Problem G. Shrek's Song of the Swamp

Time limit: 4 seconds
Memory limit: 512 megabytes

In the faraway land of Duloc, Shrek has discovered a magical melody hidden within the ancient Swamp Songs. The melody, however, is written as a sequence of numbers that represent the croaks of frogs and the rustling of leaves. To unlock its secrets, Shrek needs to decode the longest repeating pattern in this mystical sequence, following a specific set of rules.

Shrek's melody sequence, s, is composed of various sounds, each represented by an integer. The song contains n sounds in total.

Shrek needs to find the longest possible subsequence that follows the strict Dulocian Harmony. To make the Dulocian Harmony, the following condition should hold: each sound must have a neighbour in the chosen subsequence that is the same sound as itself.

More precisely, Shrek must determine the length of the longest subsequence (not necessarily consecutive positions) $x_1x_2 \dots x_k$ of s such that for all $1 \le i \le k$ either $x_i = x_{i-1}$ or $x_i = x_{i+1}$, or both.

For example, Shrek can choose subsequences $[1, 1, 1, 2, 2]$, $[4, 4, 4, 4, 4]$ and can't choose $[1, 2, 2, 1, 1]$ since the first sound doesn't have the same adjacent sounds.

Help Shrek unlock this enchanted melody!

Input

The first line contains a single integer n — the number of sounds in Shrek's song.

The second line contains integer values $s_1, s_2, \dots, s_n$ representing the sounds from Shrek's song.

Constraints

$1 \le n \le 10^6$,
$-10^9 \le s_i \le 10^9$.

Output

In the first line, print a single integer — the length of the longest subsequence in s with the properties mentioned in the statement. If there are no such subsequences, print 0.

Examples

standard input	standard output
9 1 2 3 1 3 1 2 3 2	5
6 3 4 10 1 -3 5	0
4 1 2 1 1	3

Note

In the first sample, the longest subsequence with the properties described in the statement is $s_1s_4s_6s_7s_9$ = [1, 1, 1, 2, 2].

In the second sample, there is no subsequence with those properties.