AlgoExpert

Quad Layout | Go | 12px | Sublime | Monokai | 00:00:00

Prompt | Scratchpad | Our Solution(s) | Video Explanation | Run Code

Solution 1 | Solution 2 | Solution 3

```go
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package main

// Upper Bound: O((n*(2n)!)/(n!(n+1)!)) time | O(n) space
func NumberOfBinaryTreeTopologies(n int) int {
  if n == 0 {
    return 1
  }
  numberOfTrees := 0
  for leftTreeSize := 0; leftTreeSize < n; leftTreeSize++ {
    rightTreeSize := n - 1 - leftTreeSize
    numberOfLeftTrees := NumberOfBinaryTreeTopologies(leftTreeSize)
    numberOfRightTrees := NumberOfBinaryTreeTopologies(rightTreeSize)
    numberOfTrees += numberOfLeftTrees * numberOfRightTrees
  }
  return numberOfTrees
}

```