

Assignment: Crypto Data Extraction, Storage, and Dashboard Creation

GitHUB URL: https://github.com/santoshBogale/CryptoData_assignment

Objective

The project aims to assess the ability to:

- Extract financial data using APIs.
 - Store the data efficiently in a database.
 - Develop an interactive dashboard using Power BI to showcase key performance indicators (KPIs).
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Tools and Technologies Used

- **Programming Language:** Python
 - **APIs Used:** Binance Futures API, CoinMarketCap (CMC)
 - **Database:** MySQL
 - **Dashboard:** Power BI Desktop
 - **Libraries:** Requests, Pandas, SQLite3
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Tasks Performed

1. Data Extraction

Binance API

- **Endpoints Used:**
 - Account Information
 - Account Trade List
 - Income History
- **Authentication:** Utilized the provided API Key and Secret to authenticate requests.

CMC Data

- **Currencies Extracted:**
 - Bitcoin
 - Ethereum
 - Tether
- **Data Source:** Historical price data was downloaded for the past three months in CSV format.

- **Processing:** Data cleaned and formatted to ensure consistency across datasets.
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2. Data Storage

- **Database Selection:** [MySQL]
 - **Structure:**
 - Separate tables/collections for Binance and CMC data.
 - **Storage Process:**
 - Used Python libraries like SQLite3 client for seamless integration.
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3. Dashboard Creation

KPIs Visualized

- Used KPI to measure the progress of a specific goal against different targets.

Line Chart and Area Chart

- Used Line charts and Area charts for displaying trends over time or continuous data.

Slicers

- Used Slicers for filtering the data
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Challenges

- While working on the script to extract data from the Binance API and store it in an SQLite database, the following challenge was encountered:
 - The script successfully connected to the Binance API using the provided API Key and Secret.
 - Data for account information was fetched but for user trades, and income it was returning empty list. Account information was displayed in JSON format using the `get_binance_data()` function.
 - However, when attempting to save this extracted Binance API data into the SQLite database, the tables were not created
 - Issue in connecting PowerBI desktop to MySQL database was failing:
 - As some components required for MySQL database connection was missing, the connection was failing.
 - After installing MySQL connector, I was able to connect to MySQL from PowerBI desktop.
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Steps to Execute

1. **Setup Environment:**
 - Install required libraries using `pip install -r requirements.txt`.
 - Configure database connection in the Python scripts.
 2. **Run Code:**
 - Execute the scripts to fetch and store data.
 - Verify data storage in the database.
 3. **Connect to Power BI:**
 - Link Power BI Desktop to the database.
 - Import data tables for visualization.
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Summary

The project demonstrates the integration of API data extraction, efficient database storage, and insightful data visualization. The Power BI dashboard provides actionable insights into cryptocurrency trends and performance metrics.