

Project1_dongnili

dongnili

Introduction

This report provides a financial analysis of selected stocks (TSLA and GOOGL) for the year 2024. The analysis includes:

- Data cleaning and reshaping.
- Calculation of key financial metrics (e.g., Up Days, Realized Gain/Loss, 20-Day Moving Average).
- Visualization of stock prices and moving averages.
- Comparison of metrics across stocks.

Data Download and Cleaning

I start by downloading the stock data for TSLA and GOOGL using the yfinance package. The data is then cleaned and reshaped to ensure consistency and completeness.

Cleaned data for TSLA:

Price	Date	Open	High	Low	Close	Volume
0	2024-01-02	250.080002	251.250000	244.410004	248.419998	104654200
1	2024-01-03	244.979996	245.679993	236.320007	238.449997	121082600
2	2024-01-04	239.250000	242.699997	237.729996	237.929993	102629300
3	2024-01-05	236.860001	240.119995	234.899994	237.490005	92379400
4	2024-01-08	236.139999	241.250000	235.300003	240.449997	85166600

Price Daily_Return

0	NaN
1	-0.040134
2	-0.002181
3	-0.001849
4	0.012464

Cleaned data for GOOGL:

Price	Date	Open	High	Low	Close	Volume
0	2024-01-02	137.890755	138.786466	135.830597	137.512558	23711

200						
1	2024-01-03	136.596935	138.965616	136.427746	138.258987	24212
100						
2	2024-01-04	137.761383	138.497867	135.701240	135.741043	27137
700						
3	2024-01-05	136.099303	136.507356	134.506910	135.084152	22506
000						
4	2024-01-08	135.641497	138.348556	135.611641	138.179367	21404
000						
Price Daily_Return						
0		NaN				
1		0.005428				
2		-0.018212				
3		-0.004839				
4		0.022913				

Up Days

The number of “up days” (days where the closing price is higher than the opening price) is calculated for each stock.

Up Days for TSLA: 118
Up Days for GOOGL: 145

Realized Gain/Loss

The realized gain or loss is calculated for each stock over the specified time period.

Realized Gain/Loss for TSLA: 168.99000549316406
Realized Gain/Loss for GOOGL: 53.5074462890625

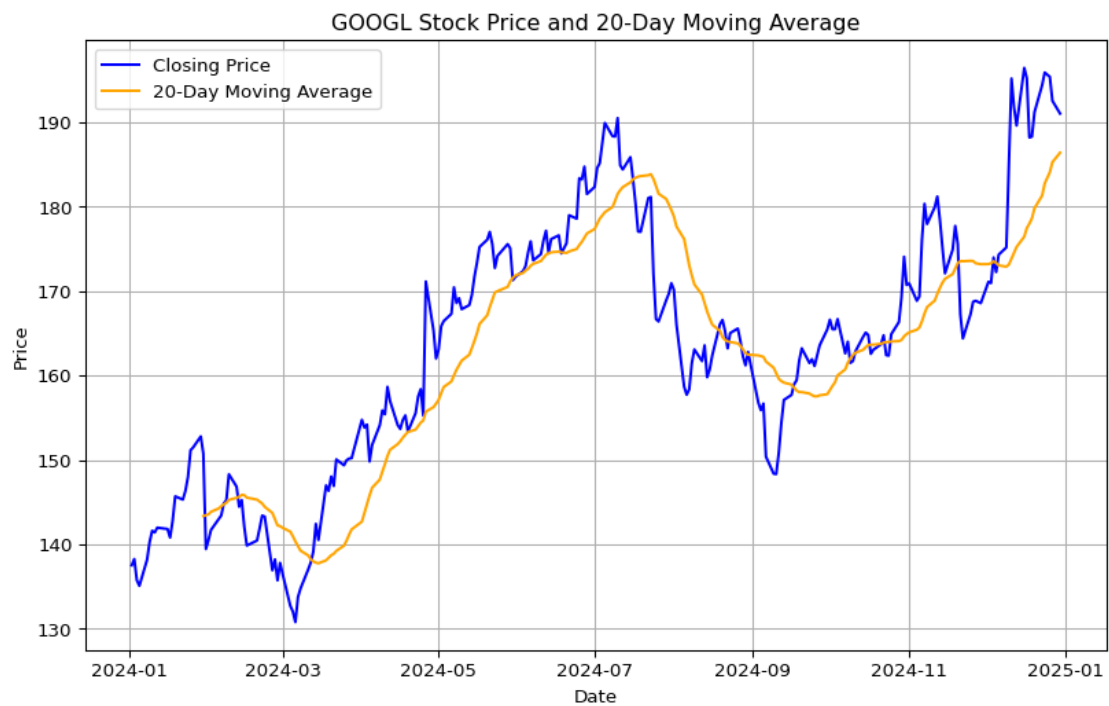
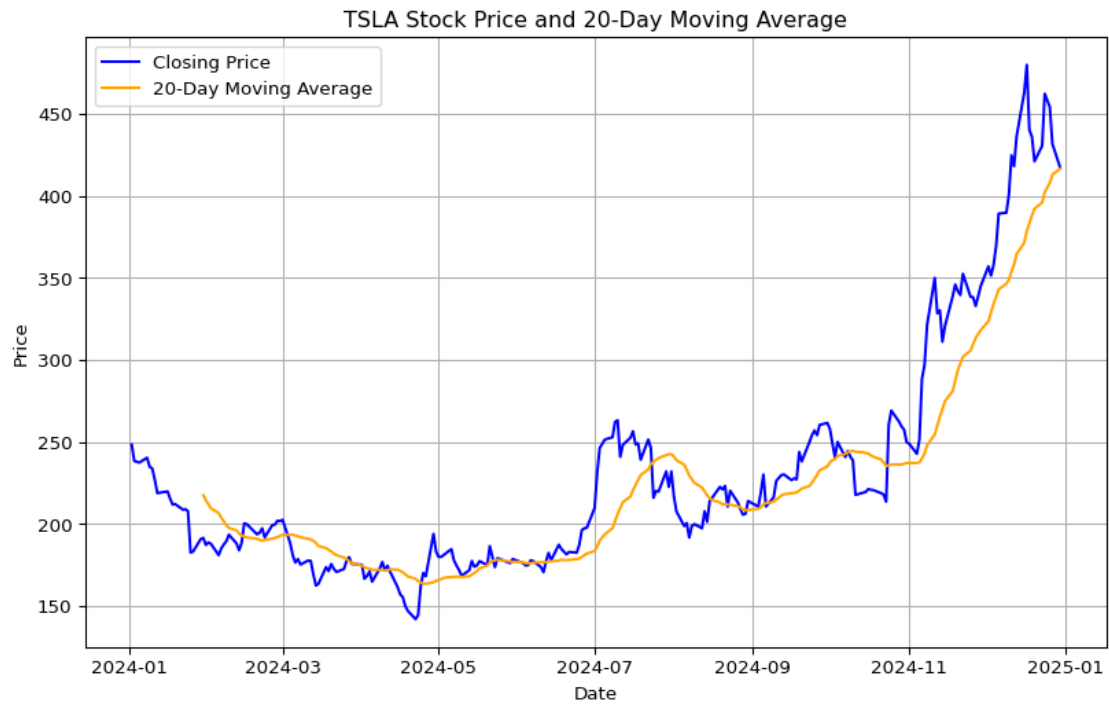
20-Day Moving Average

The 20-day moving average is calculated for each stock.

20-Day Moving Average for TSLA: 416.56750030517577
20-Day Moving Average for GOOGL: 186.3863540649414

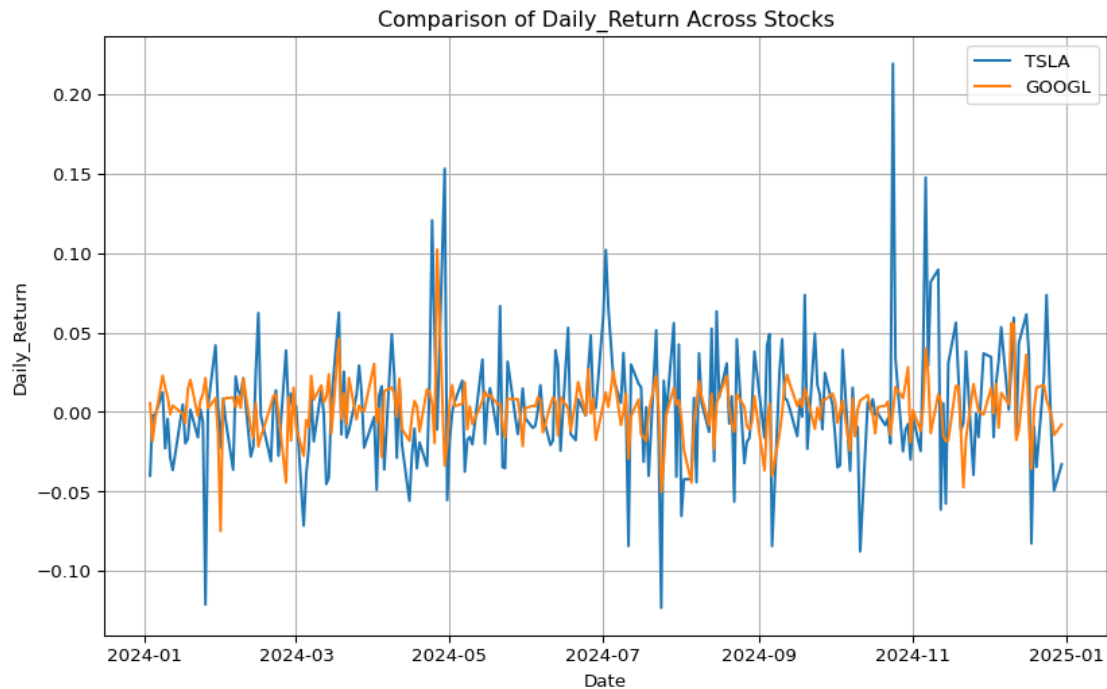
Visualization

Stock Price and Moving Average: The closing price and 20-day moving average are plotted for each stock.



Comparison of Daily Returns

The daily returns of AAPL and GOOGL are compared.



Conclusion

This report demonstrates the financial analysis of **TSLA** and **GOOGL** stocks for the year **2024**. Key metrics such as **Up Days**, **Realized Gain/Loss**, and **20-Day Moving Average** were calculated and visualized to provide insights into the performance of these stocks.

Key Findings

Up Days

- **TSLA: 118 days** where the closing price was higher than the opening price.
- **GOOGL: 145 days** where the closing price was higher than the opening price.
- **GOOGL exhibited more consistent upward movement compared to TSLA.**

Realized Gain/Loss

- **TSLA:** A realized gain of **168.99** over the analyzed period.
- **GOOGL:** A realized gain of **53.51** over the analyzed period.
- **TSLA showed a significantly higher gain compared to GOOGL, indicating stronger price appreciation.**

20-Day Moving Average

- **TSLA:** The 20-day moving average ended at **416.57**.
- **GOOGL:** The 20-day moving average ended at **186.39**.
- **TSLA's moving average suggests a higher price trend compared to GOOGL.**

Visualization

The charts for both stocks illustrate the **closing price** and the **20-day moving average**, providing a clear view of their price trends over time.

- **TSLA's chart shows more volatility**, while
- **GOOGL's chart indicates a relatively stable trend.**

Insights

- **TSLA demonstrated higher volatility but also a stronger realized gain**, making it a potentially **higher-risk, higher-reward** investment.
- **GOOGL showed more stability with consistent upward movement**, making it a relatively **safer investment option**.