Prime Number Lover

Mr. PNL (Prime Number Lover) loves prime numbers so much, and he does not love composite numbers. He defines that, "A sequence of integers is called a beautiful sequence if and only if the number of prime numbers in it is greater than or equal to the number of composite numbers in it." For example, (1,3,2,6) is a beautiful sequence, and (4,2,6,9) is not a beautiful sequence.

You are given a sequence **A** of length n. Help Mr. PNL to count the number of pairs (l, r), $(1 \leq l \leq r \leq n)$ such that the contiguous subsequence $(A_l, A_{l+1}, \ldots, A_r)$ of **A** is a beautiful sequence.

Input

The first line is an integer n. $(1 \leq n \leq 10^5)$

The next line contains n integers representing the number A_i of sequence **A**, where $1 \leq A_i \leq 10^6$

Output

The number of beautiful subsequence.

Examples

Standard Input	Standard Output
3 1 2 4	3
4 1 2 3 5	9