C. Nearest vectors

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

You are given the set of vectors on the plane, each of them starting at the origin. Your task is to find a pair of vectors with the minimal non-oriented angle between them.

Non-oriented angle is non-negative value, minimal between clockwise and counterclockwise direction angles. Non-oriented angle is always between 0 and π. For example, opposite directions vectors have angle equals to π.

Input

First line of the input contains a single integer n ($2 \le n \le 100\,000$) — the number of vectors.

The i-th of the following n lines contains two integers x_i and y_i ($|x|, |y| \le 10\,000, x^2 + y^2 > 0$) — the coordinates of the i-th vector. Vectors are numbered from 1 to n in order of appearing in the input. It is guaranteed that no two vectors in the input share the same direction (but they still can have opposite directions).

Output

Print two integer numbers a and b ($a \neq b$) — a pair of indices of vectors with the minimal non-oriented angle. You can print the numbers in any order. If there are many possible answers, print any.

Examples

input
4 -1 0 0 -1 1 0 1 1
output
3 4

input
6 -1 0 0 -1 1 0 1 1 -4 -5 -4 -6
output
6 5