Problem B
Bitcoin Toss

Problem ID: bitcointoss
CPU Time limit: 2 seconds
Memory limit: 1024 MB

Author: Darko Aleksic
Source: Calgary Collegiate Programming Contest 2017

In today's cashless society, it is becoming harder and harder to make decisions using coin tosses, due to a lack of physical coins.

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But, Yraglac has an idea; no, it does not include tossing virtual coins, the problem title is misleading in that sense. Instead, he will print out all the possible outcomes of tosses of N coins (as a string of *T*ails and *H*eads), put them into a hat and get someone to draw one out. When we become a hatless society, Yraglac will come up with another one of his brilliant plans.

Rather than putting some thought into the process, Yraglac prints a string of 'T's and 'H's of a random length and then finds the longest substring containing all possible combinations of coin tosses for some N (if there are several substrings like this, he picks the largest N possible).

For instance, given the string THTHHTTTHHT, he can start cutting it after the first character, 2 characters at the time. That way he will have all possible outcomes of tossing two coins on paper: T|HT|HH|TT|TH|HT

Can you help Yraglac figure out where he should start cutting his string, such that the substring of length $N \cdot 2^N$ contains all possible outcomes of tossing N coins (when cut into pieces of length N)?

If there are several possibilities, you should choose as large N as possible.

Input

The first line contains a single integer $T \leq 10$ giving the number of test cases. Each test case consists of a single line with a string S ($2 \leq |S| \leq 20\,000$), containing only characters 'T' and 'H' (at least one of each).

Output

For the each test case, output two integers on a line: N and P, where N is as described in the problem statement and as large as possible and P is the number of characters Yraglac should skip before making the first cut. If there are several possible P's for the given N, print out the smallest one.

Sample Input 1

```
2
HTTTT
THTHHTTTHHT
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Sample Output 1

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1 0
2 1
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