Problem F. Filipp Rukhovich

Input file:	*standard input*
Output file:	*standard output*
Time limit:	6 seconds
Memory limit:	512 mebibytes

The **palindromicity** of a sequence of characters t of length k is number of indices i, such that $0 \le i < k - i - 1$ and $t_i = t_{k-1-i}$. Note that 0-based indexing is used.

You are given a string s. Count the sum of palindromicities over all its subsequences. Sequences which occur multiple times as a subsequence are counted multiple times (i.e. you sum palindromicities over all $2^{|s|}$ subsequences whether they are distinct or not).

Output the correct answer modulo 998244353. Formally, if the actual answer is y and your answer is x, it will be considered correct if $-2^{63} \le x < 2^{63}$ and $x - y$ is divisible by 998244353.

Input

The only line contains a non-empty string s of lowercase latin letters with length not exceeding 123456.

Output

Output a single integer — sum of palindromicities over all subsequences of s modulo 998244353.

Examples

standard input	standard output
xxx	4
abacaba	80
ypiiouiuiputrhgogghjhp	1084841
dfgfhdgdhjgfdhgdfhgfdgfddfg	190900560
qweqwewqewqeqweqwqwewqrqwrrew	910048289
thosewereactuallykeyboardslaps	405649044