

Analysis of Apple and Microsoft Stock Prices

This project analyzes the behavior of Apple and Microsoft stock prices over the past 20 years, focusing specifically on a comparative analysis of the last 2 years. Through volatility calculations, moving averages, and a close-price analysis, the project provides insights into price dynamics and potential short-term trends of both stocks.

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Project Description

The project uses historical stock price data for Apple and Microsoft, obtained from a financial API (Alpha_Vantage). The data covers a 20-year period, with a focused analysis on the last 2 years.

Project Structure

- **data/**: Folder where data fetched from the API is stored.
- **notebooks/**: Jupyter notebooks containing analysis and visualization code.
- **src/**: Source code for data extraction and processing functions.
- **README.md**: Project documentation file.

Data Sources

Historical stock price data for Apple and Microsoft was obtained from the Alpha Vantage API, including daily values for:

- Open
- High
- Low
- Close
- Trading Volume

Analysis

1. **Volatility**: Calculated price volatility over the past 2 years.

2. **Moving Averages:** Calculated 20-day and 50-day moving averages to identify short- and medium-term trends.
3. **Extreme Close Prices:** Selected the highest and lowest close price over the past 2 years and the five highest prices and the five lowest prices over the past two years.
4. **Comparison with Microsoft:** The same analyses were conducted for Microsoft, allowing for a direct comparison between the two companies.

Results

- **Volatility:** Volatility helps visualize price stability or instability during specific periods.
- **Moving Averages:** The 20- and 50-day moving averages reveal trend shifts and crossover points, which may indicate potential buying or selling opportunities.
- **Comparison of Extreme Close Prices:** The extreme close prices of each company provide insight into maximum and minimum points over a long period and their relationship to economic or company-specific events.

Contributions

Contributions are welcome! If you'd like to contribute, please create a pull request or open an issue to discuss the changes.