

AlgoExpert

Quad LayoutC#12pxSublimeMonok

Prompt	Scratchpad	Our Solution(s)	Video Explanation	Run Code
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Solution 1Solution 2Solution 3Solution 4

```
1 // Copyright © 2020 AlgoExpert, LLC. All rights reserved.
2
3 using System.Collections.Generic;
4
5 public class Program {
6     // O(n^4) time | O(1) space - where n is the height and width of the matrix
7     public static bool SquareOfZeroes(List<List<int> > matrix) {
8         int n = matrix.Count;
9         for (int topRow = 0; topRow < n; topRow++) {
10             for (int leftCol = 0; leftCol < n; leftCol++) {
11                 int squareLength = 2;
12                 while (squareLength <= n - leftCol && squareLength <= n - topRow) {
13                     int bottomRow = topRow + squareLength - 1;
14                     int rightCol = leftCol + squareLength - 1;
15                     if (isSquareOfZeroes(matrix, topRow, leftCol, bottomRow,
16                         rightCol)) return true;
17                     squareLength++;
18                 }
19             }
20         }
21         return false;
22     }
23
24     // r1 is the top row, c1 is the left column
25     // r2 is the bottom row, c2 is the right column
26     public static bool isSquareOfZeroes(List<List<int> > matrix,
27         int r1,
28         int c1,
29         int r2,
30         int c2
31     ) {
32         for (int row = r1; row < r2 + 1; row++) {
33             if (matrix[row][c1] != 0 || matrix[row][c2] != 0) return false;
34         }
35         for (int col = c1; col < c2 + 1; col++) {
36             if (matrix[r1][col] != 0 || matrix[r2][col] != 0) return false;
37         }
38         return true;
39     }
40 }
41
```

