

5697 Number String

The signature of a permutation is a string that is computed as follows: for each pair of consecutive elements of the permutation, write down the letter 'I' (increasing) if the second element is greater than the first one, otherwise write down the letter 'D' (decreasing). For example, the signature of the permutation $\{3,1,2,7,4,6,5\}$ is 'DIIDID'.

Your task is as follows: You are given a string describing the signature of many possible permutations, find out how many permutations satisfy this signature.

Note: For any positive integer n , a permutation of n elements is a sequence of length n that contains each of the integers 1 through n exactly once.

Input

Each test case consists of a string of 1 to 1000 characters long, containing only the letters 'I', 'D' or '?', representing a permutation signature.

Each test case occupies exactly one single line, without leading or trailing spaces.

Proceed to the end of file. The '?' in these strings can be either 'I' or 'D'.

Output

For each test case, print the number of permutations satisfying the signature on a single line. In case the result is too large, print the remainder modulo 1000000007.

Hint:

Permutation $\{1,2,3\}$ has signature 'II'.

Permutations $\{1,3,2\}$ and $\{2,3,1\}$ have signature 'ID'.

Permutations $\{3,1,2\}$ and $\{2,1,3\}$ have signature 'DI'.

Permutation $\{3,2,1\}$ has signature 'DD'.

'?D' can be either 'ID' or 'DD'.

'??' gives all possible permutations of length 3.

Sample Input

```
II
ID
DI
DD
?D
??
```

Sample Output

```
1
2
2
1
3
6
```