You are given a string s of length n where s[i] is either:

* 'D' means decreasing, or
* 'I' means increasing.

A permutation perm of n + 1 integers of all the integers in the range [0, n] is called a **valid permutation** if for all valid i:

* If s[i] == 'D', then perm[i] > perm[i + 1], and
* If s[i] == 'I', then perm[i] < perm[i + 1].

Return *the number of* ***valid permutations*** perm. Since the answer may be large, return it **modulo** 109 + 7.

**Example 1:**

Input: s = "DID"  
Output: 5  
Explanation: The 5 valid permutations of (0, 1, 2, 3) are:  
(1, 0, 3, 2)  
(2, 0, 3, 1)  
(2, 1, 3, 0)  
(3, 0, 2, 1)  
(3, 1, 2, 0)

**Example 2:**

Input: s = "D"  
Output: 1

**Constraints:**

* n == s.length
* 1 <= n <= 200
* s[i] is either 'I' or 'D'.