

High-Level Design (HLD): Crypto Liquidity Prediction

Objective:

Develop a machine learning system that predicts the liquidity ratio of cryptocurrencies based on historical and live market data (price, volume, market cap, etc.).

Key Components:

1. Data Collection (CoinGecko CSV / API)
2. Data Preprocessing & Feature Engineering
3. Model Training (Random Forest)
4. Flask API for prediction
5. Streamlit App for UI
6. Deployment-ready with requirements.txt

Inputs:

- Price, Market Cap, 24h Volume, % changes (1h, 24h, 7d)

Output:

- Predicted Liquidity Ratio

System Flow:

[User -> Streamlit UI] -> [API/API Call] -> [Flask Model Inference] -> [Return Prediction]