# Problem 59: Spiral Matrix II

## Problem Information

**Difficulty:** Medium
**Acceptance Rate:** 0.00%
**Paid Only:** No

## Problem Description

Given a positive integer

n

, generate an

n x n

matrix

filled with elements from

1

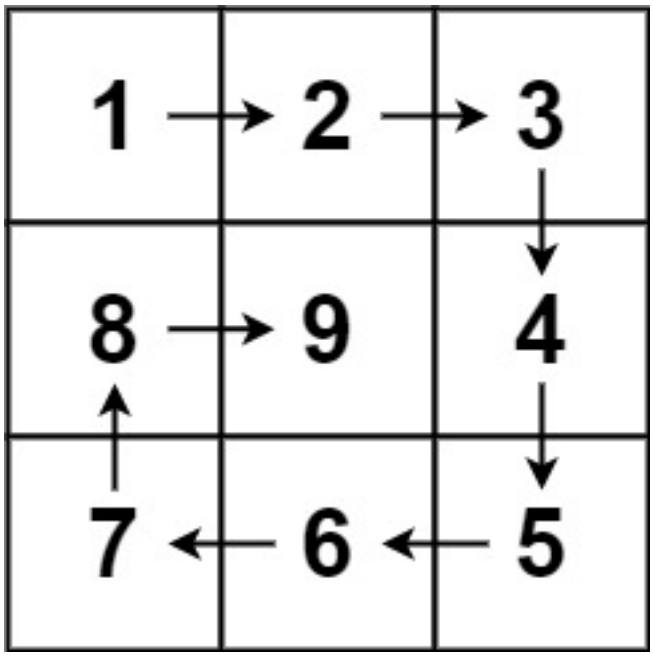
to

n

2

in spiral order.

Example 1:




Input:

n = 3

Output:

[[1,2,3],[8,9,4],[7,6,5]]

Example 2:

Input:

n = 1

Output:

[[1]]

Constraints:

1 <= n <= 20

## Code Snippets

**C++:**

```
class Solution {
public:
vector<vector<int>> generateMatrix(int n) {

}
};
```

**Java:**

```
class Solution {
public int[][] generateMatrix(int n) {

}
}
```

**Python3:**

```
class Solution:
def generateMatrix(self, n: int) -> List[List[int]]:
```

**Python:**

```
class Solution(object):
def generateMatrix(self, n):
"""
:type n: int
:rtype: List[List[int]]
"""
```

**JavaScript:**

```
/**
* @param {number} n
* @return {number[][]}
*/
var generateMatrix = function(n) {

};
```

**TypeScript:**

```
function generateMatrix(n: number): number[][] {

};
```

**C#:**

```
public class Solution {
public int[][] GenerateMatrix(int n) {

}
}
```

**C:**

```
/**
* Return an array of arrays of size *returnSize.
* The sizes of the arrays are returned as *returnColumnSizes array.
* Note: Both returned array and *columnSizes array must be malloced, assume
caller calls free().
*/
int** generateMatrix(int n, int* returnSize, int** returnColumnSizes) {

}
```

**Go:**

```
func generateMatrix(n int) [][]int {

}
```

**Kotlin:**

```
class Solution {
fun generateMatrix(n: Int): Array<IntArray> {

}
}
```

**Swift:**

```
class Solution {
func generateMatrix(_ n: Int) -> [[Int]] {
```

```
}
}
```

**Rust:**

```
impl Solution {
pub fn generate_matrix(n: i32) -> Vec<Vec<i32>> {

}
}
```

**Ruby:**

```
# @param {Integer} n
# @return {Integer[][]}
def generate_matrix(n)

end
```

**PHP:**

```
class Solution {

/**
* @param Integer $n
* @return Integer[][]
*/
function generateMatrix($n) {

}
}
```

**Dart:**

```
class Solution {
List<List<int>> generateMatrix(int n) {

}
}
```

**Scala:**

```
object Solution {
def generateMatrix(n: Int): Array[Array[Int]] = {

}
}
```

**Elixir:**

```
defmodule Solution do
@spec generate_matrix(n :: integer) :: [[integer]]
def generate_matrix(n) do

end
end
```

**Erlang:**

```
-spec generate_matrix(N :: integer()) -> [[integer()]].
generate_matrix(N) ->
.
```

**Racket:**

```
(define/contract (generate-matrix n)
(-> exact-integer? (listof (listof exact-integer?)))
)
```

## Solutions

### C++ Solution:

```
/*
* Problem: Spiral Matrix II
* Difficulty: Medium
* Tags: array
*
* Approach: Use two pointers or sliding window technique
* Time Complexity: O(n) or O(n log n)
* Space Complexity: O(1) to O(n) depending on approach
*/
```

```
class Solution {
public:
vector<vector<int>> generateMatrix(int n) {

}
};
```

### Java Solution:

```
/**
* Problem: Spiral Matrix II
* Difficulty: Medium
* Tags: array
*
* Approach: Use two pointers or sliding window technique
* Time Complexity: O(n) or O(n log n)
* Space Complexity: O(1) to O(n) depending on approach
*/

class Solution {
public int[][] generateMatrix(int n) {

}
}
```

### Python3 Solution:

```
"""
Problem: Spiral Matrix II
Difficulty: Medium
Tags: array

Approach: Use two pointers or sliding window technique
Time Complexity: O(n) or O(n log n)
Space Complexity: O(1) to O(n) depending on approach
"""

class Solution:
def generateMatrix(self, n: int) -> List[List[int]]:
# TODO: Implement optimized solution
pass
```

### Python Solution:

```
class Solution(object):
def generateMatrix(self, n):
"""
:type n: int
:rtype: List[List[int]]
"""
```

### JavaScript Solution:

```
/**
* Problem: Spiral Matrix II
* Difficulty: Medium
* Tags: array
*
* Approach: Use two pointers or sliding window technique
* Time Complexity: O(n) or O(n log n)
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*/

/**
* @param {number} n
* @return {number[][]}
*/
var generateMatrix = function(n) {

};
```

### TypeScript Solution:

```
/**
* Problem: Spiral Matrix II
* Difficulty: Medium
* Tags: array
*
* Approach: Use two pointers or sliding window technique
* Time Complexity: O(n) or O(n log n)
* Space Complexity: O(1) to O(n) depending on approach
*/

function generateMatrix(n: number): number[][] {
```

```
};
```

### C# Solution:

```
/*
* Problem: Spiral Matrix II
* Difficulty: Medium
* Tags: array
*
* Approach: Use two pointers or sliding window technique
* Time Complexity: O(n) or O(n log n)
* Space Complexity: O(1) to O(n) depending on approach
*/

public class Solution {
public int[][] GenerateMatrix(int n) {

}
}
```

### C Solution:

```
/*
* Problem: Spiral Matrix II
* Difficulty: Medium
* Tags: array
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* Time Complexity: O(n) or O(n log n)
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/**
* Return an array of arrays of size *returnSize.
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* Note: Both returned array and *columnSizes array must be malloced, assume
caller calls free().
*/
int** generateMatrix(int n, int* returnSize, int** returnColumnSizes) {
```

```
}
```

### Go Solution:

```
// Problem: Spiral Matrix II
// Difficulty: Medium
// Tags: array
//
// Approach: Use two pointers or sliding window technique
// Time Complexity: O(n) or O(n log n)
// Space Complexity: O(1) to O(n) depending on approach

func generateMatrix(n int) [][]int {

}
```

### Kotlin Solution:

```
class Solution {
fun generateMatrix(n: Int): Array<IntArray> {

}
}
```

### Swift Solution:

```
class Solution {
func generateMatrix(_ n: Int) -> [[Int]] {

}
}
```

### Rust Solution:

```
// Problem: Spiral Matrix II
// Difficulty: Medium
// Tags: array
//
// Approach: Use two pointers or sliding window technique
// Time Complexity: O(n) or O(n log n)
// Space Complexity: O(1) to O(n) depending on approach
```

```
impl Solution {
pub fn generate_matrix(n: i32) -> Vec<Vec<i32>> {

}
}
```

### Ruby Solution:

```
# @param {Integer} n
# @return {Integer[][]}
def generate_matrix(n)

end
```

### PHP Solution:

```
class Solution {

/**
* @param Integer $n
* @return Integer[][]
*/
function generateMatrix($n) {

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}
```

### Dart Solution:

```
class Solution {
List<List<int>> generateMatrix(int n) {

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### Scala Solution:

```
object Solution {
def generateMatrix(n: Int): Array[Array[Int]] = {
```

```
}
}
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### Elixir Solution:

```
defmodule Solution do
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### Erlang Solution:

```
-spec generate_matrix(N :: integer()) -> [[integer()]].
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(define/contract (generate-matrix n)
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