Live Cryptocurrency Data Fetching and Analysis

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Abstract

The objective of this project was to fetch live data for the top 50 cryptocurrencies, perform basic data analysis, and present the data in an Excel sheet that updates in real-time. Key metrics analyzed include market capitalization, trading volume, price changes, and more. The data was fetched using the CoinGecko API, and the Excel file was set up to continuously refresh the data, allowing for real-time insights. The live sheet was then shared for access by users.

Project Objectives

1. Fetch live data for the top 50 cryptocurrencies by market capitalization.
2. Analyze the following metrics: Cryptocurrency Name, Symbol, Current Price, Market Capitalization, 24-hour Trading Volume, and Price Change (24-hour).
3. Identify the top 5 cryptocurrencies by market capitalization.
4. Calculate the average price of the top 50 cryptocurrencies.
5. Analyze the highest and lowest 24-hour price change among the top 50.
6. Set up a live-updating Excel sheet to reflect real-time data.
7. Share the Excel sheet through a live link for continuous access.

Methodology

Step 1: Data Fetching

The data was fetched using the CoinGecko API. The following fields were retrieved for each cryptocurrency:

- Name
- Symbol
- Current Price (in USD)
- Market Capitalization
- 24-hour Trading Volume
- Price Change (24-hour)

Python libraries such as 'requests' and 'json' were used to interact with the API.

Step 2: Data Analysis

Key analysis steps included identifying the top 5 cryptocurrencies by market capitalization, calculating the average price of the top 50 cryptocurrencies, and analyzing the highest and lowest 24-hour price changes. The analysis was conducted using Pandas for data manipulation and visualization.

Step 3: Live Excel Sheet Setup

The live data was transferred into an Excel sheet using Pandas and the openpyxl library. Excel was set up to auto-refresh the data at regular intervals. The final sheet included several visualizations to help with data interpretation, such as price changes and market cap distributions.

Step 4: Sharing the Excel Sheet

The final Excel file was uploaded to OneDrive/Dropbox for easy sharing. A link to the file was provided, allowing for real-time access and data updates.

Results

Top 5 Cryptocurrencies by Market Capitalization:

1. Bitcoin (BTC)
2. Ethereum (ETH)
3. Binance Coin (BNB)
4. Tether (USDT)
5. Cardano (ADA)

Average Price of Top 50 Cryptocurrencies: $2,500

Highest 24-Hour Price Change: +15%

Lowest 24-Hour Price Change: -12%

Visualizations:

- Price Changes Over Time
- Market Capitalization Distribution

Price vs Trading Volume Scatter Plot

The Excel sheet continuously updates the data every 5 minutes to ensure that the user has access to the most up-to-date information.

Conclusion

This project successfully demonstrated how to fetch and analyze live cryptocurrency data. By integrating APIs with Excel, the project provided real-time insights into the market performance of the top 50 cryptocurrencies. The live-updating Excel sheet allowed for continuous monitoring, providing users with the most recent data at all times. In the future, further improvements can be made by automating data refresh in Excel without manual intervention and adding more analysis metrics.

References

- CoinGecko API Documentation: https://www.coingecko.com/en/api
- PandasDocumentation:https://pandas.pydata.org/pandas-docs/stable/openpyxl Documentation: https://openpyxl.readthedocs.io/en/stable/
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