

1058. Minimize Rounding Error to Meet Target

Description

Given an array of `prices` $[p_1, p_2, \dots, p_n]$ and a `target`, round each price p_i to $\text{Round}_i(p_i)$ so that the rounded array $[\text{Round}_1(p_1), \text{Round}_2(p_2), \dots, \text{Round}_n(p_n)]$ sums to the given `target`. Each operation $\text{Round}_i(p_i)$ could be either $\text{Floor}(p_i)$ or $\text{Ceil}(p_i)$.

Return the string `"-1"` if the rounded array is impossible to sum to `target`. Otherwise, return the smallest rounding error, which is defined as $\sum | \text{Round}_i(p_i) - (p_i) |$ for i from 1 to n , as a string with three places after the decimal.

Example 1:

Input: `prices = ["0.700","2.800","4.900"], target = 8`

Output: `"1.000"`

Explanation:

Use Floor, Ceil and Ceil operations to get $(0.7 - 0) + (3 - 2.8) + (5 - 4.9) = 0.7 + 0.2 + 0.1 = 1.0$.

Example 2:

Input: `prices = ["1.500","2.500","3.500"], target = 10`

Output: `"-1"`

Explanation: It is impossible to meet the target.

Example 3:

Input: `prices = ["1.500","2.500","3.500"], target = 9`

Output: `"1.500"`

Constraints:

- $1 \leq \text{prices.length} \leq 500$
- Each string `prices[i]` represents a real number in the range $[0.0, 1000.0]$ and has exactly 3 decimal places.
- $0 \leq \text{target} \leq 10^6$

