High Level Design (HLD)

The system consists of an input layer, processing layer, model layer, and output layer.

Users provide market inputs via a Streamlit interface, which are processed and passed to a trained Random Forest model to generate volatility predictions.

HLD Architecture Overview

User → Streamlit UI → Feature Engineering → ML Model → Volatility Output

Low Level Design (LLD)

Input Module: Collects numerical market inputs from the user.

Feature Engineering Module: Computes price spreads and liquidity ratio.

Prediction Module: Loads the serialized model and generates predictions.

UI Module: Displays prediction results using Streamlit.

Pipeline Architecture

Dataset → Data Cleaning → Feature Engineering → Model Training → Model Evaluation → Model Serialization → Streamlit Deployment

Documentation Summary

This document explains the internal working and data flow of the system, ensuring clarity in design and implementation for academic evaluation.