Locates Client-Side task

Background:

A short sale is a trading strategy where an investor borrows and sells shares of a stock, hoping the price will fall. In order to sell a stock short, the investor needs to find shares that are available to borrow.

You can think of locates as a limited resource the investor request to receive and is bound to a specific symbol and machine (for example: “Give me 200 locates of IBM for machine001”)

The Goal:

The purpose of this task is to develop a web page using the React framework that will allow users to handle locate requests for a set of trading machines. Using REST endpoints.

This task is expected to take around 2 hours to complete. It is recommended, although not mandatory, to use TypeScript.
After completing the task, we will have a meeting to review the code, discuss the final results, and ask some additional questions.

Steps:

1 - Setup

With this task, you will get a page that retrieves the locates requests for each of the trading machines, and displays that in a simple table.
Notice that the same symbol can be requested by multiple machines. Additionally, each machine can have a different number of requested locates for a given symbol.

For this step, verify that you can run the code and see the locates requests. If there are any issues, call us (details at the end of this document)

2 - Retrieve locates from the broker

To allocate locates you will need to get them from the broker, send a **POST** request to {baseUrl}/{sessionId}/broker?symbol={symbol}&quantity={quantity}
https://9g7qfsq0qk.execute-api.us-east-1.amazonaws.com/v1/session/{sessionId}/broker?symbol={symbol}&quantity={quantity}
where {sessionId} is the session ID obtained when the page is loaded, {symbol} and {quantity} are the symbol and number of locates being requested, respectively. This endpoint will return the number of locates available for the specified symbol.

The broker will return a value between 0 and the amount requested, with 0 indicating a denied request, 100% indicating a fully approved request, and any other value indicating a partially approved request.

Note that the broker does not support bulk requests and can only handle requests for one symbol at a time.

Your task is to create a button that will request **all** the necessary locates from the broker in an efficient and effective manner.

3 - Spread the locates between the machines

After you have received responses from the broker, you may notice that you have not obtained 100% of the requested locates for all symbols.
Your task is to devise a strategy for dividing the available locates among the machines in an appropriate manner that can be considered as a “fair” approach. Be prepared to consider alternative methods of division and explain why you chose your approach.

Once you have chosen a method of division, implement it and update the GUI to reflect the results. Keep in mind that the GUI should be user-friendly and clearly display the revised allocation of locates to each machine.

4 - Submit results

Submit your results, of how many locates each machine got, and make sure you got 200 as a response. send a **PUT** request to {baseUrl}/{sessionId}/locates
https://9g7qfsq0qk.execute-api.us-east-1.amazonaws.com/v1/session/{sessionId}/locates
where {sessionId} is the sessionId obtained earlier, and includes a request body that contains the final allocation of locates to each machine, with the keys representing the machines and the values representing the number of locates allocated for each symbol on that machine.

A body for example:

```
{
        "Machine001": {
                "AAPL": 100,
                "META": 0,
                "GOOGL": 200
        },
        "Machine002": {
                "TSLA": 300,
                "AAPL": 100
        }
}
```

5 - Improve the GUI

The initial GUI that you get contains only a simple table to display the information. Think of a better way to display this information and/or interact with the data.
Implement the small things, be ready to talk about your ideas if they are big.
Improve the styling, but please don't invest in this step for more than 10-15 minutes.

6 - Improve spreading locates

A round lot is a standard unit of trading that is commonly used in the stock industry. a round lot refers to a unit of 100 shares. Locates are traded in round lot units. This means that when you divide the locates among the trading machines, you must ensure that each machine receives a number of locates that is evenly divisible by the round lot size (for each security).

If you have time - implement the new approach (while keeping the old implementation).
Otherwise, just be ready to describe the required changes

6 - Support throttling

The broker also has throttling enabled, which means that if you send more than a certain number of messages per second, you will receive a 429 error.

Your task is to improve your code that asks the broker for locates (Step 2) to adjust for throttling.
If you have time, please implement this code, but keep the original code from Step 2

====
We are available for questions:

Rotem - 054-6968780 / Nimrod - 054-7726320

Good Luck.