526. Beautiful Arrangement

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