Objective

You have reached the last question, you have good chances to qualify for the final!

Unfortunately, we realized that there was a slight moral problem with the way we proceeded: if one candidate was faster than another on two of the three qualification problems, he or she could still end up just behind the other. It's outrageous!

So we offer to help us solve this problem: we will give you the resolution times in seconds of each candidate on each problem (9999 if the candidate has not addressed the said problem), and we ask you to find a ranking that verifies the following property: **if a candidate is ranked just one place ahead of another candidate, he must have been at least as quick on at least two of the three problems.**

A solution with pseudo-linear complexity on the number of candidates is expected.

Data format

Input

Row 1: an integer **N** between *1* and *50000* describing the number of candidates.
Rows 2 to **N +** 1: 3 integers between *0* and *9999* describing respectively the resolution times on the first, second and third problemof the i-th candidate, for i ranging from 1 to **N.**

Output

N integers separated by spaces describing in order the final ranking (from the first to the last)

Note that there is always a solution, and you can return the solution of your choice if several solutions are possible.

Example

Input

3
20 2 53
10 39 1
9 3 9999

Outuput

2 1 3

Here, the number 2 candidate can be ranked right ahead of the number 1 candidate because he is better on the first and last problem. The number 1 candidate can be right ahead of number 3 because he is better on the last two problems.