1-1. HicCup

After solving the problem 'HicCup' from the 1st FunctionCup, Seun was too exhausted and knocked out immediately. His last words were:

"딸꾹!!딸딸꾹!딸꾹!!!꾹!!!"

(translator's note: Seun is a Korean guy, so his last words were also in Korean. Think '딸' and '꾹' as mere symbols, just like 'H' and 'C'. In Korean, "딸꾹" has equivalent meaning with "hiccup" and this is where the problem title comes from. Sorry for the inconvenience caused by this.)

We found out that Seun's last words has a property that it can be made by inserting strings like "딸꾹!!" repeatedly. That's why we are going to define "X-딸꾹 string" ($X \geq 0$) as below:

- An empty string is an X-딸꾹 string.
- If S is an X-딸꾹 string, then all strings made by inserting "딸꾹!!...!!" (number of `!` s should be at least X) in any position of S are also an X-딸꾹 string.
    - In terms of regular expressions, if AB is an X-딸꾹 string (where A and B are arbitrary, possibly empty strings), A딸꾹`!{X,}`B is also an X-딸꾹 string.
- All strings that cannot be made by applying the above two conditions repeatedly are not an X-딸꾹 string.

Given Seun's last words as a string S, please write a program that computes the maximum X where S is an X-딸꾹 string.

Implementation details

You should implement the following function.

```
int HicCup(string S)
```

- S: Seun's last words. S only consists of `H`, `C`, and `!`. `H` means '딸', `C` means '꾹', and `!` means '!'.
- This procedure should return the maximum X where S is an X-딸꾹 string. If there is no such X, it should return -1 instead.
- This procedure is called exactly once for each test case.

Constraints

- $2 \le |S| \le 1\,000\,000$

Subtasks

1. (24 points) S only consists of `H` and `C`.
2. (76 points) No additional constraints.

Example

Consider the following call:

```
HicCup("HC!!HHC!HC!!!C!!!")
```

The procedure should return 2, since the largest X where 딸꾹!!딸딸꾹!딸꾹!!!꾹!!! is an X-딸꾹 string is 2.

Sample grader

You can download the sample grader package on the same page you downloaded the problem statement. (scroll down if you don't see the attachment)

If you use IDEs like Visual Studio, Eclipse or Code::Blocks, then import `hiccup.cpp`, `hiccup.h` and `grader.cpp` into one project and you will be able to compile all these files at once.

If you want to compile by yourself, refer to the compilation commands in the statement page.

You should submit only `hiccup.cpp`.

Input format

line 1: S.

Output format

line 1: the return value of `HicCup`