

## 5798. Cyclically Rotating a Grid

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You are given an  $m \times n$  integer matrix `grid`, where  $m$  and  $n$  are both **even** integers, and an integer  $k$ .

The matrix is composed of several layers, which is shown in the below image, where each color is its own layer:

|   |   |   |   |
|---|---|---|---|
| 1 | 1 | 1 | 1 |
| 1 | 2 | 2 | 1 |
| 1 | 2 | 2 | 1 |
| 1 | 2 | 2 | 1 |
| 1 | 2 | 2 | 1 |
| 1 | 1 | 1 | 1 |

User Accepted: 0

User Tried: 0

Total Accepted: 0

Total Submissions: 0

Difficulty: Medium

A cyclic rotation of the matrix is done by cyclically rotating **each layer** in the matrix. To cyclically rotate a layer once, each element in the layer will take the place of the adjacent element in the **counter-clockwise** direction. An example rotation is shown below:

|    |    |    |   |
|----|----|----|---|
| 1  | 2  | 3  | 4 |
| 16 | 1  | 2  | 5 |
| 15 | 8  | 3  | 6 |
| 14 | 7  | 4  | 7 |
| 13 | 6  | 5  | 8 |
| 12 | 11 | 10 | 9 |

Before rotation

|    |    |    |    |
|----|----|----|----|
| 2  | 3  | 4  | 5  |
| 1  | 2  | 3  | 6  |
| 16 | 1  | 4  | 7  |
| 15 | 8  | 5  | 8  |
| 14 | 7  | 6  | 9  |
| 13 | 12 | 11 | 10 |

After rotation with  $k = 1$ 

Return the matrix after applying  $k$  cyclic rotations to it.

Example 1:

|    |    |
|----|----|
| 40 | 10 |
| 30 | 20 |

|    |    |
|----|----|
| 10 | 20 |
| 40 | 30 |

Before Any Rotations

After One Rotation

Input: `grid = [[40,10],[30,20]]`,  $k = 1$ Output: `[[10,20],[40,30]]`

Explanation: The figures above represent the grid at every state.

Example 2: