1. **High-Level Design (HLD) Document**

High-Level Design Overview

Project Title: *Cryptocurrency Liquidity Prediction for Market Stability*

Purpose:

To build a system that predicts the **liquidity level** (how easily a coin can be traded) of cryptocurrencies using machine learning. This helps traders, investors, and exchanges identify market risk and make better decisions.

Main Components:

1. **Data Source**:
    - Historical cryptocurrency data (price, volume, etc.)
    - Used two files from CoinGecko (CSV format)

2. **Preprocessing Module**:
    - Cleans the data (removes errors or missing values)
    - Normalizes values so the model can understand them

3. **Feature Engineering**:
    - New columns are created, like:
        - Moving Average (trend)
        - Volatility (price fluctuation)
        - Liquidity Ratio (how actively it's traded)

4. **Model**:
    - A machine learning model (Linear Regression) is trained to predict 24h_volume (used as a proxy for liquidity)

5. **Prediction System**:
    - A web interface created using **Flask** allows users to enter values and get predicted liquidity