CODEFORCES β
Sponsored by Telegram

Enter | Register

HOME CONTESTS GYM PROBLEMSET GROUPS RATING API VK CUP CALENDAR 8 YEARS!

PROBLEMS SUBMIT STATUS STANDINGS CUSTOM TEST

C. Prime Swaps

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

You have an array $a[1], a[2], ..., a[n]$, containing distinct integers from 1 to n. Your task is to sort this array in increasing order with the following operation (you may need to apply it multiple times):

- choose two indexes, i and j ($1 \le i < j \le n$; $(j - i + 1)$ is a prime number);
- swap the elements on positions i and j; in other words, you are allowed to apply the following sequence of assignments: $tmp = a[i], a[i] = a[j], a[j] = tmp$ (tmp is a temporary variable).

You do not need to minimize the number of used operations. However, you need to make sure that there are at most $5n$ operations.

Input

The first line contains integer n ($1 \le n \le 10^5$). The next line contains n distinct integers $a[1], a[2], ..., a[n]$ ($1 \le a[i] \le n$).

Output

In the first line, print integer k ($0 \le k \le 5n$) — the number of used operations. Next, print the operations. Each operation must be printed as "$i\ j$" ($1 \le i < j \le n$; $(j - i + 1)$ is a prime).

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

Examples

input	Copy
3 3 2 1	

output
1 1 3

input	Copy
2 1 2	

output
0

input	Copy
4 4 2 3 1	

output
3 2 4 1 2 2 4

Codeforces Round #246 (Div. 2)

Finished

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Problem tags

greedy sortings

No tag edit access

→ Contest materials

- Announcement
- Tutorial

Codeforces (c) Copyright 2010-2018 Mike Mirzayanov
The only programming contests Web 2.0 platform
Server time: Mar/09/2018 13:21:00UTC+6 (d1).
Desktop version, switch to mobile version.
Privacy Policy