Let's first define some terms:

- A string is palindromic if it reads the same forward and backward. Examples of palindromes are **madam** and **toot**.

- A string is a dromicpalin if we can rearrange its letters to make it a palindrome. An example of a dromicpalin string is **mmaad** because we can rearrange the letters to make it **madam**, which is a palindrome.

- A substring is any contiguous sequence of characters of a string. Some substrings of 'acmicpc' are 'a', 'c', 'i', 'icp', 'acmicpc' but 'acpc' is not a substring. For this problem, we are not considering the empty substring, so that means there are $n(n + 1)$ $over2$ substrings of a string of length n.

AIBOHPHOBIA – An irrational fear of palindromes

Person 1: I think you have aibohphobia
Person 2: aaahhhhh!

Given a string, you have to figure out how many of its substrings are dromicpalin.

Input

The first line of input is an integer T ($T < 100$) indicating the number of test cases. Each case is a line containing a string. The strings will contain only lowercase letters [a - z]. The length of each string will be positive and not greater than 1000.

Output

For each case, first output the case number followed by the number of substrings that are dromicpalin. Follow the samples for exact format. There is no new-line between cases.

Sample Input

```
4
acmicpc
aaaaa
isyoursolutionfastenough
abbabababbaba
```

Sample Output

```
Case 1: 8
Case 2: 15
Case 3: 24
Case 4: 67
```