



Problem E: Prime Number Lover

Time limit: 2s; Memory limit: 250 MB

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 \mathbf{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 $(\mathbf{A}_l, \mathbf{A}_{l+1}, \dots, \mathbf{A}_r)$ of \mathbf{A} is a beautiful sequence.

Input

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

The second line contains n integers representing the number \mathbf{A}_i of sequence \mathbf{A} , where $1 \leq \mathbf{A}_i \leq 10^6$

Output

The number of beautiful subsequence.

Examples

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