

REPEATS

A string s is called an (k, l) -repeat if s is obtained by concatenating $k \geq 1$ times some seed string t with length $l \geq 1$. For example, the string

$s = \text{abaabaabaaba}$

is a $(4, 3)$ -repeat with

$t = \text{aba}$

as its seed string. That is, the seed string t is 3 characters long, and the whole string s is obtained by repeating t 4 times.

Write a program for the following task: Your program is given a long string u consisting of characters 'a' and/or 'b' as input. Your program must find some (k, l) -repeat that occurs as substring within u with k as large as possible. For example, the input string

$u = \text{babbabaabaabaabab}$

contains the underlined $(4, 3)$ -repeat s starting at position 5. Since u contains no other contiguous substring with more than 4 repeats, your program must output this underlined substring.

Input

In the first line of the input file `repeats.in` one integer - length of the input string n ($1 \leq n \leq 50000$) is given.

The next n file lines contain the input string, one character (either 'a' or 'b') per line, in order.

Output

The output file `repeats.out` must consist of three integers, each on its own line. They report the (k, l) -repeat your program found as follows:

1. The first line consists of the repeat count k that is maximized.
2. The second line consists of the length l of the seed string that is repeated k times.
3. The third and final line consists of the position p ($1 \leq p \leq n$) at which the (k, l) -repeat starts.

If for given test data there are different solutions with the same k , your program must report any one of them.

Example (corresponds to string u given in task description)

<code>repeats.in</code>	<code>repeats.out</code>
17	4
b	3
a	5
b	
b	
a	
b	
a	
a	
b	
a	
a	
b	
a	
a	
b	
a	
b	
	since a $(4, 3)$ -repeat is found starting at the 5 th character of the input string (which is line 6 of the input file).