Problem B. Binary Strings

Input file:	*standard input*
Output file:	*standard output*
Time limit:	1 second
Memory limit:	512 mebibytes

A binary string s is said to be *antisymmetric* if and only if $s[i] \neq s[|s| - i + 1]$ for all $i \in [1, |s|]$.

Yuta has n binary strings s_i, and he wants to know the number of binary antisymmetric strings of length $2L$ which contain all given strings s_i as continuous substrings. Help him find that number. As the answer can be very large, find it modulo 998 244 353.

Input

The first line of the input contains two integers n and L ($1 \leq n \leq 6$, $1 \leq L \leq 100$).

Then n lines follow, each line contains a string s_i ($1 \leq |s_i| \leq 20$) consisting of characters "0" and "1".

Output

Print a single line with a single integer: the answer modulo 998 244 353.

Examples

standard input	standard output
2 2 011 001	1
2 3 011 001	4

Note

In the second example, the strings which satisfy all the restrictions are "000111", "001011", "011001" and "100110".