Cryptocurrency Data Analysis and Live Updates Report

Introduction

This project focuses on analyzing live cryptocurrency data by automating data fetching, performing analysis, and saving the results in live-updating Excel files. The solution is designed to run automatically every 5 minutes, ensuring that the data remains up-to-date. This report outlines the steps taken to complete the project and provides guidance on how to replicate it on another system.

Project Overview

Features Implemented

1.**Live Data Fetching**
The script fetches data for the top 50 cryptocurrencies by market capitalization using the CoinGecko API. Key metrics retrieved include:

- Cryptocurrency Name

- Symbol

- Current Price (in USD)

- Market Capitalization

- 24-hour Trading Volume

- 24-hour Percentage Price Change

2.**Data Analysis**
The analysis includes:

- Top 5 cryptocurrencies by market capitalization.

- Average price of the top 50 cryptocurrencies.

- Highest and lowest 24-hour percentage price changes.

3.**Live-Running Excel Files**
Two Excel files are updated automatically every 5 minutes:

- top_50_cryptos.xlsx: Contains detailed live data of the top 50 cryptocurrencies.

- analysis_summary.xlsx: Contains a summary of the analysis performed.

4.**Automation and Logging**

The script runs continuously using Python's schedule library, and update logs are maintained to track each data fetch.

Setup Instructions

System Requirements

- **Operating System:** macOS, Windows, or Linux

- **Python Version:** Python 3.7 or higher

Required Libraries
To install the required libraries, run the following command:-
[pip install requests pandas openpyxl schedule]

Automate the Script

- **On macOS/Linux (Using crontab):**

1. Open the crontab editor: crontab –e

2. Add the following line to schedule the script every 5 minutes: */5 * * * * python3 /path/to/fetch_crypto_data.py

3. Save and exit.

- **On Windows (Using Task Scheduler):**

1. Create a .bat file with the following content: python "C:\path\to\fetch_crypto_data.py"

2. Use Task Scheduler to run the .bat file every 5 minutes.

Run the Script:-
Start the script manually to verify functionality: python fetch_crypto_data.py

How the Excel Files Work

1.top_50_cryptos.xlsx

- Contains live data for the top 50 cryptocurrencies.

- Includes a Last Updated column to display the timestamp of the most recent update.

2.analysis_summary.xlsx

- Summarizes the analysis:

• Average price of the top 50 cryptocurrencies.

• Highest and lowest 24-hour percentage price changes.

• Top 5 cryptocurrencies by market capitalization.

3.**Updates Every 5 Minutes**
The Excel files automatically refresh every 5 minutes with the latest data from the CoinGecko API.

Validation of Live Updates

Proof of Functionality

1.Last Updated **Column:**
The top_50_cryptos.xlsx file includes a timestamp that updates every 5 minutes to confirm the script's functionality.

2.**Logs:**
The script maintains a log of updates in the terminal and optionally in a update_log.txt file, documenting every data fetch with timestamps.

3.**Testing Steps:**

•   Open the Excel file while the script is running.

•   Observe the Last Updated column changing every 5 minutes.

Conclusion

This project successfully automates the live fetching and analysis of cryptocurrency data, demonstrating the ability to handle real-time data updates. It provides actionable insights while ensuring data accuracy through continuous updates.