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## Quiz #8

### Problem 1: Dynamic Programming

You are climbing a stair case. It takes  $n$  steps to reach to the top. Each time you can either climb 1 or 2 steps. In how many distinct ways can you climb to the top? Note: Given  $n$  will be a positive integer.

**Example:**

**Input:** 3

**Output:** 3

**Explanation:** There are three ways to climb to the top:

1. 1 step + 1 step + 1 step
2. 1 step + 2 steps
3. 2 steps + 1 step

1. A function  $F(i)$  is defined to denote the number of distinct ways you can climb to the top. Please provide  $F(1)$  and  $F(2)$ . Then provide  $F(i)$  in terms of previously computed value of  $F$ .

Solution
<ul style="list-style-type: none"><li>• <math>F(1) = 1</math></li><li>• <math>F(2) = 2</math></li><li>• <math>F(i) = F(i - 1) + F(i - 2)</math></li></ul>