317. Shortest Distance from All Buildings

Description

You are given an `m x n` grid `grid` of values `0`, `1`, or `2`, where:

- each `0` marks **an empty land** that you can pass by freely,
- each `1` marks **a building** that you cannot pass through, and
- each `2` marks **an obstacle** that you cannot pass through.

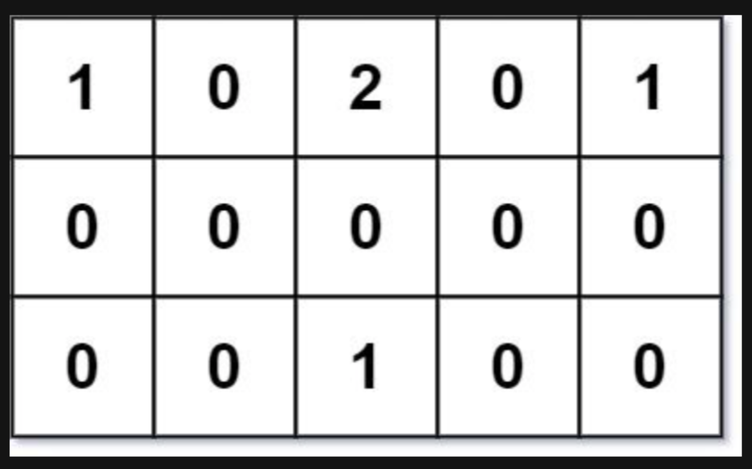
You want to build a house on an empty land that reaches all buildings in the **shortest total travel** distance. You can only move up, down, left, and right.

Return *the **shortest travel distance** for such a house*. If it is not possible to build such a house according to the above rules, return `-1`.

The **total travel distance** is the sum of the distances between the houses of the friends and the meeting point.

The distance is calculated using Manhattan Distance, where `distance(p1, p2) = |p2.x - p1.x| + |p2.y - p1.y|`.

Example 1:




```
Input: grid = [[1,0,2,0,1],[0,0,0,0,0],[0,0,1,0,0]]
Output: 7
Explanation: Given three buildings at (0,0), (0,4), (2,2), and an obstacle at (0,2).
The point (1,2) is an ideal empty land to build a house, as the total travel distance of 3+3+1=7 is minimal.
So return 7.
```

Example 2:

```
Input: grid = [[1,0]]
Output: 1
```

Example 3:

```
Input: grid = [[1]]
Output: -1
```

Constraints:

- `m == grid.length`
- `n == grid[i].length`
- `1 <= m, n <= 50`
- `grid[i][j]` is either `0`, `1`, or `2`.
- There will be **at least one** building in the `grid`.