**Analysis Report: Live Cryptocurrency Data**

**Objective**

The primary goal of this project was to fetch live cryptocurrency data for the top 50 cryptocurrencies by market capitalization, perform basic analysis, and display the data in a live-updating Google Sheets document. The analysis aimed to provide insights into the market trends, including identifying the top cryptocurrencies, calculating average prices, and analysing the highest and lowest price changes over the last 24 hours.

**1. Data Overview**

The live cryptocurrency data was fetched using the CoinGecko API. The data set included the following fields for the top 50 cryptocurrencies by market capitalization:

* **Name**: The name of the cryptocurrency.
* **Symbol**: The symbol representing the cryptocurrency.
* **Current Price (USD)**: The current price of the cryptocurrency in USD.
* **Market Capitalization (USD)**: The total market value of the cryptocurrency.
* **24h Trading Volume (USD)**: The total trading volume in the last 24 hours.
* **24h Price Change (%)**: The percentage change in the price of the cryptocurrency over the last 24 hours.

The data was fetched and updated every 5 minutes to ensure the Google Sheet reflected the latest market trends.

**2. Key Analysis Insights**

**2.1 Top 5 Cryptocurrencies by Market Capitalization**

The top 5 cryptocurrencies by market capitalization were identified. Market capitalization is calculated by multiplying the current price by the total circulating supply of the cryptocurrency. The top 5 cryptocurrencies are the most widely traded and have the highest overall market value, indicating their dominance in the market.

**Top 5 Cryptocurrencies by Market Cap** (example data):

1. **Bitcoin (BTC)** – $1.92 trillion.
2. **Ethereum (ETH)** – $377.5 billion
3. **Tether (USDT)** – $130.07 billion.
4. **Solana (SOL)** – $ 114.92 billion.
5. **BNB** – $89.3 billion.

These are typically well-established cryptocurrencies that lead the market in both trading volume and adoption.

**2.2 Average Price of the Top 50 Cryptocurrencies**

The average price of the top 50 cryptocurrencies was calculated to get a sense of the general price level for this group of assets. By averaging the prices of all 50 cryptocurrencies, we can identify the general pricing trend across a diversified set of popular digital assets.

**Example Calculation**:

* The average price was calculated as the sum of the individual prices divided by the number of cryptocurrencies in the list (50).
* For example, for the top 50 cryptocurrencies, the average price may fall around $4244.43 (depending on the data generated).

**2.3 Highest and Lowest 24-Hour Price Change**

Another important aspect of cryptocurrency analysis is the volatility of prices. In this analysis, we focused on the **24-hour percentage price change** to understand the most and least volatile cryptocurrencies. This helps identify which cryptocurrencies are experiencing the most significant price fluctuations.

* **Highest Price Change**: The cryptocurrency with the highest 24-hour percentage change (positive or negative). A large price change indicates high volatility, which may be due to news events, market sentiment shifts, or external factors.
* **Lowest Price Change**: The cryptocurrency with the lowest 24-hour percentage change. Cryptocurrencies with minimal price changes are considered to have low volatility, indicating that their prices are relatively stable within a short period.

**Example Insights**:

* **Highest Price Change**: Bitcoin Cash (bch) had a 24-hour price change of +18%.
* **Lowest Price Change**: MANTRA (om) had a 24-hour Price change of -10%.

This information is crucial for traders and investors who rely on market volatility for decision-making.

**2.4 Market Trends and Volatility Insights**

The cryptocurrency market is known for its high volatility, with price fluctuations often exceeding 10% within a day. By analysing the 24-hour price change percentages, we observed a few key trends:

* Cryptocurrencies such as **Bitcoin (BTC)** and **Ethereum (ETH)**, while having large market caps, tend to have lower daily percentage changes, indicating a more stable market position.
* **Meme coins** like **Dogecoin (DOGE)** and **Shiba Inu (SHIB)**, though they have lower market caps, tend to experience higher volatility, attracting traders looking for quick gains.
* Stablecoins such as **Tether (USDT)** and **USD Coin (USDC)** show almost no price changes since they are pegged to fiat currencies like the US Dollar.

This analysis gives an insight into the types of cryptocurrencies and their behaviours based on market cap and volatility.

**3. Conclusion**

This analysis of live cryptocurrency data provides several important insights into the market:

* **Top 5 Cryptocurrencies by Market Cap**: These cryptocurrencies dominate the market and are considered the most stable and widely adopted.
* **Average Price of the Top 50 Cryptocurrencies**: This gives a general sense of pricing in the top segment of the market, which is useful for assessing overall market trends.
* **24-Hour Price Changes**: The volatility in the cryptocurrency market is clearly visible. Cryptocurrencies such as Dogecoin are highly volatile, whereas stablecoins like Tether show minimal change.

The live-updating Google Sheets document allows users to monitor the latest data continuously, ensuring they have access to up-to-date market insights in real time.