Analyzing Crypto Currency Markets: Data Repository, Predictive Modeling, and Strategic Insights

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Abstract

This project centralizes Crypto Currency data, sources it from APIs or scraping tools, stores it in warehouses, and cleans for accuracy. Analysis via SQL, visualization, and machine learning uncovers trends, empowering stakeholders with insights for informed decision-making. It signifies a pivotal advancement in cryptocurrency analytics, fostering market growth and success.

Introduction

Cryptocurrencies have reshaped finance, necessitating sophisticated data analysis. This project establishes a framework for centralized Crypto Currency data processing. Through rigorous data cleaning and advanced analytics, stakeholders gain insights to optimize decision-making, trading, and anticipate market trends, fostering growth in the Crypto Currency market.

Research Question

Expected outcomes involve a centralized Crypto Currency data repository, cleaned, and processed for analysis, yielding meaningful market insights. Implementing predictive analytics models utilizes past data to foresee market trends and investment opportunities, improving decision-making. Recommendations and strategies aim to empower stakeholders with informed decisions and optimize trading tactics for Crypto Currency enterprises.

Dataset

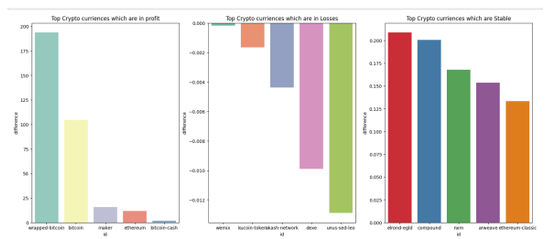
The CoinCap API, specifically the endpoint for Crypto data is utilized.

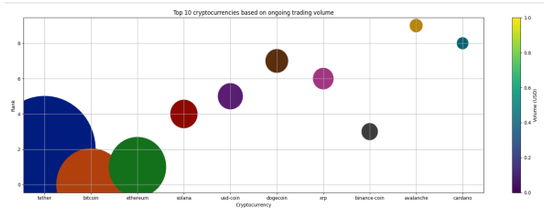
Endpoint: https://api.coincap.io/v2/assets.
example:
[{"id":"bitcoin","rank":"1","symbol":"BTC","name":"Bitcoin","supply":"19618343.00000000000","maxSupply":"21000000.0000000000000000","marketCapUsd":"835435777974.41834","volumeUsd24Hr":"4760159036.3792827873026213","priceUsd":"42584.42101","changePercent24Hr":"1.0956691070429600","vwap24Hr":"42945"}]

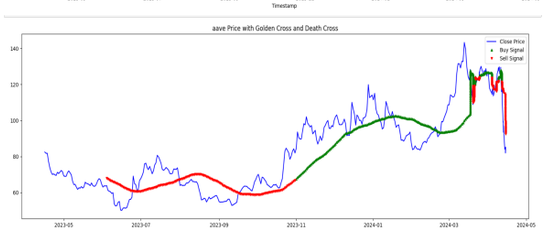
Methodology

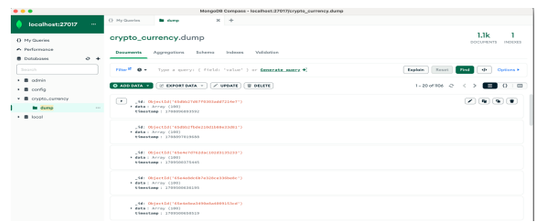
Data sourcing involves gathering Crypto Currency data from primary sources using APIs or scraping tools. Retrieved data from the CoinCap API is stored in MongoDB, prioritizing integrity with Python. Following retrieval, MongoDB data undergoes processing and analysis, with selected accurate data transferred to PostgreSQL for database integration. Model selection considers data characteristics and desired outcomes, with trained models evaluated for performance. Data analysis entails statistical methods, visualization, and ML algorithms to identify trends and anomalies, providing strategic opportunities. Recommendations tailored to market participants' needs are formulated based on analysis results.

Results









Conclusion

In conclusion, this project establishes a robust framework for Crypto Currency data collection, processing, analysis, and recommendation formulation. By leveraging APIs, scraping tools, and databases like MongoDB and PostgreSQL, valuable insights are extracted from both historical and real-time data. The utilization of machine learning algorithms enables predictive modeling and trend recognition, empowering stakeholders to make informed decisions in the dynamic Crypto Currency market.

Future work

Future work entails refining data collection, processing, and analysis methods, exploring additional APIs and advanced machine learning models. Enhanced data visualization and extensive testing of predictive models are crucial. Expanding recommendation formulation to cater to diverse market participants' needs will increase the project's relevance and impact.