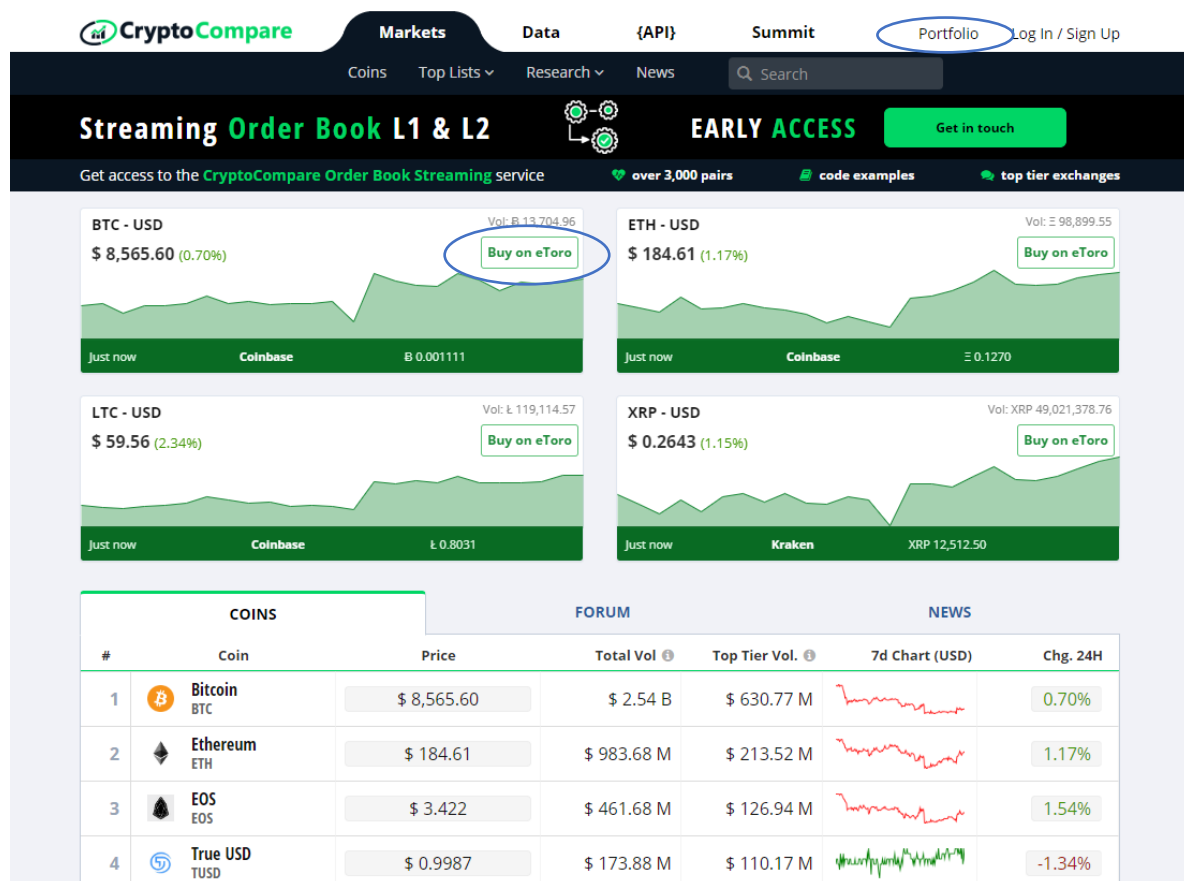


Research into external API's for bitcoin data

Cryptocompare – <https://www.cryptocompare.com/>

Cryptocompare is a web-based company focussing on cryptocurrency trading and investing. Their focus appears to be providing an information service for individuals who are planning on cryptocurrency-based objectives and as such a user is immediately greeted with various informatics on various cryptocurrencies. However, this platform does appear to offer investing for individuals via a 'portfolio' connection from external company 'eToro' where seemingly users will link an eToro account and then be able to put funds into their portfolio from an external bank account and then use the said funds to purchase cryptocurrency. This platform also provides an API for cryptocurrency data which further suggests their business model focusses on providing information to be applied on another external service.



The API appears to have a large variety of available functionality, meaning the development for the graph and what data it can have a higher level of functionality. Furthermore, due to the availability of call functionality, the scenario functionality for users of the projects website will not only just call from the database but, should be able to call from the API if the data is non-existent in our own database.

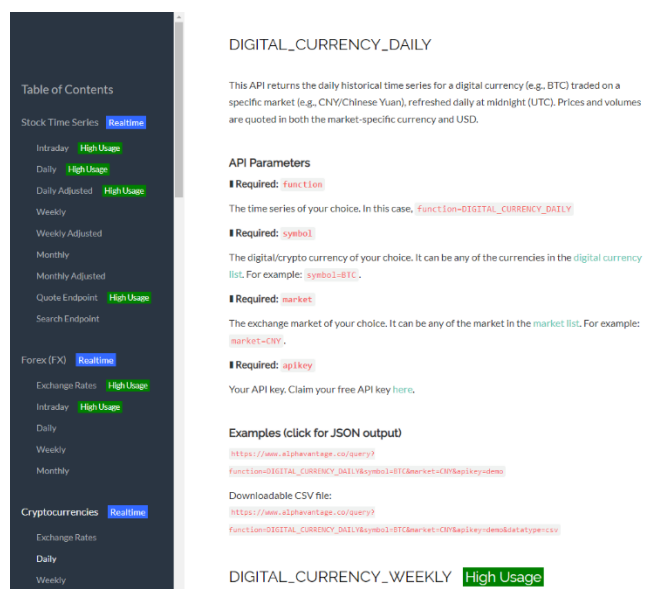
URL call for data. From preliminary investigations, Cryptocompare appears to have a wider variety of functionality for its API meaning more data of different varieties and more specific calls for the data can be made. However, due to this it would seem that implementation will be harder to achieve for the Angular framework but can yield higher returns once implemented due to its larger array of functionality. This API will likely be the main/base API for getting live and historical data. Currently, Cryptocompare can be utilised by creating a free account that will provide 100,000 calls to their service with a maximum of 1 every minute, which should be enough for the needs of the various charts and other functionality, so long as the data that is called is also stored to minimise calls.

Alphavantage - <https://www.alphavantage.co/documentation/>

Alphavantage is web-based business that strictly provides API services for live and historical trading data. They provide the necessary cryptocurrency bitcoin but also provide information for company stocks and general currencies like USD and BPS. This service doesn't include any portfolio or system for users to invest and doesn't provide any visualisation of the data such as charts, they only provide the service of API functionality for stock data.

Their API appears to have a large variety of data and functionality to call it, with most of the calls using time frame, cryptocurrency and corresponding value in specified currency. This can be achieved by creating a free account similar to cryptocompare but, currently doesn't display any information regarding limiting the calls.

Utilises Json requests to get the live and historical data from their API. From preliminary investigations, Alphavantage appears to be the easier API to use for the Angular framework and general implementations, though this is mainly due to this API having a smaller range of usability and therefore requires less effort to implement. This API will likely be a secondary/backup API for when the primary API isn't functioning correctly or is offline.



The screenshot displays the Alphavantage API documentation for the `DIGITAL_CURRENCY_DAILY` endpoint. On the left, a 'Table of Contents' lists various data categories: Stock Time Series (Realtime, High Usage), Forex (FX) (Realtime, High Usage), and Cryptocurrencies (Realtime, High Usage). The main content area for `DIGITAL_CURRENCY_DAILY` explains that it returns daily historical time series for a digital currency (e.g., BTC) on a specific market (e.g., CNY/Chinese Yuan), refreshed daily at midnight UTC. It lists required parameters: `function` (set to `DIGITAL_CURRENCY_DAILY`), `symbol` (the digital/crypto currency), and `market` (the exchange market). It also provides examples for JSON output and a downloadable CSV file, and mentions that users can claim a free API key.

To conclude, currently cryptocompare is looking like the more ideal choice for the data requirements, as it is free and can provide the necessary data for the charts at a consistent and regular basis if need be for the live data. Alphavantage appears to have less pliability and therefore will be the backup API even though it can have more calls, should the main API cryptocompare become unavailable.