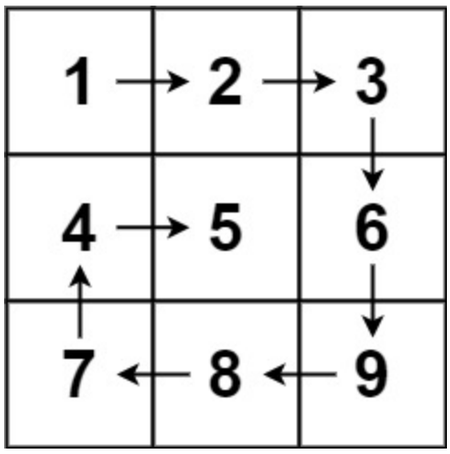
54. Spiral Matrix

Difficulty	medium
☑	☑
Finished	@July 11, 2023
Problem	array
Previously asked company	Microsoft
website	leetcode

Question:

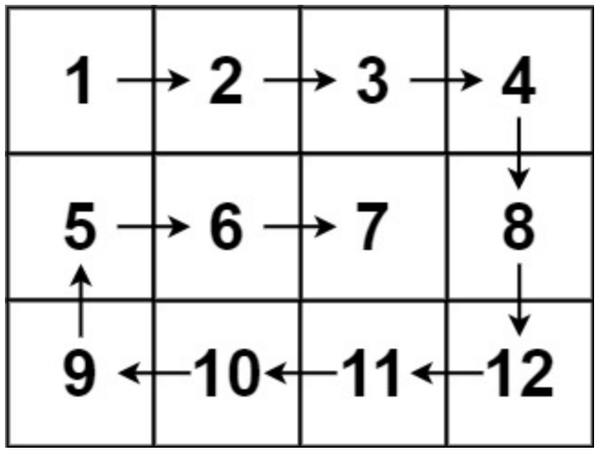
Given an `m x n` `matrix`, return *all elements of the* `matrix` *in spiral order*.

Example 1:




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

Example 2:




```
Input: matrix = [[1,2,3,4],[5,6,7,8],[9,10,11,12]]
Output: [1,2,3,4,8,12,11,10,9,5,6,7]
```

Optimal solution:

Time complexity: O(n^2)

Space complexity: O(1)

```
class Solution(object):
    def spiralOrder(self, matrix):
        res = []
        left, right = 0, len(matrix[0])
        top, bottom = 0, len(matrix)

        while left < right and top < bottom:
            # get every i in the top row
            for i in range(left,right):
                res.append(matrix[top][i])
            top += 1

            # get every i in the right col
            for i in range(top,bottom):
                res.append(matrix[i][right-1])
            right -= 1

            if not (left < right and top < bottom):
                break

            # get every i in the bottom row
            for i in range(right-1, left-1, -1):
                res.append(matrix[bottom-1][i])
            bottom -= 1

            # get every i in the left col
            for i in range(bottom-1, top-1, -1):
                res.append(matrix[i][left])
            left += 1

        return res
```