

1620. Coordinate With Maximum Network Quality

Description

You are given an array of network towers `towers`, where `towers[i] = [xi, yi, qi]` denotes the `ith` network tower with location `(xi, yi)` and quality factor `qi`. All the coordinates are **integral coordinates** on the X-Y plane, and the distance between the two coordinates is the **Euclidean distance**.

You are also given an integer `radius` where a tower is **reachable** if the distance is **less than or equal to** `radius`. Outside that distance, the signal becomes garbled, and the tower is **not reachable**.

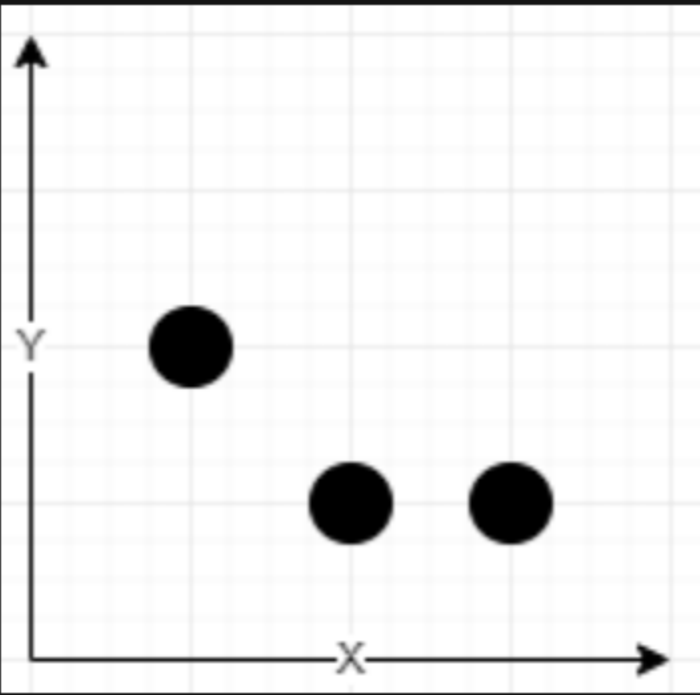
The signal quality of the `ith` tower at a coordinate `(x, y)` is calculated with the formula `⌊qi / (1 + d)⌋`, where `d` is the distance between the tower and the coordinate. The **network quality** at a coordinate is the sum of the signal qualities from all the **reachable** towers.

Return *the array `[cx, cy]` representing the **integral** coordinate `(cx, cy)` where the **network quality** is maximum. If there are multiple coordinates with the same **network quality**, return the lexicographically minimum **non-negative** coordinate.*

Note:

- A coordinate `(x1, y1)` is lexicographically smaller than `(x2, y2)` if either:
 - `x1 < x2`, or
 - `x1 == x2` and `y1 < y2`.
- `⌊val⌋` is the greatest integer less than or equal to `val` (the floor function).

Example 1:



```
Input: towers = [[1,2,5],[2,1,7],[3,1,9]], radius = 2
Output: [2,1]
Explanation: At coordinate (2, 1) the total quality is 13.
- Quality of 7 from (2, 1) results in ⌊7 / (1 + sqrt(0))⌋ = ⌊7⌋ = 7
- Quality of 5 from (1, 2) results in ⌊5 / (1 + sqrt(2))⌋ = ⌊2.07⌋ = 2
- Quality of 9 from (3, 1) results in ⌊9 / (1 + sqrt(1))⌋ = ⌊4.5⌋ = 4
No other coordinate has a higher network quality.
```

Example 2:

```
Input: towers = [[23,11,21]], radius = 9
Output: [23,11]
Explanation: Since there is only one tower, the network quality is highest right at the tower's location.
```

Example 3:

```
Input: towers = [[1,2,13],[2,1,7],[0,1,9]], radius = 2
Output: [1,2]
Explanation: Coordinate (1, 2) has the highest network quality.
```

Constraints:

- `1 <= towers.length <= 50`
- `towers[i].length == 3`
- `0 <= xi, yi, qi <= 50`
- `1 <= radius <= 50`

