AlgoExpert Quad Layout JavaScript 12px Sublime Monokai 00:00:00

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Solution 1 Solution 2 Solution 3

```javascript
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// O(n^2) time | O(n) space
function numberOfBinaryTreeTopologies(n) {
  const cache = [1];
  for (let m = 1; m < n + 1; m++) {
    let numberOfTrees = 0;
    for (let leftTreeSize = 0; leftTreeSize < m; leftTreeSize++) {
      const rightTreeSize = m - 1 - leftTreeSize;
      const numberOfLeftTrees = cache[leftTreeSize];
      const numberOfRightTrees = cache[rightTreeSize];
      numberOfTrees += numberOfLeftTrees * numberOfRightTrees;
    }
    cache.push(numberOfTrees);
  }
  return cache[n];
}

exports.numberOfBinaryTreeTopologies = numberOfBinaryTreeTopologies;

```