

Master of Cards

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 1024 megabytes

Little Cyan Fish is a master of cards. Today, he received $3n$ cards. There are a total of n types of cards, and each type has exactly 3 identical cards. Each card of type i has a triple of integers written on it: (a_i, b_i, c_i) .

He can perform the following operation any number of times:

- First, choose 2 cards. These cards must satisfy the following condition:
 - Suppose the two cards are of type i and type j . Then at least one of the following must be true: $a_i = a_j$, $b_i = b_j$, or $c_i = c_j$.
- Then, discard both selected cards. (Discarded cards cannot be used again.)

The goal of Little Cyan Fish is to perform as many operations as he can. Find a possible plan for him!

Input

The first line of the input contains a single integer n ($1 \leq n \leq 2 \times 10^5$).

The next n lines of the input describe all the cards. The i -th line of these lines contains three integers a_i , b_i , and c_i ($1 \leq a_i, b_i, c_i \leq n$).

Output

The first line of the output should contain a single integer k , indicating the maximum number of operations Little Cyan Fish can perform.

The next k lines describe all the operations. The i -th line of these lines contains two integers u_i and v_i , indicating an operation.

Examples

standard input	standard output
2 1 2 2 2 1 2	3 2 2 2 1 1 1
3 1 2 3 2 2 1 3 3 1	4 1 1 2 2 3 3 2 3

Note

In the first sample test case, you can perform 3 operations in total, which is the maximum. The operations are as follows:

- Discard two cards of type 2.
- Discard one card of type 2 and one card of type 1.
- Discard two cards of type 1.