

Crypto Live Data Project Report

Introduction

The Crypto Live Data project is a real-time cryptocurrency tracking system that fetches live market data from the CoinGecko API and stores it in an Excel file. The system continuously updates the Excel sheet with the latest cryptocurrency prices, market capitalization, trading volume, and price changes.

Objectives

- Fetch live cryptocurrency market data.
- Process and analyze key market indicators.
- Store and update the data in an Excel file for further analysis.
- Automate the data collection and update process.

Technologies Used

- Python: Core programming language.
- Requests: Fetching data from the CoinGecko API.
- Pandas: Data manipulation and analysis.
- OpenPyXL: Writing and updating Excel files.
- OS Module: Managing file paths and checking file existence.
- Time Module: Automating periodic updates.

Implementation

1. Fetching Live Data

The script uses the CoinGecko API to retrieve the top 50 cryptocurrencies based on market capitalization. The following parameters are used:

- Currency: USD
- Order: Market cap descending

- **Number of entries: 50**
- **Sparkline: Disabled**

2. Data Processing and Analysis

Once the data is fetched, it is converted into a Pandas DataFrame. Key insights are extracted, including:

- **Top 5 cryptocurrencies by market capitalization.**
- **Average price of the top 50 cryptocurrencies.**
- **Cryptocurrency with the highest and lowest price change in the last 24 hours.**

3. Storing Data in Excel

The data is written to an Excel file (crypto_live_data.xlsx) using OpenPyXL. The script ensures that:

- **The previous data is cleared before inserting new records.**
- **Data formatting is maintained for readability.**
- **The file is properly saved and closed to avoid encoding issues.**

4. Automation

The script runs in an infinite loop, updating the Excel file every 5 minutes using `time.sleep(300)`.

Challenges and Solutions

Challenge	Solution
File Load Error: "Not UTF-8 encoded"	Ensured proper closing of the Excel file using <code>wb.close()</code> after saving.
Permission Error	Users must close the Excel file before running the script.
Data Overwriting	Used <code>ws.delete_rows(1, ws.max_row)</code> to clear previous data before writing new records.

Future Enhancements

- **Implementing a graphical dashboard for visualization.**
- **Adding user-defined parameters for fetching data.**
- **Enhancing error handling and logging mechanisms.**
- **Allowing historical data storage for trend analysis.**

Conclusion

The Crypto Live Data project successfully automates real-time cryptocurrency data collection and storage in an Excel sheet. The system provides valuable insights into market trends and facilitates further analysis. Future updates will enhance its usability and visualization capabilities.