apple_stock_analysis

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1 Apple Stock Analysis Using Python

In this project, we analyze Apple Inc.'s stock performance using Python and the `yfinance` library. We extract historical stock price data, analyze trends in opening prices, dividends, and stock splits, and visualize the findings using matplotlib.

The goal is to understand Apple's stock behavior and demonstrate data analysis skills using real-world financial data.

[ ]:
```
!pip install yfinance
!pip install matplotlib
```

1.1 Installing Required Libraries

We install the `yfinance` library to fetch stock data and `matplotlib` for data visualization.

[10]:
```
import yfinance as yf
import pandas as pd
import matplotlib.pyplot as plt
```

1.2 Importing Libraries

We import `yfinance` for stock data, `pandas` for data manipulation, and `matplotlib` for plotting.

[11]:
```
apple = yf.Ticker("AAPL")
```

1.3 Creating a Ticker Object for Apple (AAPL)

We create a Ticker object for Apple Inc. using its stock symbol "AAPL". This allows us to access historical data and other financial information.

[12]:
```
apple_share_price = apple.history(period="5y")
apple_share_price.head()
```

[12]:

Date	Open	High	Low	Close	\
2020-06-19 00:00:00-04:00	86.183647	86.650236	83.877408	84.987999	
2020-06-22 00:00:00-04:00	85.381689	87.354988	85.335515	87.211609	
2020-06-23 00:00:00-04:00	88.458279	90.494765	88.037857	89.073112	
2020-06-24 00:00:00-04:00	88.701299	89.622337	87.126545	87.500793	

```
2020-06-25 00:00:00-04:00  87.656327  88.701298  86.895682  88.662415

                                Volume  Dividends  Stock Splits
Date
2020-06-19 00:00:00-04:00  264476000        0.0           0.0
2020-06-22 00:00:00-04:00  135445200        0.0           0.0
2020-06-23 00:00:00-04:00  212155600        0.0           0.0
2020-06-24 00:00:00-04:00  192623200        0.0           0.0
2020-06-25 00:00:00-04:00  137522400        0.0           0.0
```

1.4 Extracting Historical Share Price Data

We use the `history()` method to fetch the last 5 years of Apple stock data, including Open, High, Low, Close, Volume, and more.

[13]:
```
plt.figure(figsize=(12, 6))
apple_share_price["Open"].plot()
plt.title("Apple Opening Stock Price - Last 5 Years")
plt.xlabel("Date")
plt.ylabel("Price (USD)")
plt.grid(True)
plt.show()
```

1.5 Visualizing Opening Prices

We visualize Apple's opening stock price over the last 5 years to understand its overall trend.

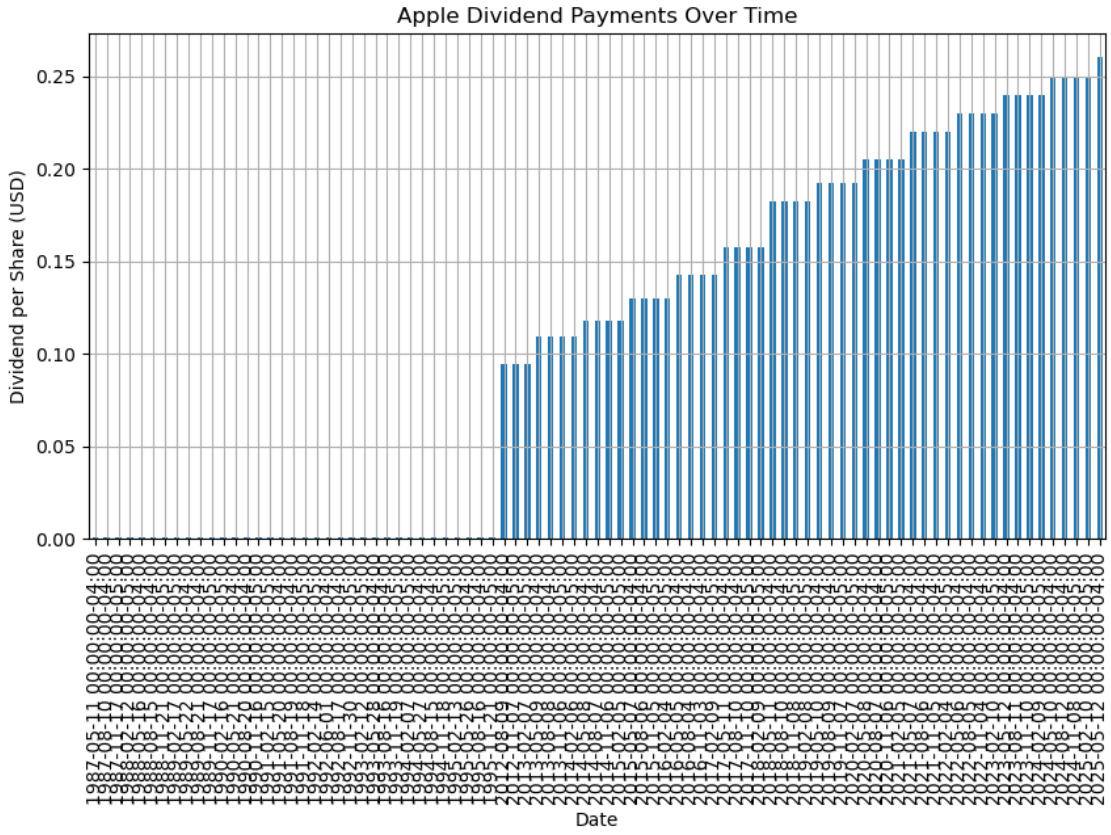
[14]:
```
dividends = apple.dividends
dividends.tail()
```

[14]:
```
Date
2024-05-10 00:00:00-04:00    0.25
2024-08-12 00:00:00-04:00    0.25
2024-11-08 00:00:00-05:00    0.25
2025-02-10 00:00:00-05:00    0.25
2025-05-12 00:00:00-04:00    0.26
Name: Dividends, dtype: float64
```

1.6 Extracting Dividend Data

We access the dividend payouts using the `dividends` attribute. These are amounts paid per share to Apple shareholders.

[15]:
```
plt.figure(figsize=(10, 5))
dividends.plot(kind='bar')
plt.title("Apple Dividend Payments Over Time")
plt.xlabel("Date")
plt.ylabel("Dividend per Share (USD)")
plt.grid(True)
plt.show()
```



1.7 Visualizing Dividends

We use a bar chart to plot Apple's dividend payments over time, helping us see how consistently the company has rewarded shareholders.

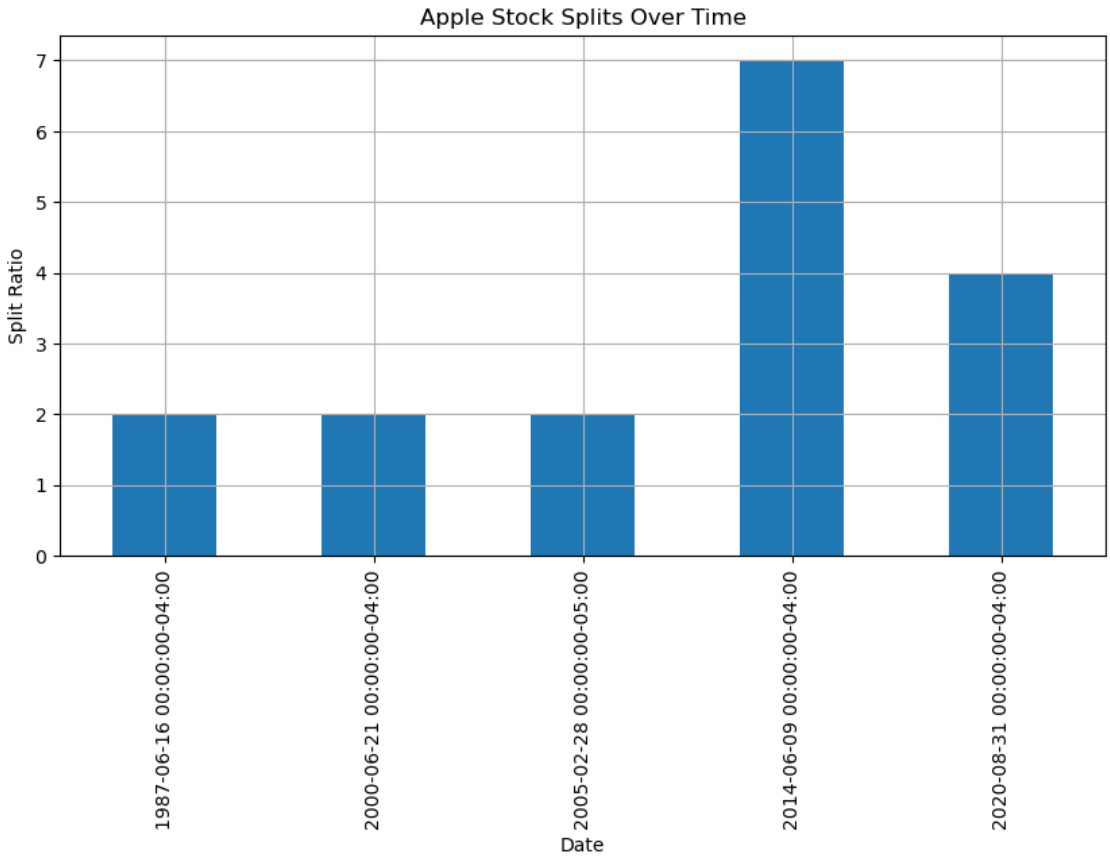
[16]:
```
splits = apple.splits
splits.tail()
```

[16]:
```
Date
1987-06-16 00:00:00-04:00    2.0
2000-06-21 00:00:00-04:00    2.0
2005-02-28 00:00:00-05:00    2.0
2014-06-09 00:00:00-04:00    7.0
2020-08-31 00:00:00-04:00    4.0
Name: Stock Splits, dtype: float64
```

1.8 Extracting Stock Splits

Stock splits affect the number of shares and their price. We extract Apple's split history using the `splits` attribute.

[17]:
```
plt.figure(figsize=(10, 5))
splits.plot(kind='bar')
plt.title("Apple Stock Splits Over Time")
plt.xlabel("Date")
plt.ylabel("Split Ratio")
plt.grid(True)
plt.show()
```



1.9 Visualizing Stock Splits

We plot any stock splits Apple has had over time to better understand structural changes in stock issuance.

1.10 Conclusion

This analysis gave insights into Apple Inc.'s stock performance over the past 5 years. We observed trends in stock opening prices, tracked dividend payouts, and noted the occurrence of any stock splits. This type of analysis is useful for investors and financial analysts looking to make data-driven investment decisions.

Further improvements can include calculating returns, comparing with other companies, and detecting unusual activity like price spikes or volume anomalies.