

Elijah's Sequential CTF

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 256 megabytes

Elijah is a huge fan of CTFs. This time, he has decided to play a CTF where challenges are given to him sequentially, and he has to solve a subsequence¹ of them in the given order. There are only 3 categories of challenges in this CTF: Reverse engineering (*category* = 0), Binary Exploitation (*category* = 1) and Cryptography (*category* = 2). We will henceforth be referring to categories by their number. He is given the sequence of challenge categories before the CTF starts.

Elijah's satisfaction, s , is defined as follows:

- s starts at 0
- If he solves a cat 0 problem followed by a cat 1 problem, s increases by 2
- If he solves a cat 1 problem followed by a cat 2 problem, s increases by 5
- If he solves a cat 0 problem followed by a cat 2 problem, s increases by 3
- If he solves a cat 1 problem followed by a cat 0 problem, s increases by 4
- If he solves a cat 2 problem followed by a cat 0 problem, s increases by 1
- If he solves a cat 2 problem followed by a cat 1 problem, s increases by 6

Knowing the sequence of challenge categories, Elijah chooses some challenges to solve (and some not to solve) to maximise s . Help him by making a program to determine his maximum possible s .

Input

The first line of input contains one integer n ($2 \leq n \leq 10^6$) – the number of CTF problems. (Yes, Elijah can solve that many problems!)

The second line of input contains a sequence of n space-separated integers a_1, a_2, \dots, a_n ($0 \leq a_i \leq 2$) – the categories of CTF problems in sequential order.

Output

Output the largest integer s that Elijah can obtain.

Examples

standard input	standard output
4 0 2 0 1	9
3 1 0 0	4

Note

For the first test case, Elijah chooses to do the first 2 challenges and the last challenge. In other words he does a category 0 problem, then a category 2 problem, then a category 1 problem. This gives him $3 + 6 = 9$ satisfaction. It can be proven that this is the largest satisfaction he can get.

For the second test case, Elijah chooses to solve all challenges. Since he does a category 1 challenge followed by a category 0 challenge, he gets 4 satisfaction. It can be proven that this is the largest satisfaction he can get.

¹A subsequence is a sequence that can be derived from the given sequence by deleting zero or more elements without changing the order of the remaining elements.

To submit your code, do `python3 submitter.py <yourcodefile> <ip address> <port>`