1. High-Level Design (HLD) Document

High-Level Design Overview

Project Title: *Cryptocurrency Liquidity Prediction for Market Stability*

Purpose:
This project aims to develop a system that uses machine learning to predict the liquidity level of cryptocurrencies, enabling traders, investors, and exchanges to better manage market risk.

Key Components:

1. **Data Collection**: Historical cryptocurrency data is sourced from CoinGecko in CSV format.

2. **Data Preprocessing**: Data is cleaned and normalized to prepare it for modeling.

3. **Feature Engineering**: Relevant features are created, including:

- Moving Average to capture trends

- Volatility to measure price fluctuations

- Liquidity Ratio to assess trading activity

4. **Machine Learning Model**: A Linear Regression model is trained to predict 24-hour trading volume as a proxy for liquidity.

5. **Prediction System**: A web interface built with Flask allows users to input values and receive predicted liquidity levels.