# Vault backend engineer technical homework

Our user is part of the Ethereum maximalist HODL gang.

And we are charging him monthly:

* a flat charge of 5000 USD
* a service charges off 5% of the fiat position they hold daily :
  + daily position is the balance hold at the end of each day
  + daily average counter value can be found on cryptocompare api price historical
* a tax rate of 19.6% of the total of the flat charge + services charges

**Your goal is to be able to generate this invoice.**

**Ethereum**

Ethereum transactions can be found using etherscan api :

<https://etherscan.io/apis#accounts>

For example:

<http://api.etherscan.io/api?module=account&action=txlist&address=0xde0b295669a9fd93d5f28d9ec85e40f4cb697bae&startblock=0&endblock=99999999&sort=asc&apikey=YourApiKeyToken>

Addresses with a lot of transactions can be found here:

<https://etherscan.io/accounts>

**Counter values**

As you may know, cryptocurrencies are very volatile: +-30% fluctuation in a day is a very likely situation.

You will find the needed countervalues at <https://www.cryptocompare.com/api/#-api-data-pricehistorical->

**The application will publish an HTTP REST endpoint to request invoice.**

The endpoint must be declared as follows:

*POST /invoices/*

*{*

*“period”: {*

*“start\_date”: “2018-03-01”,*

*“end\_date”: “2018-03-31”*

*}*

*“accounts”: [*

*{*

*“name”: “to the moon”*

*“currency”: “ethereum”,*

*“addresses”: [*

*“aaa”, “bbb”*

*]*

*},*

*{*

*“account”: “trillions”*

*“currency”: “ethereum”,*

*“addresses”: [*

*“xxx”, “yyy”*

*]*

*}*

*],*

*“tax”: “france”*

*}*

*Return*

*{*

*“total”: {*

*“amount”: 7774*

*“currency”: “USD”*

*},*

*“line\_items”: [*

*{*

*“type”: “flat\_fee”,*

*“price”: {*

*“amount”: 5000*

*“currency”: “USD”*

*}*

*},*

*{*

*“type”: “service\_fee”,*

*“item”: {*

*“currency”: “ethereum”,*

*“addresses”: [“xxx”]*

*“period”: {*

*“start\_date”: “2018-03-01”,*

*“end\_date”: “2018-03-31”*

*},*

*“average\_position”: {*

*“amount”: 20000,*

*“currency”: “USD*

*}*

*“price”: {*

*“amount”: “1000”,*

*“currency”: “USD”*

*}*

*},*

*{*

*“type”: “service\_fee”,*

*“item”: {*

*“currency”: “ethereum”,*

*“addresses”: [“xxx”]*

*“period”: {*

*“start\_date”: “2018-03-01”,*

*“end\_date”: “2018-03-31”*

*},*

*“average\_position”: {*

*“amount”: 10000,*

*“currency”: “USD*

*}*

*“price”: {*

*“amount”: “500”,*

*“currency”: “USD”*

*}*

*},*

*{*

*“type”: “tax\_fee”*

*“price”: {*

*“amount”: 1274*

*“currency”: “USD”*

*}*

*}*

*]*

*}*

Develop this solution with the language/frameworks of your choosing. Please attach usage instructions along with your submission.