Fetch Coding Exercise - SDET

What do I need to submit?

Please write a program for the Challenge below.
You can use any language and framework you choose.
We must be able to run the program and provide any necessary documentation as part of the repository you submit.
Please assume that the user has not previously executed an application in your chosen language/framework 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 all weigh the same, except for 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://sdetchallenge.fetch.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 side weighs more or less or the same. 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: an alert will pop up with two possible messages: "Yay! You found it!" or "Oops! Try Again!".
NOTE: Do not refresh the page as it will reset the fake bar to a random
NOTE: Buttons at the bottom with numbers DO NOT represent weights. It's just the sequential number.

Challenge

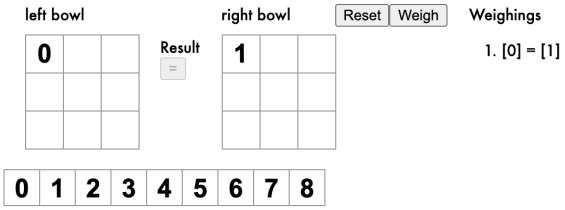
1. Play around with the website and find the **best** algorithm (minimum number of weighings for any possible fake bar position) to find the fake gold bar.
2. Create the test automation project using any preferred language to perform
    a. clicks on buttons ("Weigh", "Reset")
    b. Getting the measurement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

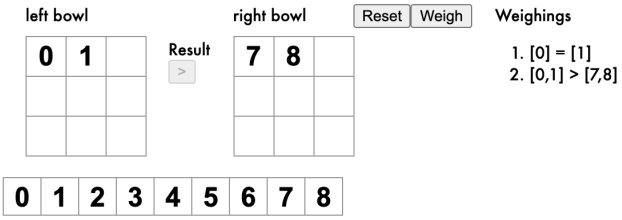
Example

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 the “Weigh” button
5. Get the result of weighing. In this example, bar #0 is the same weight as bar #1
6. Make a decision based on the result
7. Press the “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, the weight of bars #0 and #1 is greater than the weight of bars #7 and #8. So this means the 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 an alert message and output it
15. Get a list of “Weighings” and output them

How do I submit my solution?

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 code and the program must find the fake bar correctly. You should include 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

Use your best judgment to determine the expected result for any requirements not specified via an example.

May I provide a private repository?

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 specific time limit for completing the exercise. To respect your time, we designed this exercise with the intention that it should take you a few hours.
But, please take as much time as you need to complete the work.