Amul Gives Too Much Work

time limit per test case: 1 second
memory limit per test case: 1 gigabyte

Preparation for IIITH Programming Club's main event, i.e Codecraft is in full swing. Amul is coordinating the preparations and he gave Rutvij the following task.

Given an array A of length n having elements $a_1, a_2, \ldots, a_n$. You can perform the following operation any number of times:
For some position x such that $1 \leq x < n$, if $gcd(a_x, a_{x+1}) > 1$, delete a_x and a_{x+1}, and add $lcm(a_x, a_{x+1})$ at position x. Here, *gcd* is the *Greatest Common Divisor* and *lcm* is the *Least Common Multiple*.
For example, consider an array $[2, 4, 6, 9, 10]$ and we choose position $x = 3$. Then, $a_x = a_3 = 6, a_{x+1} = a_4 = 9$, and $gcd(a_3, a_4) = 3 > 1$. Hence, we replace a_3, a_4 with $lcm(a_3, a_4) = 18$, and the array formed after this operation is $[2, 4, 18, 10]$.
Find the array obtained after performing this operation **as many times as possible**.

Rutvij, being the procrastinator that he is, obviously did not finish the task. He wants to go play badminton. So, to get Amul to stop irritating him, Rutvij has passed this task down to you.

Constraints

Subtask 1 (30 marks)

$1 \leq n \leq 10^3$
$1 \leq a_i \leq 20$

Subtask 2 (70 marks)

$1 \leq n \leq 10^5$
$1 \leq a_i \leq 40$

Input

The first line contains the integer n, which denotes the size of input array.
The next line contains n integers of the array A.

Output

The first line of output should contain an integer k, the size of the array after the operation was performed as many times as possible.
The next line should contain k integers, the array after the operation was performed as many times as possible.
To avoid overflow, the output array should be a *long long* array.

Sample test cases

Test case 1

Input

6
2 4 6 9 10 11

Output

2
180 11

Explanation

We perform the operation at:

- $x = 3$, and now the array is $[2, 4, 18, 10, 11]$
- $x = 3$, and now the array is $[2, 4, 90, 11]$
- $x = 1$, and now the array is $[4, 90, 11]$
- $x = 1$, and now the array is $[180, 11]$

After this, we can see that we cannot perform the operation any more.

Test case 2

Input

10
3 6 9 4 5 15 7 2 6 5

Output

4
180 7 6 5