

## Block Chain Analysis (API's)

Summary: Create a 1 page website that analyzes and visualizes the state of the crypto market in the current moment using HTML CSS and JS. To pull the current Crypto data you will use the API endpoint:

[https://api.coingecko.com/api/v3/simple/price?vs\\_currencies=usd&ids=bitcoin&x\\_cg\\_demo\\_api\\_key=](https://api.coingecko.com/api/v3/simple/price?vs_currencies=usd&ids=bitcoin&x_cg_demo_api_key=)

From the

[https://support.coingecko.com/hc/en-us/articles/21880397454233-User-Guide-How-to-sign-up-for-CoinGecko-Demo-API-and-generate-an-API-key?utm\\_source=chatgpt.com](https://support.coingecko.com/hc/en-us/articles/21880397454233-User-Guide-How-to-sign-up-for-CoinGecko-Demo-API-and-generate-an-API-key?utm_source=chatgpt.com) website. Feel free to read the documentation. The API call does have a key and you can get it for free by creating a free account. Here are the calculations and visual metrics I would like you to complete including what they are, how to calculate them and real word application:

Current Price: The most recent price available in the dataset, representing the latest known market value of the asset. From the price history array, we simply take the final data point, since prices are ordered chronologically. This is the reference point for almost all other calculations and is what users mentally associate with “the price” of an asset at a given moment.

Total Return (Performance): The percentage change in price over the selected time window. We compare the last price to the first price and compute how much the asset has grown or shrunk relative to where it started. Investors use this to quickly judge whether an asset has performed well or poorly over a given period.

Daily Returns: The percentage change in price from one day to the next. Each day's price is divided by the previous day's price, and 1 is subtracted to express the change as a percentage. Daily returns are the building block for risk metrics like volatility and are central to statistical modeling in finance.

Volatility (Risk): A measure of how much an asset's price fluctuates over time. We take the standard deviation of daily returns, which tells us how far prices typically deviate from their average movement. Volatility is commonly interpreted as risk—higher volatility means less predictable price behavior and potentially larger losses or gains.

Maximum Drawdown: The largest percentage loss from a peak price to a subsequent low. We track the highest price reached so far and measure how far the price falls from that peak at each point in time. Max drawdown helps investors understand worst-case risk and emotional stress during holding periods.

### Price Time-Series Line Chart

A line chart that plots an asset's price on the y-axis against time on the x-axis. The chart uses the same ordered price array returned by the API, where each price corresponds to a specific timestamp. Moving averages are calculated from this price array and overlaid on the chart to smooth short-term noise and highlight longer-term trends. Risk and momentum metrics such as volatility, RSI, and maximum drawdown are computed from changes in the price series and can be visually interpreted by observing the size, frequency, and depth of price movements on the

chart. This visualization provides an intuitive foundation for understanding asset behavior over time and serves as the reference point for interpreting all other computed financial indicators.

Steps:

1. Do the calculations on dummy data in Javascript and console log it
2. Add the HTML ot display it on the screen
3. Replace the dummy data with an api call
4. Add the css