Problem J
Take Many ABA

Time Limit: 3.0 seconds

For a string T consisting of `A` and `B`, define $f(T)$ as the maximum number of times the following operation can be performed.

Operation: Remove `ABA` that appears as a (not necessarily contiguous) subsequence of T, and close up the resulting gaps.

You are given a string S consisting of `A`, `B`, and `?`. Find the sum of $f(T)$ over all strings T obtained by replacing each `?` in S with either `A` or `B`, modulo 998244353.

Input

The input is given in the following format:

S

S is a string consisting of `A`, `B`, and `?`, and its length is between 3 and 1000, inclusive.

Output

Print the answer.

Sample Input 1	Sample Output 1
A?B?	2

Sample Input 2	Sample Output 2
?B?A?B?	15

Sample Input 3	Sample Output 3
????????????????????	4595728

The possible strings T and their corresponding values of $f(T)$ for the first sample are as follows:

- $T =$ `AABA`: $f(T) = 1$.
- $T =$ `AABB`: $f(T) = 0$.
- $T =$ `ABBA`: $f(T) = 1$.
- $T =$ `ABBB`: $f(T) = 0$.

Therefore, the answer is $1 + 0 + 1 + 0 = 2$.