Problem G - Tnge Twstr

Jeremy loves partying but often attracts too much attention to himself when he's drunk, much to the annoyance of his girlfriend. Fortunately, whenever Jeremy loses a game at a party he gets embarrassed and quickly leaves the party. Mandy wants to stop Jeremy's partying addiction by making Jeremy lose party games.

One day, in his drunken state at a Thursday night party, Jeremy gathers all the girls around to show off his verbal prowess with a game of TngeTwstr. The game goes as follows.

First Jeremy selects a string s. Given any integer k $(0 < k < |s|)$, he considers the set b_k: the set of all subsequences of s with length k without consecutive adjacent characters. If the b_k is nonempty, he randomly selects one subsequence from b_k and rapidly recites it 20 times. If Jeremy stutters, he loses the game!

Mandy knows Jeremy stutters when pronouncing a word if and only if the word ends in a vowel. Help Mandy analyse Jeremy's chance of losing the game!

For this problem, vowels are characters belonging to the set {'a','e','i','o','u'}. String s will only consist of lowercase letters.

Input

The first line of the input is an integer t $(0 \leq t \leq 50)$ indicating the number of test cases.

The first and only line of each test case consists of a string s $(0 \leq |s| \leq 2000)$. String s will only consist of lower case letters.

Output

For each test case, output $|s| - 1$ lines, with two integers on each line. On the ith line, output $r \% MOD$ and $p \% MOD$, where $MOD = 1000000007$, r denotes the size of b_i, and p denotes the number of elements from b_i that will make Jeremy stutter.

Sample Input

```
2
bba
cda
```

Sample Output

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2 1
1 1
3 1
3 2
```

Explanation of sample test cases:

For the first test case, consider all possible values of k.

When $k = 1$, b_k is {"b","a"}, $r = 2$, $p = 1$.

When $k = 2$, b_k is {"ba"}. ("bb" has consecutive adjacent characters), $r = 1$, $p = 1$.

For the second test case, consider all possible values of k.

When $k = 1$, b_k is {"c","d","a"}, $r = 3$, $p = 1$.

When $k = 2$, b_k is {"cd","ca","da"}, $r = 3$, $p = 2$.