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 $a_1, a_2, ..., a_n$ 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 ($1 \le n \le 10^5$). The next line contains integers $a_1, a_2, ..., a_n$ ($1 \le a_i \le 10^5$). 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 $p_2 = 0$.