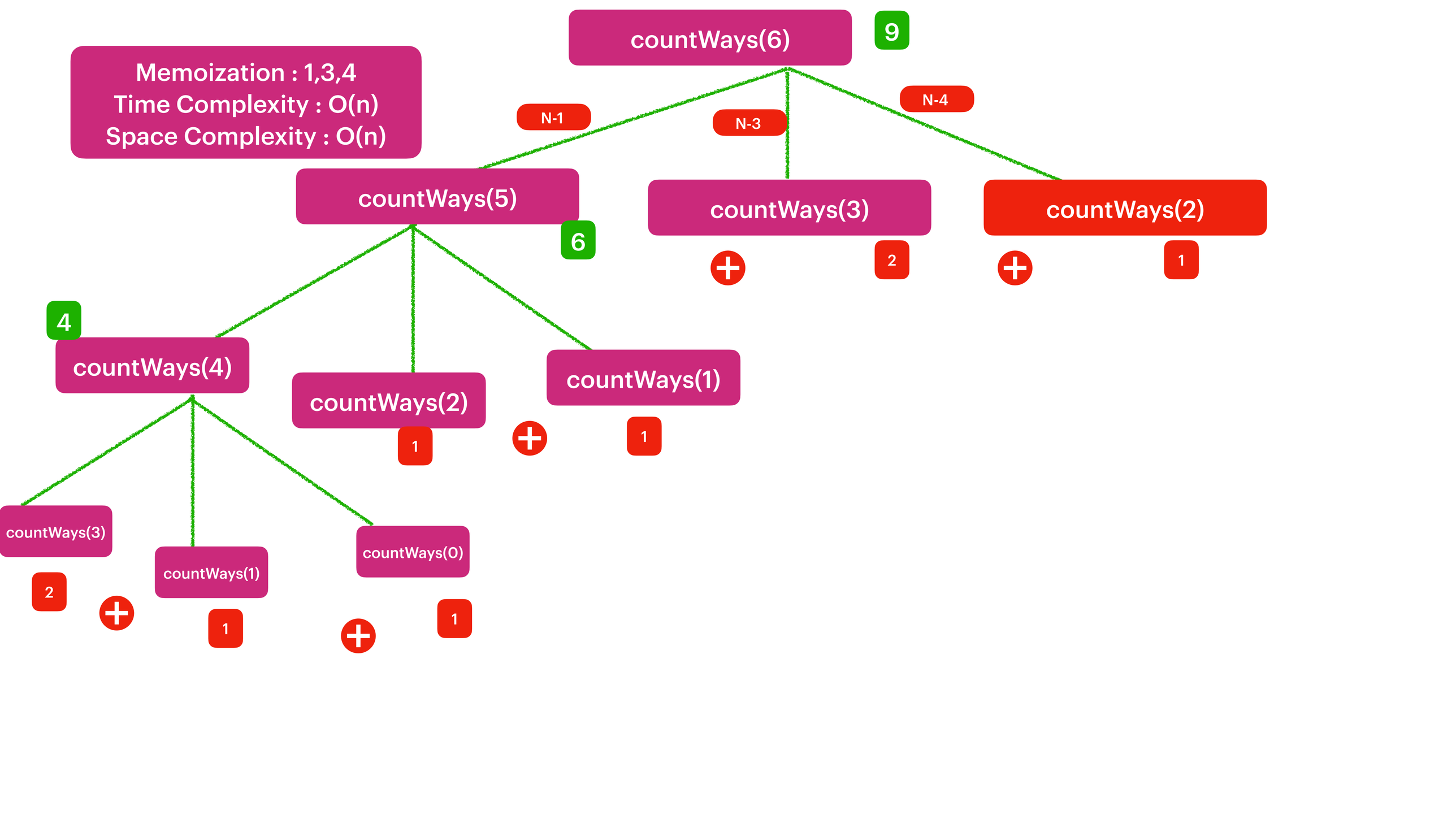
Fibonacci Pattern

Express ‘n’ as the sum of 1, 3, or 4.

Given a number ‘n’, implement a method to count how many possible ways there are to express ‘n’ as the sum of 1, 3, or 4.

n : 4
Number of ways = 4
Explanation: Following are the four ways we can express 'n' : {1,1,1,1}, {1,3}, {3,1}, {4}

n : 5
Number of ways = 6
Explanation: Following are the six ways we can express 'n' : {1,1,1,1,1}, {1,1,3}, {1,3,1}, {3,1,1}, {1,4}, {4,1}


Memoization : 1,3,4
Time Complexity : O(n)
Space Complexity : O(n)
countWays(6)
9
N-1
N-3
N-4
countWays(5)
6
countWays(3)
2
countWays(2)
1
4
countWays(4)
countWays(2)
1
countWays(1)
1
countWays(3)
2
countWays(1)
1
countWays(0)
1

Tabulation
Time Complexity : O(n)
Space Complexity : O(n)

dp[i] = dp[i-1] + dp[i-3] + dp[i-4];