A. Co-prime Array

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

You are given an array of n elements, you must make it a co-prime array in as few moves as possible.

In each move you can insert any positive integral number you want not greater than 10^9 in any place in the array.

An array is co-prime if any two adjacent numbers of it are co-prime.

In the number theory, two integers a and b are said to be co-prime if the only positive integer that divides both of them is 1.

Input

The first line contains integer n $(1 \leq n \leq 1000)$ — the number of elements in the given array.

The second line contains n integers a_i $(1 \leq a_i \leq 10^9)$ — the elements of the array a.

Output

Print integer k on the first line — the least number of elements needed to add to the array a to make it co-prime.

The second line should contain $n + k$ integers a_j — the elements of the array a after adding k elements to it. Note that the new array should be co-prime, so any two adjacent values should be co-prime. Also the new array should be got from the original array a by adding k elements to it.

If there are multiple answers you can print any one of them.

Example

input Copy

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3
2 7 28
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output Copy

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1
2 7 9 28
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