Final Report: Cryptocurrency Liquidity Prediction for Market Stability

In this project, we worked on predicting the liquidity of cryptocurrencies to help understand market stability. We collected two days of data from CoinGecko (March 16 and March 17, 2022), including features like price, 24-hour volume, market capitalization, and returns.

After cleaning the data by removing missing values and duplicates, we created new features such as 2-day moving averages for price and market cap, volatility, and a liquidity ratio. These helped the model learn better patterns.

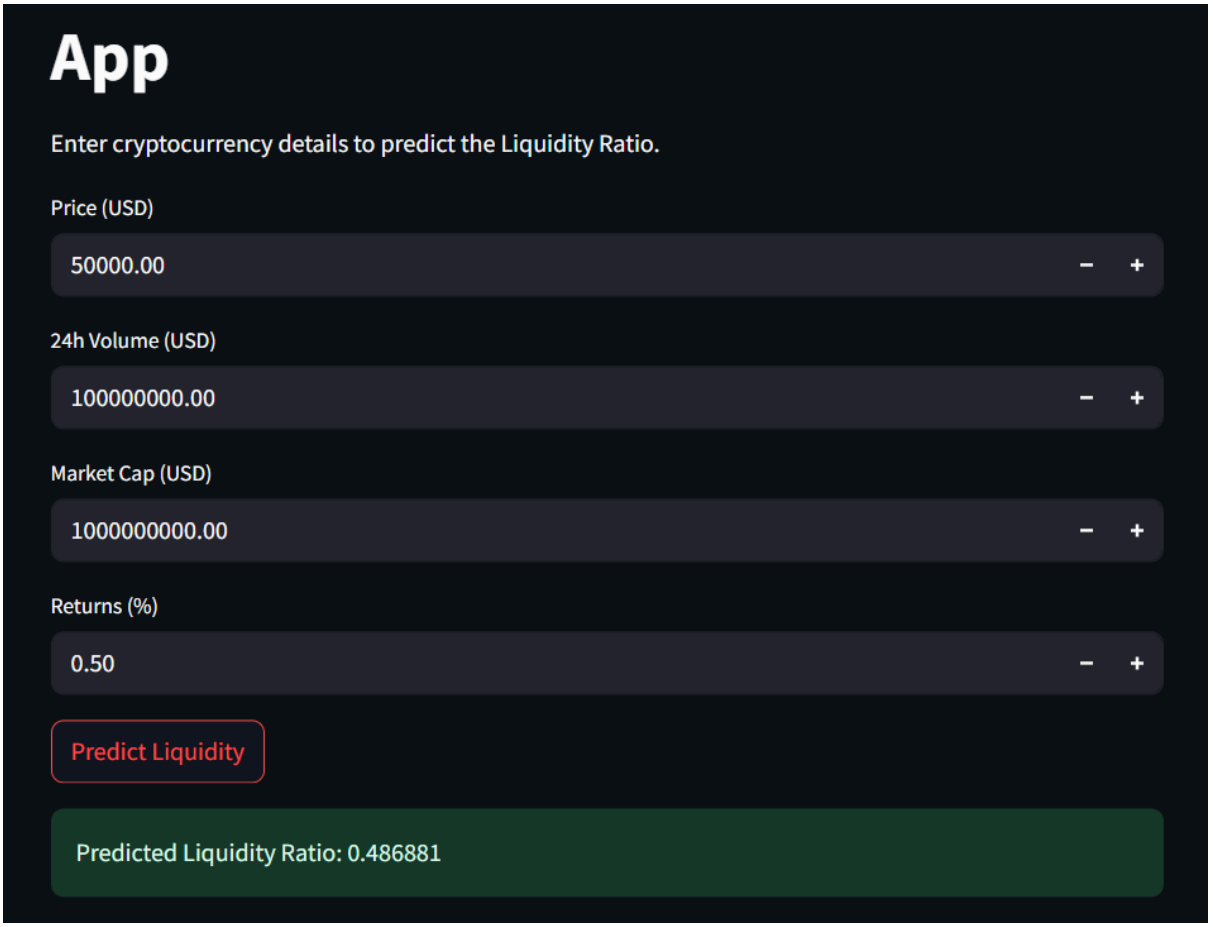
We performed Exploratory Data Analysis (EDA) where we:

- Plotted Bitcoin's price over time.
- Created a correlation heatmap to find relationships between features.
- Analyzed basic summary statistics to understand the spread of data.

For model building, we first tried Linear Regression, but the performance was not very good. Later, we trained a Random Forest Regressor model, tuned its hyperparameters, and achieved a strong R^2 score of **0.87**, showing that the model can predict liquidity very accurately.

Finally, the trained model was saved using Joblib for future use.
Overall, this project demonstrates that machine learning models can effectively predict cryptocurrency liquidity, which is crucial for maintaining financial market stability.

Also Local Deployment Testing is Done via Streamlit + Ngrok
And Model prediction successfully generated for custom inputs.


App
Enter cryptocurrency details to predict the Liquidity Ratio.
Price (USD)
50000.00
24h Volume (USD)
100000000.00
Market Cap (USD)
1000000000.00
Returns (%)
0.50
Predict Liquidity
Predicted Liquidity Ratio: 0.486881