
Cut the Plane

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 1024 megabytes

There are n distinct points on the plane, any three of which are not colinear.

You are asked to use $\lceil \frac{n}{2} \rceil$ distinct lines passing through no given points to cut the plane into pieces such that no two given points lie in the same piece.

Input

There are multiple test cases. The first line of the input contains an integer T , indicating the number of test cases. For each test case:

The first line contains an integer n ($1 \leq n \leq 100$) — the number of points.

Each of the following n lines contains two integers x and y ($-1000 \leq x, y \leq 1000$) describing a point on the plane.

It is guaranteed that there always exists a solution for each test case and the sum of n in all test cases will not exceed 10^5 .

Output

For each test case, output $\lceil \frac{n}{2} \rceil$ lines describing a solution.

Each line contains four integers x_1, y_1, x_2 and y_2 representing a line passing through (x_1, y_1) and (x_2, y_2) , where $(x_1, y_1) \neq (x_2, y_2)$ and the absolute value of each coordinate should not exceed 10^9 .

Example

standard input	standard output
2	1 0 1 1
3	3 0 3 1
0 0	0 0 2 2
2 1	2 0 0 2
4 0	
4	
0 1	
1 0	
2 1	
1 2	