Fetch Rewards Coding Exercise - SDET

What do I need to submit?

Please write a program for the Challenge below.
You can use any language and frameworks you choose.
We must be able to run the program; provide any documentation necessary to accomplish this as part of the repository you submit.
Please assume the user has not executed an application in your language/framework before when developing your documentation.

Game

Given a balance scale  and 9 gold bars of the same size and look. You don't know the exact weight of each bar, but you know they are the same weight, except for only one fake bar. It weighs **less** than others. You need to find the fake gold bar by only bars and balance scales.
You can only place gold bars on scale plates (bowls) and find which scale weighs more or less.

Website

Website http://ec2-54-208-152-154.compute-1.amazonaws.com/ allows you to simulate the scaling process. You can write gold bar **number(s**) in left and right bowl grids. Press the "Weigh" button and it will tell you which site weighs more or less or they are the same weight. The weighing result will be shown in the "Weighing" list so you can track records.
After you are done with one weighing you can press the "Reset" button to reset the plates grid to empty values so you can do another weighing.
When you find the fake gold bar click on the button with a **number** corresponding to the fake gold bar at the bottom of the screen and check if you were right or wrong: alert will pop up with two possible messages: "Yay! You find it!" or "Oops! Try Again!".
NOTE: Do not refresh the page as it will reset the fake bar to random
NOTE: Buttons at the bottom with numbers DO NOT represent weights. It's just the sequential number.

Challenge

1. Play around with the website and find the **best** algorithm (minimum number of weighings for any possible fake bar position) to find the fake gold bar.
2. Create the selenium based project using any preferable language to perform
    a. clicks on buttons ("Weigh", "Reset")
    b. Getting the measure results (field between "bowls")
    c. filling out the bowls grids with bar numbers (0 to 8)
    d. getting list of weighings
    e. Clicking on gold bar number at the bottom of the website and checking alert message
3. Code the algorithm from the step 1 which is using set of actions from step 2 to finds the fake gold bar

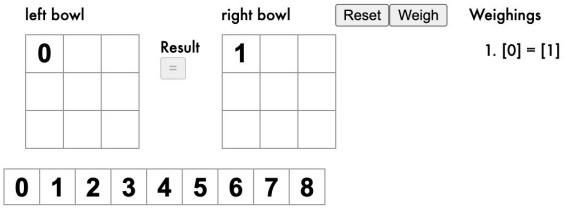
The algorithm should populate and weigh gold bars until a fake one is found, click on a fake bar number, output the alert message, number of weighing and list of weighing were made.

Example

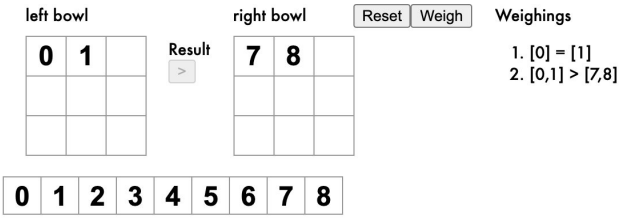
Here is an example of possible algorithms using pseudocode for demonstration purposes:

1. Open website
2. Insert number 0 in the first cell of the left bowl's grid

3. Insert number 1 in the first cell of the right bowl's grid



4. Press "Weigh" button
5. Get the result of weighing. In this example bar #0 is the same weight as bar #1
6. Make decision based on the result
7. Press "Reset button"
8. "Insert number 0 in the first cell" and "Insert number 1 in the second cell" of the left bowl's grid
9. "Insert number 7 in the first cell" and "Insert number 8 in the second cell" of the left bowl's grid
10. Press the "Weigh" button. In this example weight of bars #0 and #1 is greater than weight of bars #7 and #8. So this means fake bar is #7 or #8



11. Continue with your algorithm
    …….
12. Found the fake gold bar is number 7
13. Press button "7"
14. Get alert message and output it
15. Get list of "Weighings" and output them

How do I submit it?

Provide a link to a public repository, such as GitHub, Gitlab or BitBucket, that contains your code to your recruiter.

FAQ

How will this exercise be evaluated?

An engineer will review the code you submit. At a minimum they must be able to run the service and the service must provide the expected results. You should provide any necessary documentation within the repository. While your solution does not need to be fully production ready, you are being evaluated so put your best foot forward.

I have questions about the problem statement

For any requirements not specified via an example, use your best judgement to determine expected result.

Can I provide a private repository?

If at all possible, we prefer a public repository because we do not know which engineer will be evaluating your submission. Providing a public repository ensures a speedy review of your submission. If you are still uncomfortable providing a public repository, you can work with your recruiter to provide access to the reviewing engineer.

How long do I have to complete the exercise?

There is no time limit for the exercise. Out of respect for your time, we designed this exercise with the intent that it should take you a few hours.
But, please take as much time as you need to complete the work.