Suppose you have n integers labeled 1 through n. A permutation of those n integers perm (**1-indexed**) is considered a **beautiful arrangement** if for every i (1 <= i <= n), **either** of the following is true:

* perm[i] is divisible by i.
* i is divisible by perm[i].

Given an integer n, return *the* ***number*** *of the* ***beautiful arrangements*** *that you can construct*.

**Example 1:**

Input: n = 2  
Output: 2  
Explanation:   
The first beautiful arrangement is [1,2]:  
 - perm[1] = 1 is divisible by i = 1  
 - perm[2] = 2 is divisible by i = 2  
The second beautiful arrangement is [2,1]:  
 - perm[1] = 2 is divisible by i = 1  
 - i = 2 is divisible by perm[2] = 1

**Example 2:**

Input: n = 1  
Output: 1

**Constraints:**

* 1 <= n <= 15