

# Cryptocurrency Market Analysis Report

by-Naina Sharma

Date: 03 March 2025

src: CoinGecko API

**PURPOSE:** To fetch live cryptocurrency data for the top 50 cryptocurrencies, analyze it, and present the data in a live-updating Excel sheet. The Excel sheet should continuously update with the latest cryptocurrency prices.

## PROCESS INCLUDES:

### Step 1: Import Required Libraries

To fetch live data, we need to use Python libraries like:

- requests – to send HTTP requests and get API responses
- pandas – to structure and analyze the data
- schedule – to automate the fetching process at regular intervals
- time – to control execution timing

### Step 2: Define the Data Fetching Function

- We create a function (fetch\_crypto\_data) that sends a request to the API and retrieves the latest cryptocurrency prices and other metrics.

### How it works:

- The function sends a request to the CoinGecko API.
- It fetches the latest **top 50 cryptocurrencies** sorted by market cap.
- The data is converted into a Pandas DataFrame for easy analysis.

### Step 3: Save Data to Excel

- Once we fetch live data, we can store it in an Excel file for further analysis.

## Step 4: Automate Data Fetching at Regular Intervals

- To ensure we are continuously updating the data, we schedule the function to run every 5 minutes.

### How it works:

- The `schedule_updates()` function schedules `update_excel()` to run **every 5 minutes**.
- It keeps running for **30 minutes** before stopping.

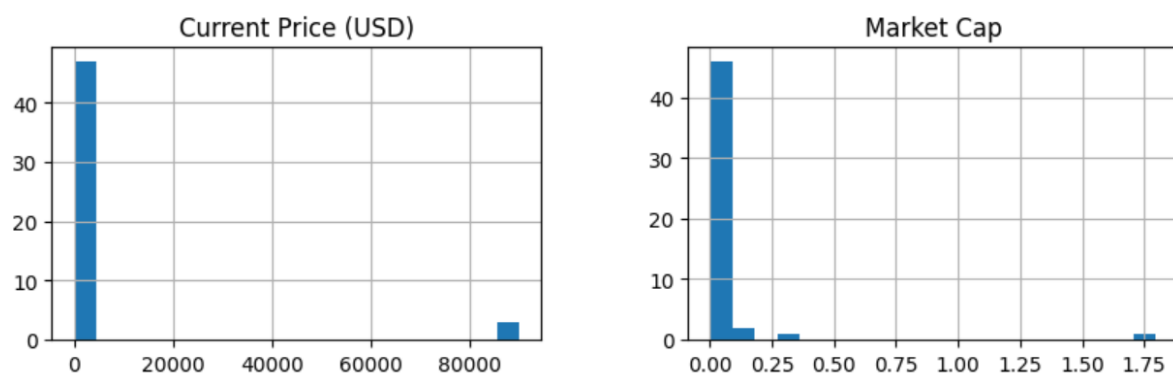
## Step 5: A little code for further analysis from excel sheet

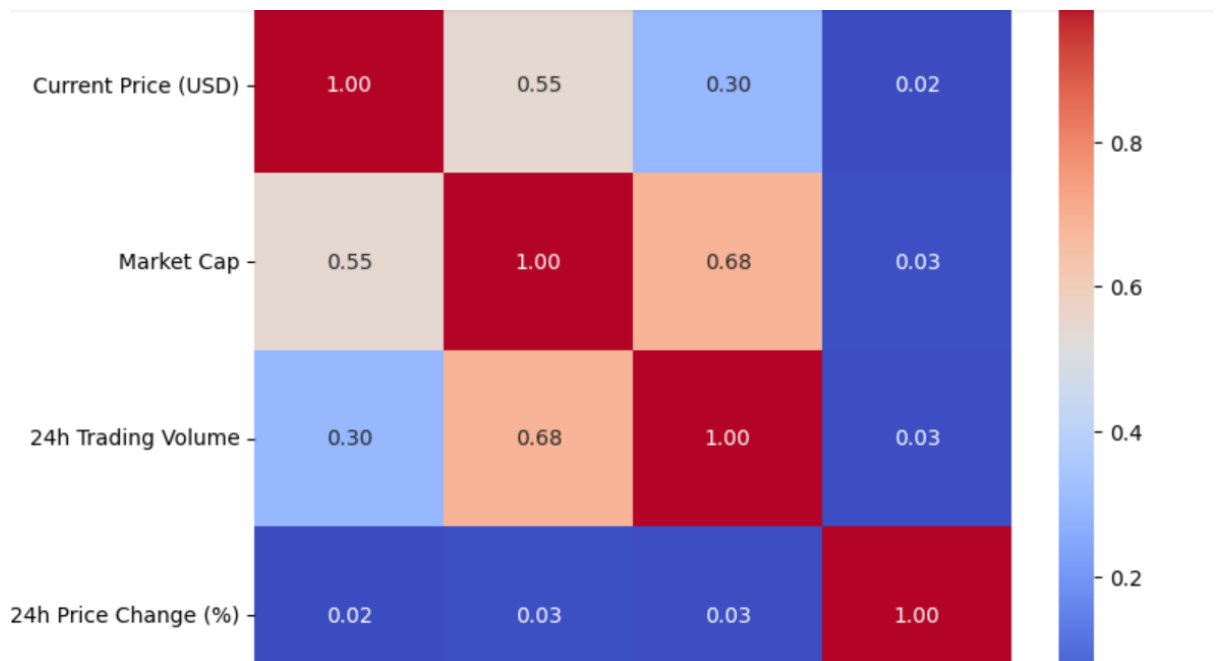
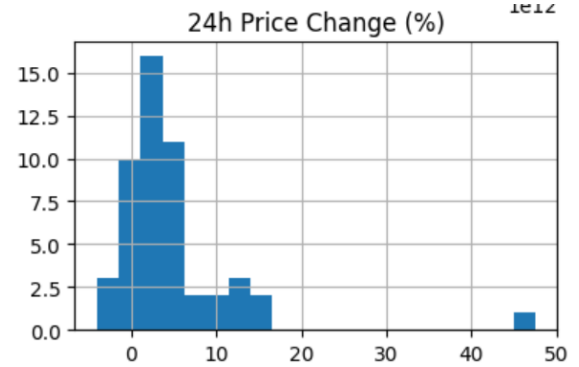
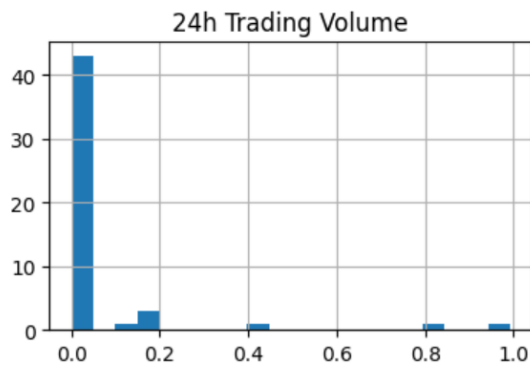
### Data Collection & Processing

- API used: CoinGecko
- List of key metrics collected:
  - Cryptocurrency Name
  - Symbol
  - Current Price (USD)
  - Market Capitalization
  - 24h Trading Volume
  - Price Change (24h, %)
- Data update frequency: Every 5 minutes

### VISUALIZATION:

Distribution of Numerical Features





## ANALYSIS RESULT:

### 1. Price Distribution & Market Cap Analysis

- The **mean price** of cryptocurrencies is **\$5674.13**, but the **standard deviation is very high** (\$21,491), indicating extreme price variations.
- The **minimum price** is nearly **zero** (\$0.000008), suggesting that some tokens are extremely low in value.
- The **maximum price** is **\$89,937**, likely representing a high-value cryptocurrency like Bitcoin.
- **Median (50%) price** is **\$7.52**, showing that most cryptocurrencies are actually low in value, and a few high-priced ones skew the mean upwards.

- **75% percentile price** is **\$191.64**, meaning only 25% of the cryptocurrencies have a price above this.

## 2. Market Cap Insights

- The **average market cap** is **\$58.47 billion**, but the **huge standard deviation (\$255.35 billion)** suggests that a few top cryptocurrencies hold most of the market share.
- The **minimum market cap** is **\$2.41 billion**, indicating that all considered coins are at least multi-billion-dollar assets.
- The **maximum market cap** is **\$1.79 trillion**, suggesting a dominant cryptocurrency (probably Bitcoin).
- The **median market cap** is **\$6.94 billion**, meaning that most coins are much smaller in market cap than the leaders.

## 3. Trading Volume Analysis

- The **average 24h trading volume** is **\$6.44 billion**, but the **high standard deviation (\$19.04 billion)** suggests a few cryptocurrencies dominate trading activity.
- The **minimum trading volume** is **\$1.74 million**, indicating that some coins have very low liquidity.
- The **maximum trading volume** is **\$99.20 billion**, likely for major coins like Bitcoin or Ethereum.

## 4. Price Volatility (24h Price Change %)

- The **average 24-hour price change** is **+4.79%**, suggesting a general upward movement.
- The **highest 24h gain** is **+47.51%**, showing extreme price fluctuations in the market.
- The **lowest 24h drop** is **-4.04%**, which is relatively small compared to the maximum gain.
- **Median price change** is **3.47%**, meaning most coins are experiencing moderate movement.

- The **75% percentile price change is 5.79%**, indicating that 25% of the cryptocurrencies have more than this movement.

## 5. Missing Values

- No missing values in the dataset, meaning it's clean and ready for further analysis.

## FINAL RESULT:

- The crypto market is **highly skewed** with a **few dominant cryptocurrencies** (Bitcoin, Ethereum, etc.), while most are low-value coins.
- The **majority of cryptocurrencies are priced under \$200**, but a few outliers push the mean up.
- There is **high volatility** in trading, with some assets seeing **massive 24-hour price changes**.
- The **top cryptocurrencies dominate market cap and trading volume**, making them the most influential.
- The **dataset is clean** with no missing values, making it suitable for further in-depth analysis.