Problem Triangulation

Input file	`stdin`
Output file	`stdout`

Petrica has now moved on to geometry. A polygon is called simple if it does not self-intersect, or more rigorously, any two edges share at most their vertices. Any simple polygon with N vertices can be triangulated, or divided into triangles, by drawing $N - 3$ segments between its vertices, provided that these segments, along with the polygon's edges, do not intersect each other, except at common vertices.

Task

For a given simple polygon, you must triangulate it.

Input Data

The first line of the standard input contains a natural number T representing the number of test cases. Each test case will have on its first line a natural number N representing the number of vertices of the polygon. On the next N lines are two integers, x and y, representing the coordinates of the points.

Output Data

For each of the T test cases, print the triangulation to the standard output. A test case's output consists of $N - 3$ lines, each line containing two numbers, a and b, representing the indices of the two vertices forming the segment. The list of segments for each test case must be sorted primarily by the first index a in ascending order, and secondarily by the second index b in ascending order.

Restrictions and Clarifications

- $T = 5$.
- $4 \leq N \leq 50$ for each test case.
- Coordinates are integers in the interval $[-10^3, 10^3]$.
- Vertices are indexed starting from 0.
- IMPORTANT: If multiple triangulations are possible, output the one that yields the lexicographically smallest list of segments. For instance, if one valid triangulation results in the list (0, 2), (0, 3), (2, 4) and another valid triangulation results in (0, 2), (0, 4), (1, 3), the first one should be output as it is lexicographically smaller.

Examples

Input file	Output file	Explanations

3
4
0 0
5 0
5 5
0 5
4
0 0
5 0
5 5
3 2
5
0 5
3 2
5 5
5 0
0 0
	0 2
	1 3
	1 3
	1 4
		Explanation:
		For the first test case, we have a square. Any diagonal is valid for triangulation. We choose the segment (0, 2) because it results in the lexicographically smallest output list of segments (in this simple case, just one segment).
		For the second test case, the polygon is not a square. The only valid triangulation segment is (1, 3).
		For the third test case, the triangulation is unique, and the segments are (1, 3) and (1, 4).