Problem 2121: Intervals Between Identical Elements

Problem Information

Difficulty: Medium
Acceptance Rate: 45.37%
Paid Only: No
Tags: Array, Hash Table, Prefix Sum

Problem Description

You are given a **0-indexed** array of `n` integers `arr`.

The **interval** between two elements in `arr` is defined as the **absolute difference** between their indices. More formally, the **interval** between `arr[i]` and `arr[j]` is `|i - j|`.

Return _an array_ `intervals` _of length_ `n` _where_ `intervals[i]` _is**the sum of intervals**_ between _`arr[i]`_and each element in_`arr` _with the same value as_`arr[i]`_._

Note: `|x|` is the absolute value of `x`.

Example 1:

Input: arr = [2,1,3,1,2,3,3] **Output:** [4,2,7,2,4,4,5] **Explanation:** - Index 0: Another 2 is found at index 4. |0 - 4| = 4 - Index 1: Another 1 is found at index 3. |1 - 3| = 2 - Index 2: Two more 3s are found at indices 5 and 6. |2 - 5| + |2 - 6| = 7 - Index 3: Another 1 is found at index 1. |3 - 1| = 2 - Index 4: Another 2 is found at index 0. |4 - 0| = 4 - Index 5: Two more 3s are found at indices 2 and 6. |5 - 2| + |5 - 6| = 4 - Index 6: Two more 3s are found at indices 2 and 5. |6 - 2| + |6 - 5| = 5

Example 2:

Input: arr = [10,5,10,10] **Output:** [5,0,3,4] **Explanation:** - Index 0: Two more 10s are found at indices 2 and 3. |0 - 2| + |0 - 3| = 5 - Index 1: There is only one 5 in the array, so its sum of intervals to identical elements is 0. - Index 2: Two more 10s are found at indices 0 and 3. |2 - 0| + |2 - 3| = 3 - Index 3: Two more 10s are found at indices 0 and 2. |3 - 0| + |3 - 2| = 4

Constraints:

* `n == arr.length` * `1 <= n <= 105` * `1 <= arr[i] <= 105`

Note: This question is the same as [2615: Sum of Distances.](https://leetcode.com/problems/sum-of-distances/description/)

Code Snippets

C++:

```cpp
class Solution {
public:
vector<long long> getDistances(vector<int>& arr) {


}
};
```

Java:

```java
class Solution {
public long[] getDistances(int[] arr) {


}
}
```

Python3:

```python
class Solution:
def getDistances(self, arr: List[int]) -> List[int]:
```