12494 Distinct Substring

Given a string S, Dexter wants to find the number of different substrings in S. He considers two substrings same if they have a cyclic permutation which is same.

If $T = T_1T_2T_3 \ldots T_n$ is a string of length n then it has n cyclic permutations and they are $T_iT_{i+1} \ldots T_nT_1T_2 \ldots T_{i-1}$ for all $1 \leq i \leq n$. (Note that, T_{n+1} and T_0 are non-existing).

For example, if $T = $ "abcd" there are 4 cyclic permutations and they are: "abcd", "bcda", "cdab" and "dabc".

So, string "aba", "aab" and "baa" are all considered same. But "abc" and "bac" are different as there is no cyclic permutation of them which are same.

Input

First line contains an integer T ($T \leq 50$) denoting the number of test cases. Each of the next T lines contains a string S which is composed of only lowercase latin letters. You can assume that the length of S is between 1 and 200 inclusive.

Output

For each test case, output the number of different substrings in a line.

Explanation:
If $S = $ "abcba" there are 10 cyclic different substrings and they are: "a", "b", "c", "ab", "bc", "abc", "bcb", "cba", "abcb" and "abcba".

Sample Input

```
3
abcba
aab
zzxzz
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Sample Output

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10
5
7
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