

Problem 1478: Allocate Mailboxes

Problem Information

Difficulty: Hard

Acceptance Rate: 56.12%

Paid Only: No

Tags: Array, Math, Dynamic Programming, Sorting

Problem Description

Given the array `houses` where `houses[i]` is the location of the `ith` house along a street and an integer `k`, allocate `k` mailboxes in the street.

Return _the**minimum** total distance between each house and its nearest mailbox_.

The test cases are generated so that the answer fits in a 32-bit integer.

Example 1:

Input: houses = [1,4,8,10,20], k = 3 **Output:** 5 **Explanation:** Allocate mailboxes in position 3, 9 and 20. Minimum total distance from each houses to nearest mailboxes is $|3-1| + |4-3| + |9-8| + |10-9| + |20-20| = 5$

Example 2:

Input: houses = [2,3,5,12,18], k = 2 **Output:** 9 **Explanation:** Allocate mailboxes in position 3 and 14. Minimum total distance from each houses to nearest mailboxes is $|2-3| + |3-3| + |5-3| + |12-14| + |18-14| = 9$.

Constraints:

```
* `1 <= k <= houses.length <= 100` * `1 <= houses[i] <= 104` * All the integers of `houses` are  
**unique**.
```

Code Snippets

C++:

```
class Solution {  
public:  
    int minDistance(vector<int>& houses, int k) {  
  
    }  
};
```

Java:

```
class Solution {  
public int minDistance(int[] houses, int k) {  
  
}  
}
```

Python3:

```
class Solution:  
    def minDistance(self, houses: List[int], k: int) -> int:
```