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Noisy Cell Counts

DESCRIPTION:

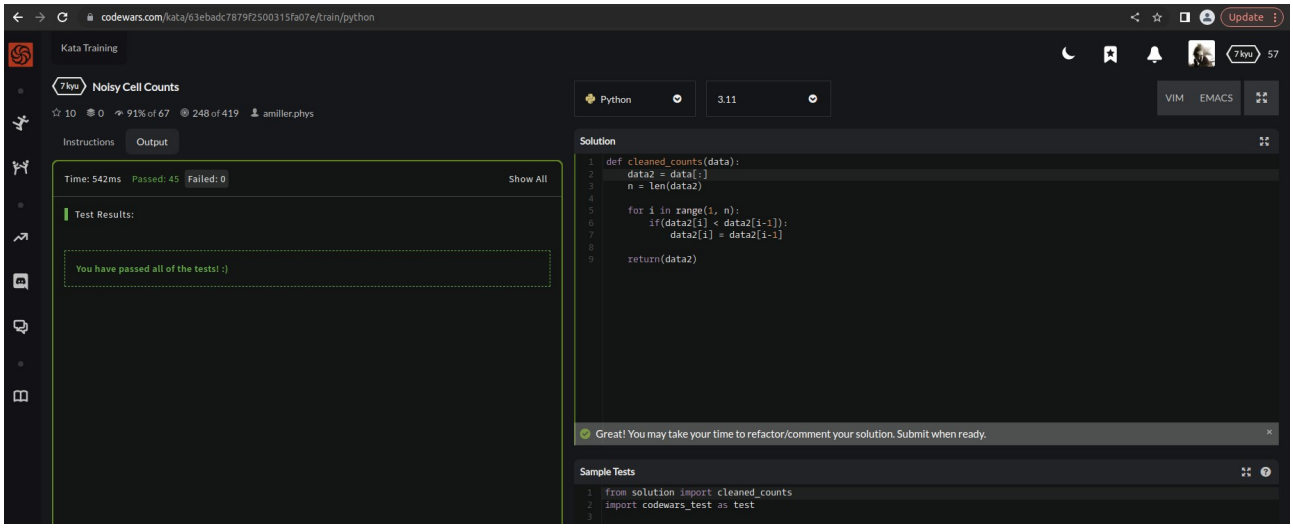
The data are arrays of integers corresponding to the number of cells in the sample over time. The first element `data[0]` is the initial count. The next element `data[1]` is the cell count at a later time. `data[2]` is the next count, and so on.

The cells are reproducing, so the elements of the array are supposed to be non-decreasing (there is no cell death), but the automatic cell counter has undercounted. In fact, the researcher has verified that the counter undercounts by `1` at random. The error rate is unknown.

Your task is to create a new non-decreasing array that is minimally different from the `data` array. For example, if the `data = [1, 1, 2, 2, 1, 2, 2, 2, 2]` then the returned array should be `[1, 1, 2, 2, 2, 2, 2, 2, 2]` because `data[4] < data[3]` is clearly an error.

The first entry of the array is correct, and does not require an adjustment.
The array will never be empty.

SOLUTION:



EXPLANATION:

This function takes an input array `data` and returns a new array that is non-decreasing and minimally different from the input array. For example, if the input array is `data = [1, 1, 2, 2, 1, 2, 2, 2, 2]`, the returned array will be `[1, 1, 2, 2, 2, 2, 2, 2, 2]`. This is the smallest change that can be made to the input array to make it non-decreasing.