

MaiCoin Software Engineer Interview Project

This is a take-home test for candidates interviewing for Software Engineer position at MaiCoin. We are looking for candidates who are familiar with web development and the cryptocurrency trading space MaiCoin operates in.

We expect this project to take around 10 hours to meet minimum requirements. This may vary depending on your familiarity with topics and tools involved, but should not take longer than 50 hours of your time to complete even with all the bonus features. While working on it, please also try keeping track of your time spent as precise as possible, as we would like to use this information as part of the assessment.

Overview

In this project, we would like you to build a JSON API in any programming language of your choice, to display price movement for cryptocurrencies. This API endpoint should accept HTTP GET request and should take query parameter in URL form. Below is the expected input and output of this API. Note that we leave the naming task to you, that is, please name the input parameters and output parameters as you see fit.

INPUT

1. Cryptocurrency Type, for example, "BTC" or "ETH", case insensitive, required.
2. Time for the price, in format "YYYYMMDD" (e.g. 20190518 means May 18th, 2019), Taiwan timezone, optional, means latest if not given.

OUTPUT

1. A list of URLs that this price data is referenced from, should be an array of strings.
2. Average price from the data sources, in TWD, rounded to integer.
3. Average price from the data sources, in USD, rounded to 2nd decimal place.
4. Data time for this price, in format "YYYYMMDD" (same format with the time input above).

Minimum Requirement

Please fulfill the following items for your submission to be considered acceptable:

1. Complete the API spec in the Overview section above. Please decide how the URL endpoint for this API should look like yourself.
2. Data should be referenced from MAX API (<https://max.maico.in.com/documents/api>), you could choose between using our RESTful v2 API, or one of our open source SDKs along with at least one additional source. That is, the reference URL list from your API response should be of size larger than one, with the URL of MAX API that you get the data from being one of the items in the list (you could put in "MAX SDK" if you've chosen to use it).
3. Valid cryptocurrency type includes Bitcoin and Ethereum.
4. Valid time input should range from the beginning of year 2019 to current time.

Bonus Features

Here are some of the additional features that would be very useful for the API users. It is recommended, but not required, to try implementing them in their listed order.

1. Allow more cryptocurrency types, for example, add support for Litecoin, XRP or EOS.

2. Allow the time input to take earlier dates, such as year 2018, or even earlier.
3. Make the time input to take value in format "YYYYMMDDHHMM" (e.g. 201905181756 means May 18th, 2019 p.m. 5:56), and adjust the output format accordingly. (Note: it can be difficult to get price data at the exact time. For example, your API user might query the time 201905181756, but you can only get the price data at 201905181700. In this case, we expect the "data time" field in the API response to be 201905181700 and consider it an acceptable output).
4. Make the API take another kind of time input, which includes a start time, an end time, and an interval unit. For example, when given a start time 20190517, an end time 20190617, and an interval of "daily", the API should respond with a list of response items for every dates between May 17th, 2019 and June 17th, 2019.
5. Build an UI to display price chart for cryptocurrencies. (Example below)

Price Chart



7. Make the API capable of taking "seconds" in time input.
8. Build a Web Socket API that can push the latest data to clients.

Deliverables

When finished, please send an email to us with a Git repository containing the project source code attached. Make sure you include instructions in the repository on how we should setup and run the project to see the demo of your work. Reminder: please also include a sheet containing how much time you spent on what part of the project.

Final Note

You may find some ambiguities and things left unspecified in this project handout. Please feel free to make your own assumptions when you encounter them. We expect a walkthrough of the assumptions you made during the project demo session of your onsite interview. Good luck!