

Problem 1—Simply Syntax

In the land of Hedonia, the official language is Hedonian. A Hedonian professor had noticed that many of her students still did not master the syntax of Hedonian well. Tired of correcting the many syntactical mistakes, she decided to challenge the students by asking them to write a program that could check the syntactical correctness of any sentence they wrote. Similar to the nature of Hedonians, the syntax of Hedonian is also pleasantly simple. Here are the rules:

1. The only characters in the language are the characters p through z and N, C, D, E, and I.
2. Every character from p through z is a correct sentence.
3. If s is a correct sentence, then so is Ns .
4. If s and t are correct sentences, then so are Cst , Dst , Est and Ist .
5. Nothing else is a correct sentence.

These rules are the only rules to determine the syntactical correctness of a sentence. You are asked to write a program that checks if sentences satisfy the syntax rules given here.

INPUT SPECIFICATION. The input consists of a number of sentences consisting only of characters p through z and N, C, D, E, and I. Each sentence is terminated by <EOLN>. The collection of sentences is terminated by the end-of-file character. Each sentence has at most 256 characters and at least 1 character.

OUTPUT SPECIFICATION. The output consists of the answers YES for each correct sentence and NO for each incorrect sentence. The answers are given in the same order as the sentences. Each answer is to be followed by <EOLN>.

SAMPLE INPUT.

```
Cp<EOLN>
Isz<EOLN>
NIsz<EOLN>
Cqpq<EOLN>
<EOF>
```

SAMPLE OUTPUT.

```
NO<EOLN>
YES<EOLN>
YES<EOLN>
NO<EOLN>
<EOF>
```