1901. Find a Peak Element II

Description

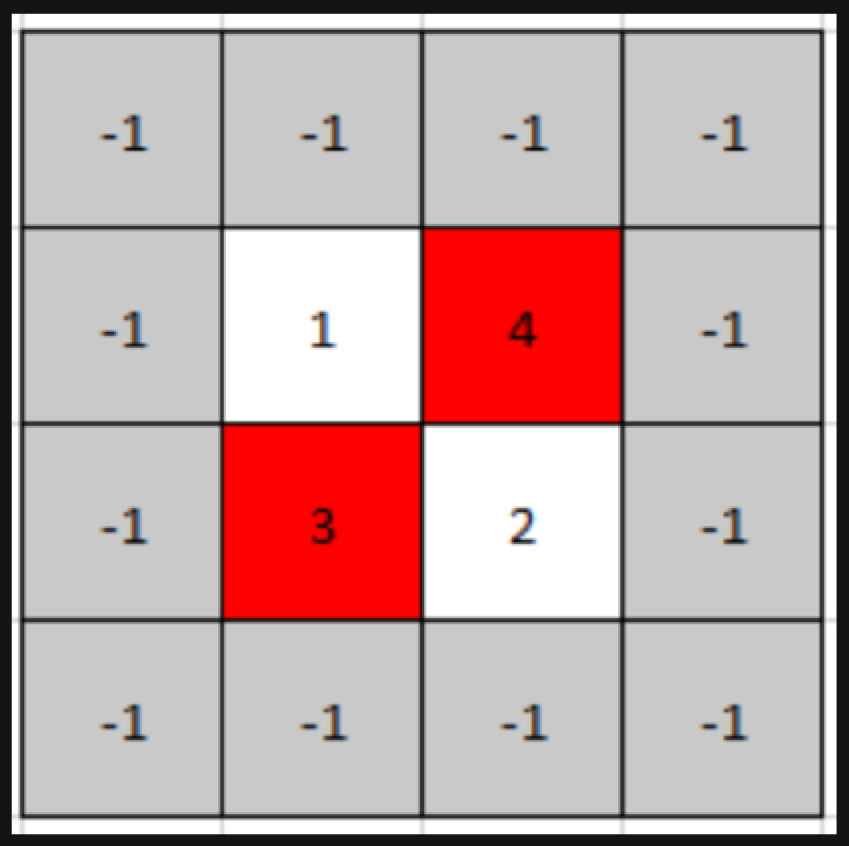
A **peak** element in a 2D grid is an element that is **strictly greater** than all of its **adjacent** neighbors to the left, right, top, and bottom.

Given a **0-indexed** `m x n` matrix `mat` where **no two adjacent cells are equal**, find **any** peak element `mat[i][j]` and return *the length 2 array* `[i,j]`.

You may assume that the entire matrix is surrounded by an **outer perimeter** with the value `-1` in each cell.

You must write an algorithm that runs in `O(m log(n))` or `O(n log(m))` time.

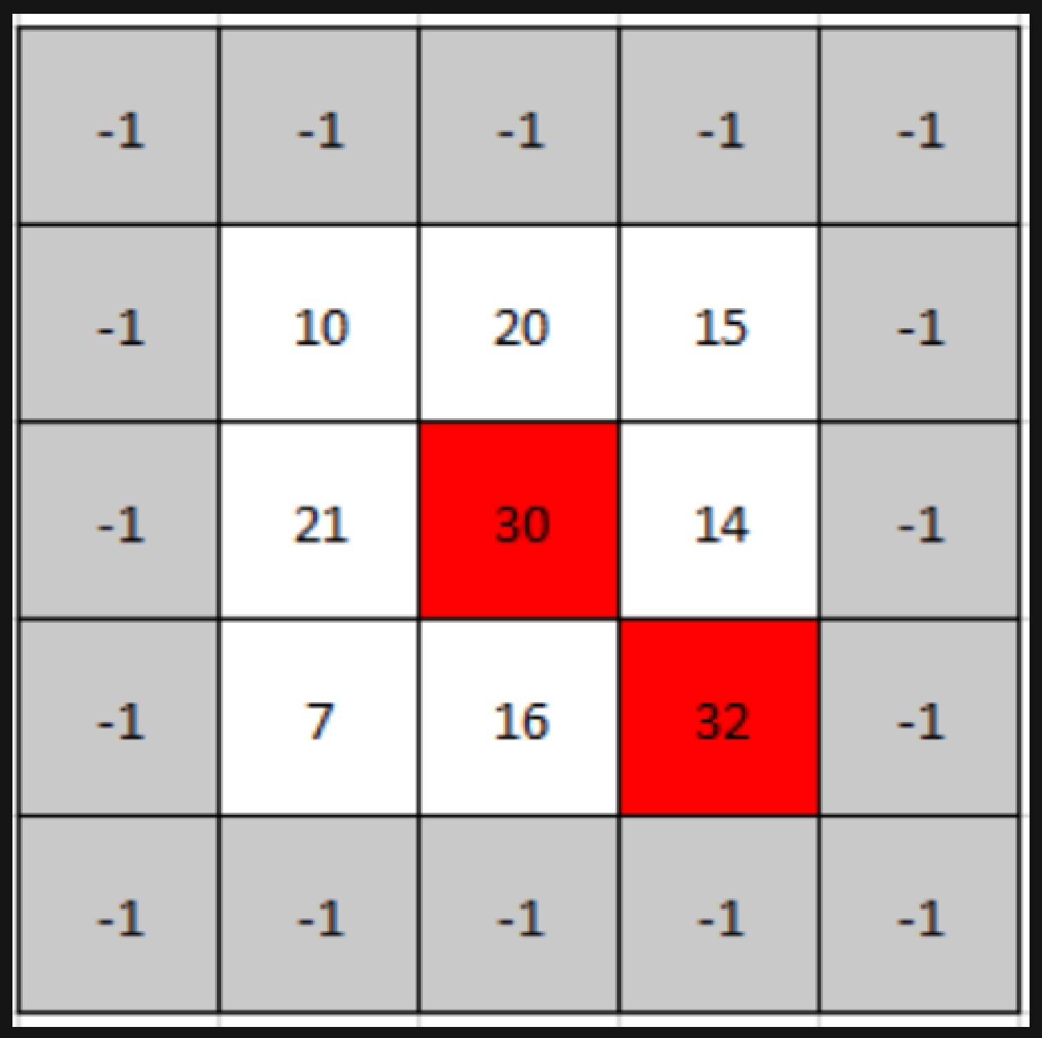
Example 1:



-1	-1	-1	-1
-1	1	4	-1
-1	3	2	-1
-1	-1	-1	-1

```
Input: mat = [[1,4],[3,2]]
Output: [0,1]
Explanation: Both 3 and 4 are peak elements so [1,0] and [0,1] are both acceptable answers.
```

Example 2:



-1	-1	-1	-1	-1
-1	10	20	15	-1
-1	21	30	14	-1
-1	7	16	32	-1
-1	-1	-1	-1	-1

```
Input: mat = [[10,20,15],[21,30,14],[7,16,32]]
Output: [1,1]
Explanation: Both 30 and 32 are peak elements so [1,1] and [2,2] are both acceptable answers.
```

Constraints:

- `m == mat.length`
- `n == mat[i].length`
- `1 <= m, n <= 500`
- `1 <= mat[i][j] <= 10`^{5}
- No two adjacent cells are equal.