Problem 1552: Magnetic Force Between Two Balls

Problem Information

Difficulty: Medium
Acceptance Rate: 71.68%
Paid Only: No
Tags: Array, Binary Search, Sorting

Problem Description

In the universe Earth C-137, Rick discovered a special form of magnetic force between two balls if they are put in his new invented basket. Rick has `n` empty baskets, the `ith` basket is at `position[i]`, Morty has `m` balls and needs to distribute the balls into the baskets such that the **minimum magnetic force** between any two balls is **maximum**.

Rick stated that magnetic force between two different balls at positions `x` and `y` is `|x - y|`.

Given the integer array `position` and the integer `m`. Return _the required force_.

Example 1:

![](https://assets.leetcode.com/uploads/2020/08/11/q3v1.jpg)

Input: position = [1,2,3,4,7], m = 3 **Output:** 3 **Explanation:** Distributing the 3 balls into baskets 1, 4 and 7 will make the magnetic force between ball pairs [3, 3, 6]. The minimum magnetic force is 3. We cannot achieve a larger minimum magnetic force than 3.

Example 2:

Input: position = [5,4,3,2,1,1000000000], m = 2 **Output:** 999999999 **Explanation:** We can use baskets 1 and 1000000000.

Constraints:

* `n == position.length` * `2 <= n <= 105` * `1 <= position[i] <= 109` * All integers in `position` are **distinct**. * `2 <= m <= position.length`

Code Snippets

C++:

```
class Solution {
public:
int maxDistance(vector<int>& position, int m) {

}
};
```

Java:

```
class Solution {
public int maxDistance(int[] position, int m) {

}
}
```

Python3:

```
class Solution:
def maxDistance(self, position: List[int], m: int) -> int:
```