

PromptScratchpadOur Solution(s)Video Explanation

Run 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, cache={0: 1}):
5 if n in cache:
6 return cache[n]
7 numberOfTrees = 0
8 for leftTreeSize in range(n):
9 rightTreeSize = n - 1 - leftTreeSize
10 numberOfLeftTrees = numberOfBinaryTreeTopologies(leftTreeSize, cache)
11 numberOfRightTrees = numberOfBinaryTreeTopologies(rightTreeSize, cache)
12 numberOfTrees += numberOfLeftTrees * numberOfRightTrees
13 cache[n] = numberOfTrees
14 return numberOfTrees
15

