

4423 String LD

`Stringld` (left delete) is a function that gets a string and deletes its leftmost character (for instance `Stringld` (“acm”) returns “cm”).

You are given a list of distinct words, and at each step, we apply *stringld* on every word in the list. Write a program that determines the number of steps that can be applied until at least one of the conditions become true:

1. A word becomes empty string, or
2. a duplicate word is generated.

For example, having the list of words `aab`, `abac`, and `caac`, applying the function on the input for the first time results in `ab`, `bac`, and `aac`. For the second time, we get `b`, `ac`, and `ac`. Since in the second step, we have two `ac` strings, the condition 2 is true, and the output of your program should be 1. Note that we do not count the last step that has resulted in duplicate string. More examples are found in the sample input and output section.

Input

There are multiple test cases in the input. The first line of each test case is n ($1 \leq n \leq 100$), the number of words.

Each of the next n lines contains a string of at most 100 lower case characters.

The input terminates with a line containing ‘0’.

Output

For each test case, write a single line containing the maximum number of `stringld` we can call.

Sample Input

```
4
aaba
aaca
baabcd
dcba
3
aaa
bbbb
cccc
0
```

Sample Output

```
1
2
```