

High Level Design (HLD)

Title: Cryptocurrency Liquidity Prediction for Market Stability

Objective:

Cryptocurrency markets are highly volatile, and liquidity plays a crucial role in market stability. Liquidity refers to the ease with which assets can be bought or sold without significantly impacting the price. A lack of liquidity can lead to increased price fluctuations and market instability.

In this project, the goal is to predict the liquidity ratio using the features price, 1h, 24h, 7d, 24h_volume, mkt_cap, moving_averages, volatility & liquidity_ratio

This helps in understanding how easily crypto currency can be bought & sold

Overview:

This project focuses on analyzing cryptocurrency data by following a structured approach. First, datasets from CoinGecko dated March 16 and March 17, 2022, are gathered.

Next, the data undergoes preprocessing, where missing values and duplicates are removed to ensure accuracy.

After cleaning, feature engineering is applied to enhance the dataset by incorporating metrics such as moving averages, volatility, and liquidity ratios. Then, exploratory data analysis (EDA) is performed to examine patterns and correlations among variables.

For model development, different techniques are implemented, effectiveness is measured using key performance indicators like Root Mean Squared Error (RMSE), Mean Absolute Error (MAE), and R^2 Score.

Ultimately, the best-performing model is saved to facilitate future predictions, ensuring efficient and reliable forecasting.

Tools used

Python

Pandas

Matplotlib seaborn

Streamlit

Scikit learn

HLD diagram of components for Cryptocurrency Liquidity Prediction Project

