

B. Jeff and Periods

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

One day Jeff got hold of an integer sequence a_1, a_2, \dots, a_n of length n . The boy immediately decided to analyze the sequence. For that, he needs to find all values of X , for which these conditions hold:

- X occurs in sequence a .
- Consider all positions of numbers X in the sequence a (such i , that $a_i = X$). These numbers, sorted in the increasing order, must form an arithmetic progression.

Help Jeff, find all X that meet the problem conditions.

Input

The first line contains integer n ($1 \leq n \leq 10^5$). The next line contains integers a_1, a_2, \dots, a_n ($1 \leq a_i \leq 10^5$). The numbers are separated by spaces.

Output

In the first line print integer t — the number of valid X . On each of the next t lines print two integers X and p_x , where X is current suitable value, p_x is the common difference between numbers in the progression (if X occurs exactly once in the sequence, p_x must equal 0). Print the pairs in the order of increasing X .

Examples

input
1 2
output
1 2 0

input
8 1 2 1 3 1 2 1 5
output
4 1 2 2 4 3 0 5 0

Note

In the first test 2 occurs exactly once in the sequence, ergo $p_2 = 0$.

→ Attention

Package for this problem was not updated by the problem writer or Codeforces administration after we've upgraded the judging servers. To adjust the time limit constraint, solution execution time will be multiplied by 2. For example, if your solution works for 400 ms on judging servers, then value 800 ms will be displayed and used to determine the verdict.

Codeforces Round #204 (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.


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→ Contest materials

- Announcement 
- Tutorial 