1706. Where Will the Ball Fall

Description

You have a 2-D `grid` of size `m x n` representing a box, and you have `n` balls. The box is open on the top and bottom sides.

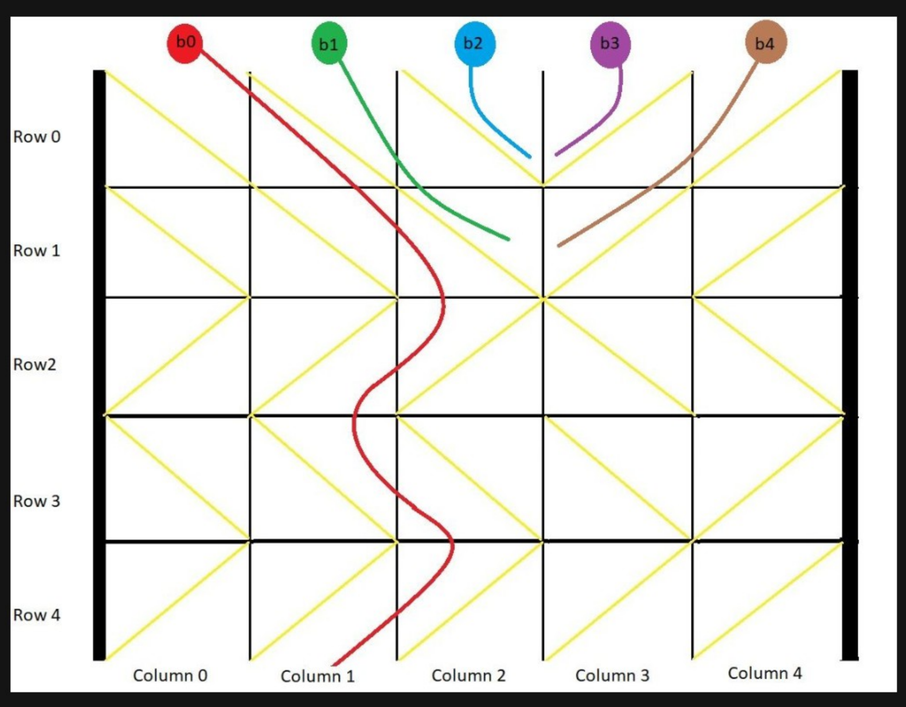
Each cell in the box has a diagonal board spanning two corners of the cell that can redirect a ball to the right or to the left.

- A board that redirects the ball to the right spans the top-left corner to the bottom-right corner and is represented in the grid as `1`.
- A board that redirects the ball to the left spans the top-right corner to the bottom-left corner and is represented in the grid as `-1`.

We drop one ball at the top of each column of the box. Each ball can get stuck in the box or fall out of the bottom. A ball gets stuck if it hits a "V" shaped pattern between two boards or if a board redirects the ball into either wall of the box.

Return *an array* `answer` *of size* `n` *where* `answer[i]` *is the column that the ball falls out of at the bottom after dropping the ball from the* `i th` *column at the top, or* `-1` *if the ball gets stuck in the box.*

Example 1:




```
Input: grid = [[1,1,1,-1,-1],[1,1,1,-1,-1],[-1,-1,-1,1,1],[1,1,1,1,-1],[-1,-1,-1,-1,-1]]
Output: [1,-1,-1,-1,-1]
Explanation: This example is shown in the photo.
Ball b0 is dropped at column 0 and falls out of the box at column 1.
Ball b1 is dropped at column 1 and will get stuck in the box between column 2 and 3 and row 1.
Ball b2 is dropped at column 2 and will get stuck on the box between column 2 and 3 and row 0.
Ball b3 is dropped at column 3 and will get stuck on the box between column 2 and 3 and row 0.
Ball b4 is dropped at column 4 and will get stuck on the box between column 2 and 3 and row 1.
```

Example 2:

```
Input: grid = [[-1]]
Output: [-1]
Explanation: The ball gets stuck against the left wall.
```

Example 3:

```
Input: grid = [[1,1,1,1,1,1],[-1,-1,-1,-1,-1,-1],[1,1,1,1,1,1],[-1,-1,-1,-1,-1,-1]]
Output: [0,1,2,3,4,-1]
```

Constraints:

- `m == grid.length`
- `n == grid[i].length`
- `1 <= m, n <= 100`
- `grid[i][j]` is `1` or `-1`.