

Longest Palindrome (pali2)

Professor BP loves palindromes. He wrote a sequence V of N positive integers on the blackboard and was delighted to see that it contained long palindromic substrings.

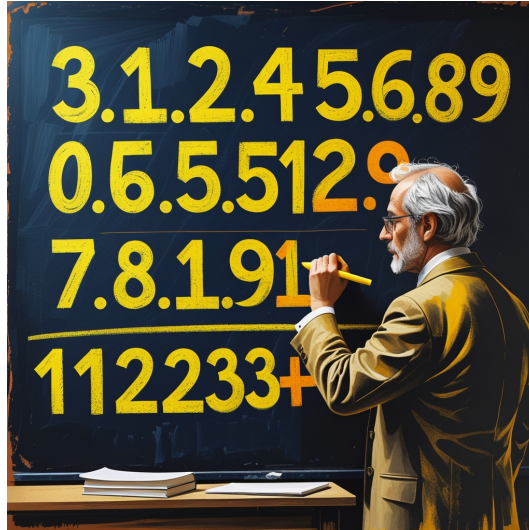


Figure 1: Professor BP writing his beautiful sequence.

However, during the break, one of his students erased some of the numbers from the sequence. Now, Professor BP wants to restore the sequence by replacing all the erased numbers with the same number x of his choice.

Your task is to determine the length of the **longest palindromic contiguous substring** that can be obtained after choosing an optimal value for x .

📎 Among the attachments of this task you may find a template file `pali2.*` with a sample incomplete implementation.

Input

The input file consists of two lines:

- a line containing integer N .
- a line containing the N integers V_0, \dots, V_{N-1} . If the number at position i is erased, $V_i = -1$, otherwise V_i is a number between 1 and N .

Output





Print a single integer: the length of the longest contiguous palindromic substring that can be obtained after replacing all erased numbers with the same number x of Professor BP's choice.

Constraints

- $1 \leq N \leq 200\,000$.
- $-1 \leq V_i \leq N$ and $V_i \neq 0$ for each $i = 0 \dots N - 1$.

Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.

- **Subtask 1** (0 points) Examples.

- **Subtask 2** (11 points) $N \leq 50$.

- **Subtask 3** (25 points) $N \leq 1000$.

- **Subtask 4** (64 points) No additional limitations.


Examples

input	output
10 6 5 5 -1 2 -1 4 5 -1 -1	5

Explanation

If Professor BP replaces all the erased numbers with the number 4, he obtains the sequence

6 5 5 4 2 4 4 5 4 4

The last 5 numbers form a palindromic sequence (4 4 5 4 4) and it is the longest he can achieve.