Problem 973: K Closest Points to Origin

Problem Information

Difficulty: Medium
Acceptance Rate: 68.48%
Paid Only: No
Tags: Array, Math, Divide and Conquer, Geometry, Sorting, Heap (Priority Queue), Quickselect

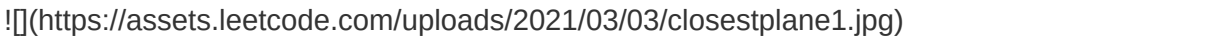
Problem Description

Given an array of `points` where `points[i] = [xi, yi]` represents a point on the **X-Y** plane and an integer `k`, return the `k` closest points to the origin `(0, 0)`.

The distance between two points on the **X-Y** plane is the Euclidean distance (i.e., `√(x1 - x2)2 + (y1 - y2)2`).

You may return the answer in **any order**. The answer is **guaranteed** to be **unique** (except for the order that it is in).

Example 1:



Input: points = [[1,3],[-2,2]], k = 1 **Output:** [[-2,2]] **Explanation:** The distance between (1, 3) and the origin is sqrt(10). The distance between (-2, 2) and the origin is sqrt(8). Since sqrt(8) < sqrt(10), (-2, 2) is closer to the origin. We only want the closest k = 1 points from the origin, so the answer is just [[-2,2]].

Example 2:

Input: points = [[3,3],[5,-1],[-2,4]], k = 2 **Output:** [[3,3],[-2,4]] **Explanation:** The answer [[-2,4],[3,3]] would also be accepted.

Constraints:

* `1 <= k <= points.length <= 104` * `-104 <= xi, yi <= 104`

Code Snippets

C++:

```
class Solution {
public:
vector<vector<int>> kClosest(vector<vector<int>>& points, int k) {

}
};
```

Java:

```
class Solution {
public int[][] kClosest(int[][] points, int k) {

}
}
```

Python3:

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