

C. Five Dimensional Points

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

You are given set of n points in 5-dimensional space. The points are labeled from 1 to n . No two points coincide.

We will call point a *bad* if there are different points b and c , not equal to a , from the given set such that angle between vectors \vec{ab} and \vec{ac} is acute (i.e. strictly less than $\frac{\pi}{2}$). Otherwise, the point is called *good*.

The angle between vectors \vec{u} and \vec{v} in 5-dimensional space is defined as $\angle(\vec{u}, \vec{v}) = \arccos \frac{|\vec{u} \cdot \vec{v}|}{|\vec{u}| |\vec{v}|}$, where $\vec{u} \cdot \vec{v}$ is the scalar product and $|\vec{u}|$ is length of \vec{u} .

Given the list of points, print the indices of the good points in ascending order.

Input

The first line of input contains a single integer n ($1 \leq n \leq 10^3$) — the number of points.

The next n lines of input contain five integers a_i, b_i, c_i, d_i, e_i ($|a_i|, |b_i|, |c_i|, |d_i|, |e_i| \leq 10^3$) — the coordinates of the i -th point. All points are distinct.

Output

First, print a single integer k — the number of good points.

Then, print k integers, each on their own line — the indices of the good points in ascending order.

Examples

input
6 0 0 0 0 0 1 0 0 0 0 0 1 0 0 0 0 0 1 0 0 0 0 0 1 0 0 0 0 0 1
output
1 1

input
3 0 0 1 2 0 0 0 9 2 0 0 0 5 9 0
output
0

Note

In the first sample, the first point forms exactly a $\frac{\pi}{2}$ angle with all other pairs of points, so it is good.

In the second sample, along the cd plane, we can see the points look as follows:

We can see that all angles here are acute, so no points are good.