A. A Twisty Movement

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

A dragon symbolizes wisdom, power and wealth. On Lunar New Year's Day, people model a dragon with bamboo strips and clothes, raise them with rods, and hold the rods high and low to resemble a flying dragon.

A performer holding the rod low is represented by a 1, while one holding it high is represented by a 2. Thus, the line of performers can be represented by a sequence $a_1, a_2, ..., a_n$.

Little Tommy is among them. He would like to choose an interval $[l, r]$ $(1 \le l \le r \le n)$, then reverse $a_l, a_{l+1}, ..., a_r$ so that the length of the longest non-decreasing subsequence of the new sequence is maximum.

A non-decreasing subsequence is a sequence of indices $p_1, p_2, ..., p_k$, such that $p_1 < p_2 < ... < p_k$ and $a_{p_1} \le a_{p_2} \le ... \le a_{p_k}$. The length of the subsequence is k.

Input

The first line contains an integer n $(1 \le n \le 2000)$, denoting the length of the original sequence.

The second line contains n space-separated integers, describing the original sequence $a_1, a_2, ..., a_n$ $(1 \le a_i \le 2, i = 1, 2, ..., n)$.

Output

Print a single integer, which means the maximum possible length of the longest non-decreasing subsequence of the new sequence.

Examples

input
4 1 2 1 2

output
4

input
10 1 1 2 2 2 1 1 2 2 1

output
9

Note

In the first example, after reversing $[2, 3]$, the array will become $[1, 1, 2, 2]$, where the length of the longest non-decreasing subsequence is 4.

In the second example, after reversing $[3, 7]$, the array will become $[1, 1, 1, 1, 2, 2, 2, 2, 2, 1]$, where the length of the longest non-decreasing subsequence is 9.