

# High-Level Design Document

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Project Title: Cryptocurrency Liquidity Prediction for Market Stability

### 1. Overview:

This machine learning project predicts the liquidity of cryptocurrencies based on historical market data such as price, volume, and market cap. It helps anticipate market instability due to liquidity crises.

### 2. Components:

- Data Collection: CSV data from CoinGecko for March 2022
- Data Preprocessing: Handling missing values, scaling
- EDA: Identifying top coins, trends, and correlations
- Feature Engineering: Creating price\_ma and liquidity\_ratio
- Model Training: Using Random Forest Regressor
- Model Evaluation: Metrics include  $R^2$ , RMSE, MAE
- Deployment: Streamlit-based prediction app

### 3. Tools & Libraries:

Python, Pandas, Scikit-learn, Streamlit, Matplotlib, Seaborn