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Course aName: Data Analytics Course

EDA Report : **Cryptocurrency Liquidity Prediction for Market Stability**

1. Introduction:

In this project, we analyzed cryptocurrency data to predict liquidity, with the goal of gaining insights into market stability. Liquidity reflects how easily an asset — such as Bitcoin or other cryptocurrencies — can be bought or sold in the market without significantly impacting its price.

2. Data Summary:

The dataset includes information on cryptocurrency prices, returns over 1 hour, 24 hours, and 7 days, 24-hour trading volume, market capitalization, and the corresponding date for each record.

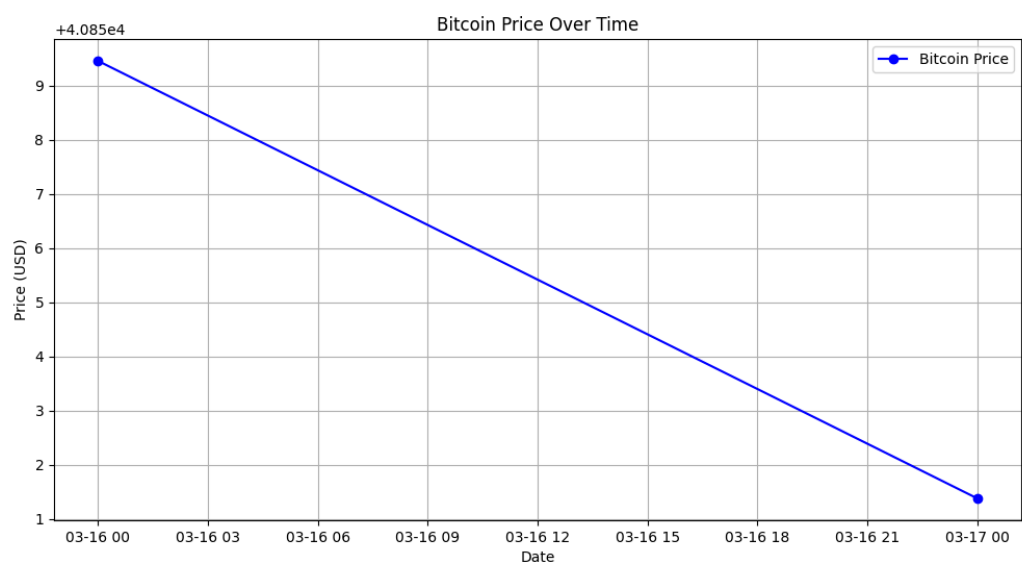
| | price | 1h | 24h | 7d | 24h_v olume | mkt_ cap | date | price_ ma_2 | mkt_cap _ma_2 | volat ility | liquidity _ratio |
|---------------|--------------|--------------|--------------|--------------|----------------|--------------|----------------|----------------|------------------|----------------|---------------------|
| co un t | 992 | 992 | 992 | 992 | 992 | 992 | 992 | 991 | 991 | 992 | 992 |
| m ea n | 620. 0521 | 0.00 9682 | 0.02 4018 | 0.02 3558 | 2.88E +08 | 3.78 E+09 | 58:3 2.9 | 600.0 62 | 3.4E+09 | 0.02 86 | 0.10241 5 |
| mi n | 1.48 E-09 | -0.7 04 | -0.6 46 | -0.5 58 | 0 | 6577 0433 | ##### ##### | 0.000 308 | 6605544 2 | 0 | 0 |
| 25 % | 0.19 4055 | 0.00 1 | 0.00 1 | -0.0 41 | 17641 98 | 1.16 E+08 | ##### ##### | 0.676 779 | 1.17E+0 8 | 0.00 6 | 0.00875 9 |
| 50 % | 1.09 5 | 0.00 6 | 0.01 6 | -0.0 005 | 83287 41 | 2.13 E+08 | ##### ##### | 2.383 175 | 2.14E+0 8 | 0.01 5 | 0.03373 8 |
| 75 % | 6.95 5 | 0.01 9 | 0.03 5 | 0.03 7 | 39472 221 | 5.97 E+08 | ##### ##### | 19.45 008 | 6.1E+08 | 0.03 3 | 0.08705 3 |
| m ax | 4121 7.27 | 0.09 5 | 0.57 7 | 4.60 8 | 5.79E +10 | 7.76 E+11 | ##### ##### | 21837 .9 | 5.58E+1 1 | 0.53 | 5.94854 5 |

| | | | | | | | | | | |
|----|------|------|------|------|-------|------|-------|---------|------|---------|
| st | 4421 | 0.02 | 0.05 | 0.22 | 2.77E | 3.82 | 3044. | 2.74E+1 | 0.04 | 0.36472 |
| d | .998 | 6917 | 8668 | 9781 | +09 | E+10 | 117 | 0 | 6191 | 2 |

3. Visual Explorations

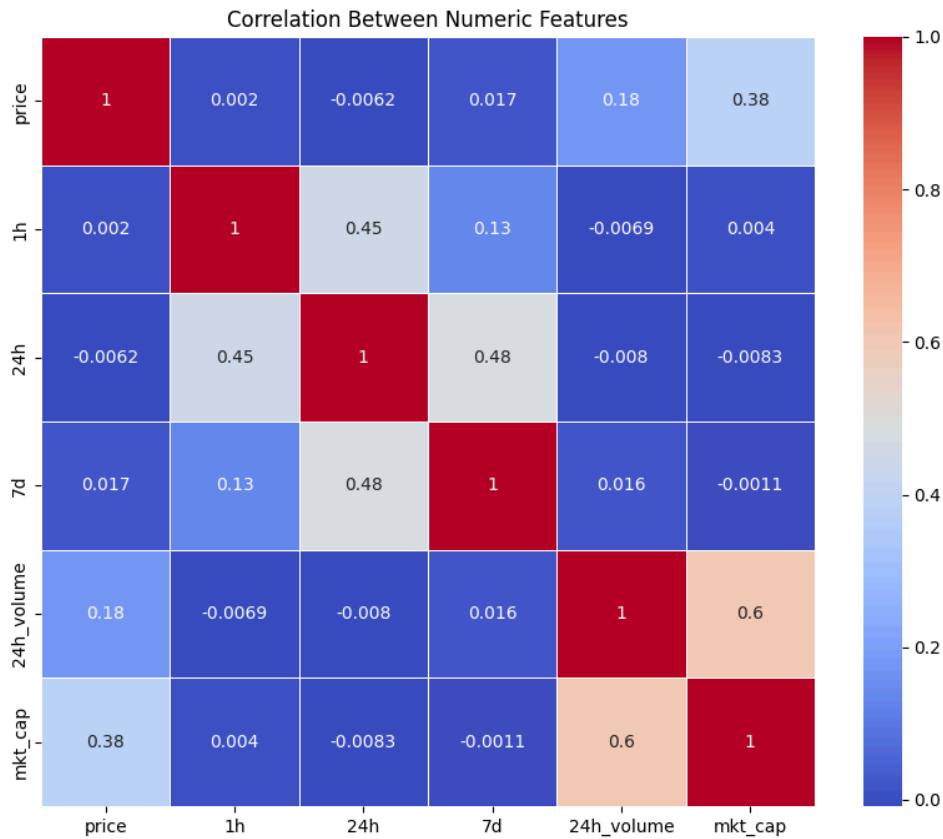
Bitcoin Price Over Time:

A line chart was used to plot Bitcoin's price over two days, helping to identify any short-term trends or sudden changes in value.



Correlation Between Numeric Features:

The correlation heatmap illustrates the relationships between different numerical features, highlighting how strongly they are associated with each other.



4. Observation:

- Bitcoin's price remained relatively stable over the two-day period, with only minor fluctuations.
- There is a strong positive correlation between cryptocurrency price and market capitalization, indicating that as the price increases, the market capitalization tends to increase as well.
- Volatility has a minor correlation with liquidity ratio.
- Trading volume also shows a moderate relationship with liquidity, indicating that higher trading activity tends to be associated with greater liquidity.

5. Conclusion:

Exploratory data analysis played a crucial role in identifying important relationships within the cryptocurrency dataset. This guided the engineering of new features, including volatility and moving averages, which enhanced the model's ability to capture market dynamics. As a result,

the developed machine learning model effectively predicts liquidity, providing valuable insights into market stability and asset tradability.