find password

- Time limit: 1 second
- Memory limit: 128 MB

Felix the repairman, whom you met in the previous project, has faced a new problem and again needs your help as much as possible. This time Felix has encountered a safe that he wants to open as quickly as possible. This safe is made up of a number of stages in which Felix must find the answer to the problem. Now, in each step, we explain the problem that Felix has to solve.

A division of a string like$x$We define a set of one or more non-overlapping substrings (which we call$a_1$until the$a_k$we call it) so that:

$$x = a_1 + a_2 + \ldots + a_k$$

Now, any division of the string can be done by writing any of$a_i$showed in parentheses and putting them together. For example, you can string$H\ I\ O\ H\ I$to face $(\ HI\ )\ (\ O\ )\ (\ HI\ )\ \_\ \_$ or for example$(\ H\ I\ O\ H\ )\ (\ I\ )Or(\ H\ I\ O\ H\ I\ )$or showed in various other ways.

A partition is called symmetric if$a_i$have a symmetrical shape next to each other. For example, for the field$H\ I\ O\ H\ I$A symmetric partition in the form$(\ HI\ )\ (\ O\ )\ (\ HI\ )\ _\ _$ Is. More formally, a partition is symmetric if for every$1 \leq i \leq k$to have$a_i = a_{k-i+1}$.

The length of this division is equal to the numbera_iIt means$k$Is. For example, in the previous case, this length is equal to three. It is also obvious that every string has at least one symmetric division of length one.

At each stage Felix is given a string and he has to say the length of the longest symmetric division of that string.

Input

In the first line, the number of strings (n) comes and in$n$The next line is a string in each line. Only English lowercase letters are used in these fields. If the length of the string$i$Am $l\ e\ n\ g\ t\ h_i$Consider, we have:

$$1 \leq n \leq 1\ 0$$

$$1 \leq l\ e\ n\ g\ t\ h_i \leq 1\ 0^6$$

Output

The output should$n$Be on the line and in the line$i$m The length of the longest symmetric partition for the string$i$It should be printed.

Example

Sample input

```
6
yoyo
anna
defused
tomato
teammate
einstain
```

Sample output

2
4
5
3
6
1

For example for$anna$ 4 بلندترین تقسیم‌بندی متقارن به شکل $(a)(n)(n)(a)$ است که طول آن برابر است یا برای $tomato$ بلندترین تقسیم‌بندی متقارن به شکل $(to)(ma)(to)$ است که طول آن برابر 3 است.