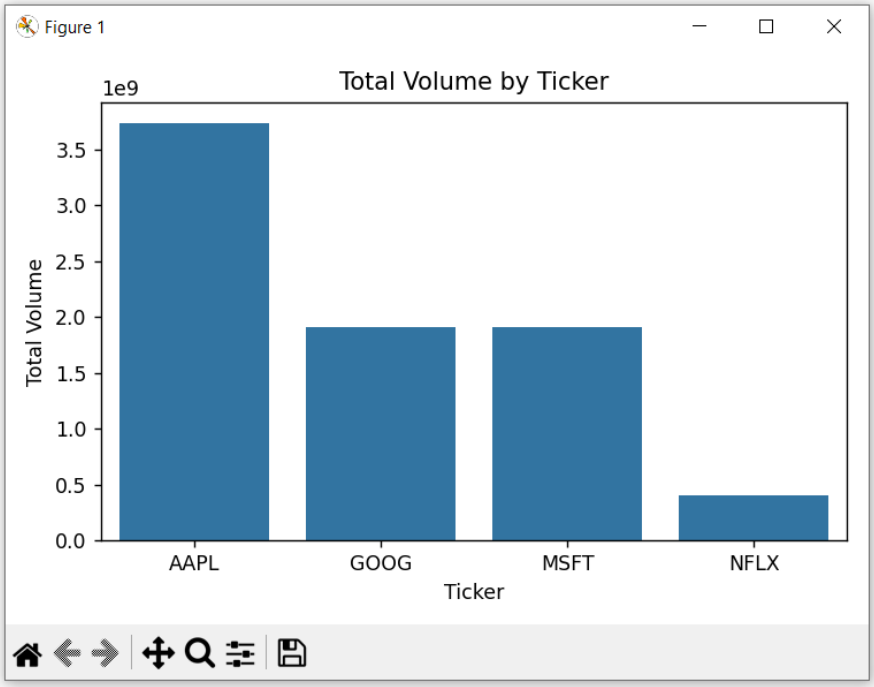
Close Price Over Time for each ticker.
Shows upward/downward trends and volatility differences.



6. Volume Analysis

Total Volume by Ticker.

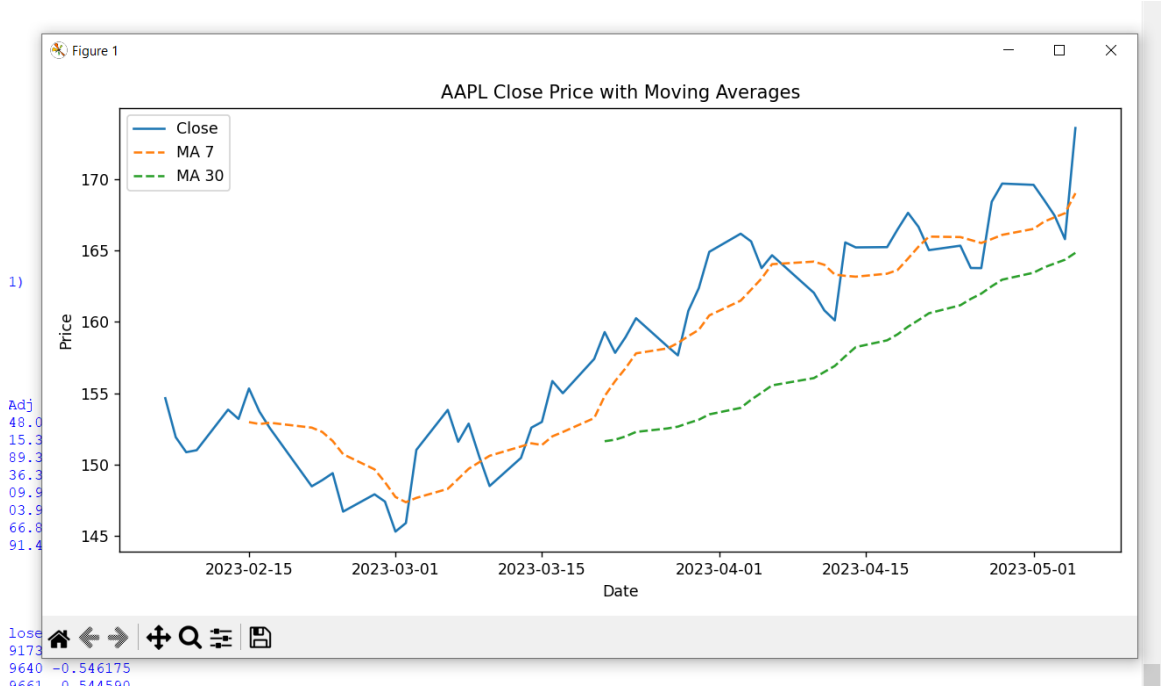
MSFT had the highest traded volume, NFLX the lowest.



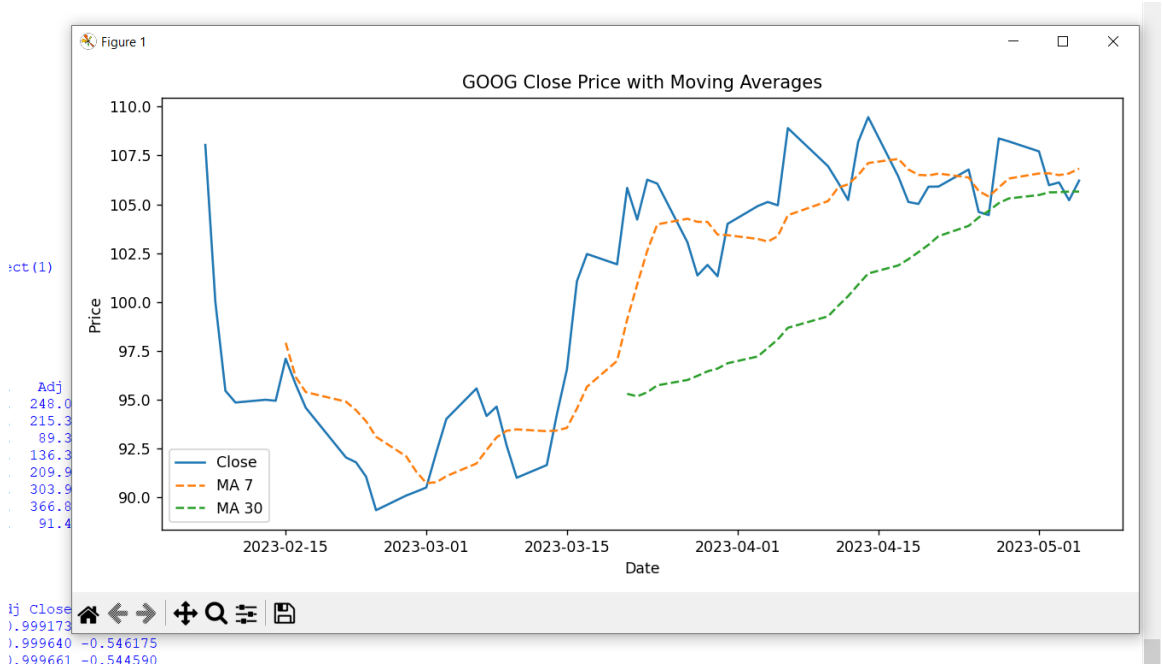
7. Technical Indicators

Moving Averages (7-day & 30-day) show short-term vs long-term trends.

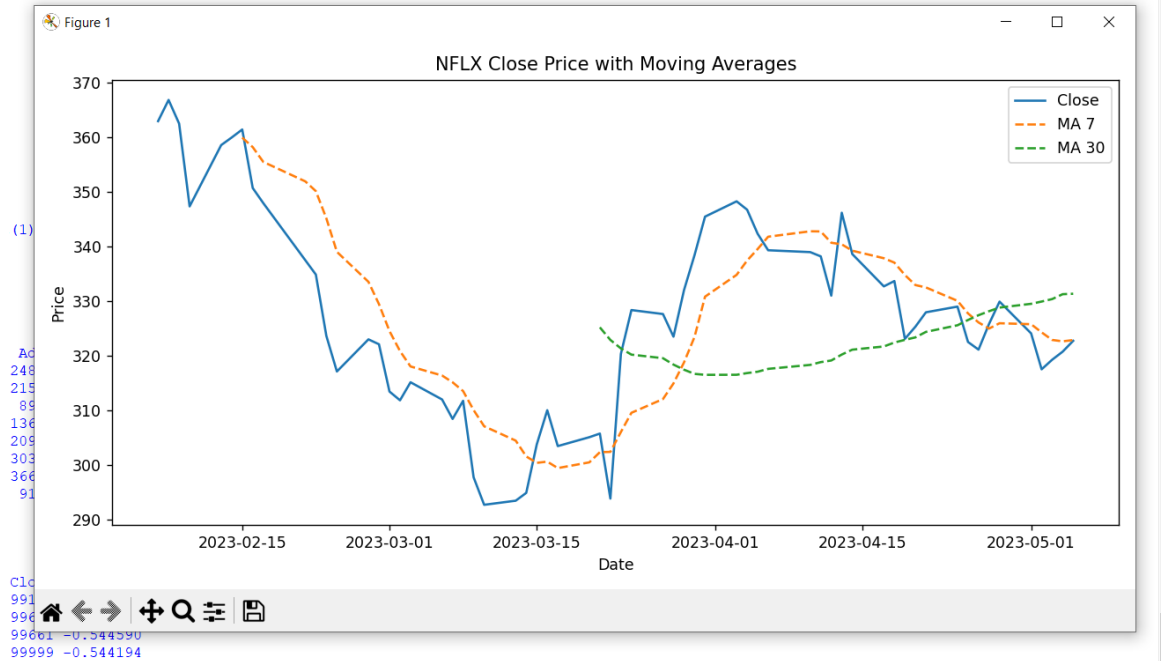
AAPL Close Price with Moving Averages



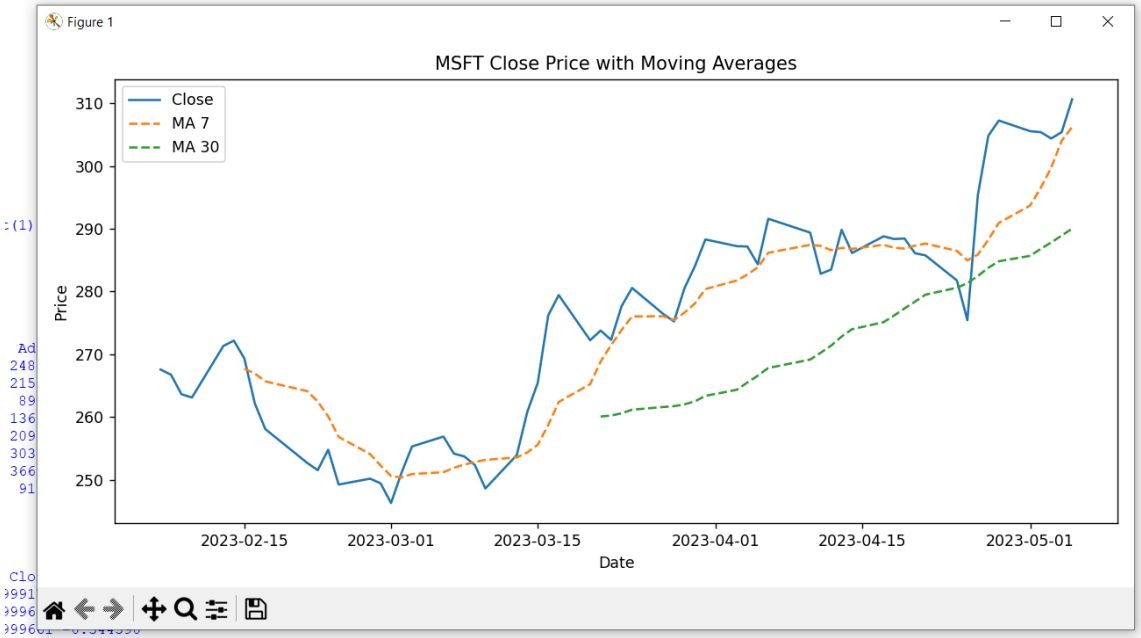
GOOG Close Price with Moving Averages



NFLX Close Price with Moving Averages



MSFT Close Price with Moving Averages



8. Conclusion

- Strong correlations among price columns.
- MSFT & AAPL had stable movements; NFLX & GOOG more volatile.
- Linear Regression gave reasonable predictions.
- Next Steps: Try ARIMA/Prophet, use more data.