class Solution:

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

if not n:

return []

matrix = [[0 for \_ in range(n)] for \_ in range(n)]

left, right, top, bottom, num = 0, n-1, 0, n-1, 1

while left <= right and top <= bottom:

for i in range(left, right+1):

matrix[top][i] = num

num += 1

top += 1

for i in range(top, bottom+1):

matrix[i][right] = num

num += 1

right -= 1

if top <= bottom:

for i in range(right, left-1, -1):

matrix[bottom][i] = num

num += 1

bottom -= 1

if left <= right:

for i in range(bottom, top-1, -1):

matrix[i][left] = num

num += 1

left += 1

return matrix