

1260. Shift 2D Grid

Description

Given a 2D `grid` of size `m x n` and an integer `k`. You need to shift the `grid` `k` times.

In one shift operation:

- Element at `grid[i][j]` moves to `grid[i][j + 1]`.
- Element at `grid[i][n - 1]` moves to `grid[i + 1][0]`.
- Element at `grid[m - 1][n - 1]` moves to `grid[0][0]`.

Return the *2D grid* after applying shift operation `k` times.

Example 1:

$$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix} \rightarrow \begin{bmatrix} 9 & 1 & 2 \\ 3 & 4 & 5 \\ 6 & 7 & 8 \end{bmatrix}$$

Input: `grid = [[1,2,3],[4,5,6],[7,8,9]]`, `k = 1`
Output: `[[9,1,2],[3,4,5],[6,7,8]]`

Example 2:

$$\begin{bmatrix} 3 & 8 & 1 & 9 \\ 19 & 7 & 2 & 5 \\ 4 & 6 & 11 & 10 \\ 12 & 0 & 21 & 13 \end{bmatrix} \rightarrow \begin{bmatrix} 13 & 3 & 8 & 1 \\ 9 & 19 & 7 & 2 \\ 5 & 4 & 6 & 11 \\ 10 & 12 & 0 & 21 \end{bmatrix} \rightarrow \begin{bmatrix} 21 & 13 & 3 & 8 \\ 1 & 9 & 19 & 7 \\ 2 & 5 & 4 & 6 \\ 11 & 10 & 12 & 0 \end{bmatrix}$$
$$\rightarrow \begin{bmatrix} 0 & 21 & 13 & 3 \\ 8 & 1 & 9 & 19 \\ 7 & 2 & 5 & 4 \\ 6 & 11 & 10 & 12 \end{bmatrix} \rightarrow \begin{bmatrix} 12 & 0 & 21 & 13 \\ 3 & 8 & 1 & 9 \\ 19 & 7 & 2 & 5 \\ 4 & 6 & 11 & 10 \end{bmatrix}$$

Input: `grid = [[3,8,1,9],[19,7,2,5],[4,6,11,10],[12,0,21,13]]`, `k = 4`
Output: `[[12,0,21,13],[3,8,1,9],[19,7,2,5],[4,6,11,10]]`

Example 3:

Input: `grid = [[1,2,3],[4,5,6],[7,8,9]]`, `k = 9`
Output: `[[1,2,3],[4,5,6],[7,8,9]]`

Constraints:

- `m == grid.length`
- `n == grid[i].length`
- `1 <= m <= 50`
- `1 <= n <= 50`
- `-1000 <= grid[i][j] <= 1000`
- `0 <= k <= 100`

