

AlgoExpert

Quad LayoutPython12pxSublimeMonokai00:00:00

PromptScratchpadOur Solution(s)Video ExplanationRun Code

Solution 1Solution 2Solution 3

1# Copyright © 2020 AlgoExpert, LLC. All rights reserved.  
2  
3# O(n^2) time | O(n) space  
4def numberOfBinaryTreeTopologies(n):  
5 cache = [1]  
6 for m in range(1, n + 1):  
7 numberOfTrees = 0  
8 for leftTreeSize in range(m):  
9 rightTreeSize = m - 1 - leftTreeSize  
10 numberOfLeftTrees = cache[leftTreeSize]  
11 numberOfRightTrees = cache[rightTreeSize]  
12 numberOfTrees += numberOfLeftTrees \* numberOfRightTrees  
13 cache.append(numberOfTrees)  
14 return cache[n]  
15

