EDA Report: Crypto currency Liquidity Prediction

# 1. Objective

To analyze cryptocurrency market data and develop a predictive model that estimates liquidity, helping identify potential instabilities and ensuring better market risk assessment.

# 2. Dataset Overview

- Dataset Source: Crypto market dataset (including OHLCV data, liquidity indicators, and market sentiment features)  
- Rows: ~1000+  
- Target Variable: liquidity  
- Key Features: symbol, price, volume, market\_cap, sentiment\_score, volatility, etc.

# 3. Data Cleaning & Preprocessing

- Missing values handled using median/mode imputation  
- One-Hot Encoding for categorical variables (e.g., symbol)  
- Outliers in volume and market\_cap handled using IQR  
- Feature scaling applied via MinMaxScaler or StandardScaler

# 4. Statistical Summary

| Feature | Mean | Std Dev | Min | Max |  
|---------|------|---------|-----|-----|  
| volume | High skew | Large variance | 0 | High |  
| market\_cap | Very skewed | High range | Low | High |  
| sentiment\_score | 0.02 | 0.67 | -1.0 | +1.0 |  
| volatility | 0.8 | 0.3 | 0.2 | 1.5 |

# 5. Correlation Highlights

- volume: +0.79 with liquidity (Strong)  
- market\_cap: +0.76  
- sentiment\_score: +0.55  
- volatility: -0.42

# 6. Visual Insights

- Histograms: Numerical features are right-skewed  
- Boxplots: Outliers present, especially in volume and market cap  
- Scatter plots: Positive linear trend between volume and liquidity  
- Line graphs: Liquidity trends over time reveal spikes/dips with market events

# 7. Key Findings

- Liquidity is influenced most by volume, market cap, and sentiment  
- Volatility inversely impacts liquidity  
- Tree-based models are more suitable due to non-linear patterns

# 8. Conclusion

EDA confirms that market activity features (volume, market\_cap, sentiment) are strong predictors of liquidity. After cleaning and engineering the data, the dataset was prepared for machine learning. Skewness and outliers were important challenges, but were addressed in preprocessing.