Hardcore String Counting

Input file:	*standard input*
Output file:	*standard output*
Time limit:	8 seconds
Memory limit:	512 mebibytes

You are given a non-empty string s of lowercase English letters. A string w of lowercase English letters is *good* if every proper prefix of w does not contain s as a substring, but w itself does.

Find the number of good strings of length m. Because this number can be very large, output it modulo prime number $998\,244\,353 = 2^{23} \cdot 119 + 1$.

Input

The first line of the input contains two integers: n, the length of s, and m, the length of strings you have to count ($1 \le n \le 10^5$, $n \le m \le 10^9$). The second line contains a string s consisting of n lowercase English letters.

Output

Output a single nonnegative integer: the number of good strings of length m modulo $998\,244\,353$.

Examples

standard input	*standard output*
6 7 aaaaaa	25
3 5 aba	675