

Batching Badges

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 1024 megabytes

It is the year 2075. While organizing your archives, you rediscovered a collection of badges from the 2025 ICPC Regional contests, originally distributed by the Universal Cup organization.



A complete UCup badge set.

In this problem, however, we only consider a subset of three colors.

Your badges come in three distinct colors only: Ultramarine (**u**), Crimson (**c**), and Periwinkle (**p**). A complete souvenir pack is defined as four badges appearing in the exact order: Ultramarine, then Crimson, then Ultramarine, then Periwinkle (**ucup**).

Your collection consists of $4n$ badges arranged in a row. You vividly recall that in 2025, this arrangement was a **perfect batch**:

- The sequence could be partitioned into n disjoint subsequences (i.e., using each badge in exactly one subsequence), such that each subsequence formed a complete souvenir pack (**ucup**).

However, over the last 50 years, some badges have faded, making their colors indistinguishable. These positions are represented by **?**.

Given the current state of the badge sequence S , calculate the number of ways to restore the faded colors (**?**) to one of **u**, **c**, or **p**, such that the resulting sequence is a perfect batch. As the answer may be large, output it modulo 998 244 353.

Note that a subsequence can be derived from a string by removing zero or more characters without changing the order of the remaining characters. For example, **ucp**, **c**, and **ucup** are subsequences of the string **ucup**, while **uucp** is not a subsequence of the string **ucup**.

Input

The first line contains an integer n ($1 \leq n \leq 50$).

The second line contains a string S of length $4n$ consisting of characters **u**, **c**, **p**, and **?**.

Output

Output the number of ways to replace every **?** in S with one of **u**, **c**, or **p**, so that the resulting string represents a perfect batch, taken modulo 998 244 353.

Examples

standard input	standard output
1 ????	1
1 ucup	1
1 uucp	0
1 uu?u	0
2 ????????	11
4 u???c???u???p???	437