Pipeline Architecture:

Cryptocurrency Liquidity Prediction for Market Stability

1. **Data Ingestion**
    - Load the cryptocurrency datasets (March 16 and 17, 2022) into Pandas DataFrames.
2. **Data Cleaning**
    - Remove missing values.
    - Remove duplicate records.
    - Ensure correct data types.
3. **Feature Engineering**
    - Create new features like:
        - 2-day moving averages for price and market cap.
        - Volatility (price standard deviation over 2 days).
        - Liquidity ratio (volume divided by market cap).
4. **Exploratory Data Analysis (EDA)**
    - Visualize Bitcoin price over time.
    - Create correlation heatmap among numerical features.
    - Generate summary statistics to understand data distribution.
5. **Model Building**
    - Train an initial model using Linear Regression.
    - Train the final model using Random Forest Regressor.
6. **Model Evaluation**
    - Evaluate models using RMSE, MAE, and R^2 score.

- Select the best-performing model (Random Forest).

7. **Model Saving**
    - Save the trained model using Joblib for future predictions.
8. **Optional Local Deployment**
    - Develop a basic Streamlit or Flask app to load the saved model and predict liquidity based on new inputs.