Problem C
Origami

Time Limit: 1 sec, Memory Limit: 256 MB

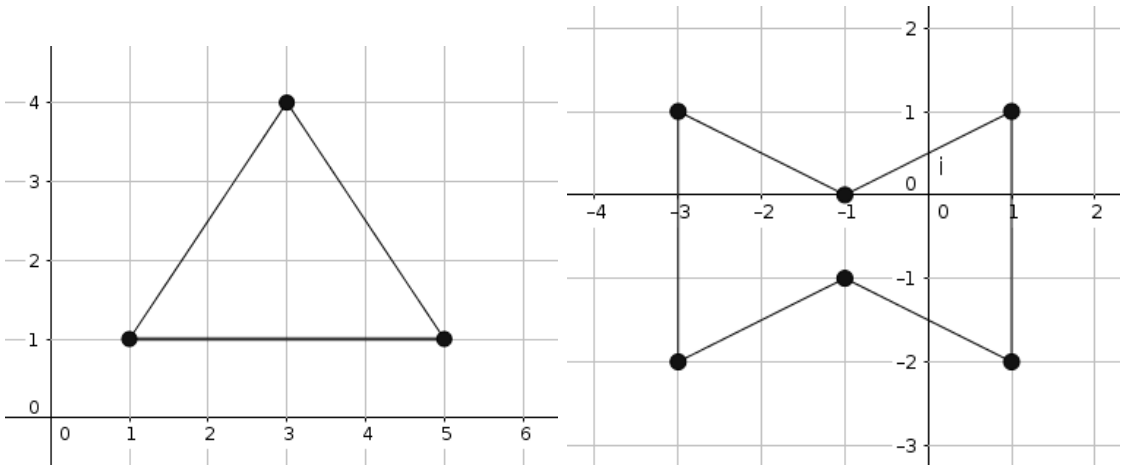
Ailin is learning about the ancestral Origami art. She is folding some paper sheets and soon, she realizes that the paper sheets must be folded in equal parts (it is also known as axis of symmetry). She is a very curious girl, and now she wants to know how many axes are there in a paper sheet. She needs your help in order to solve the problem. The paper sheet is represented by a polygon with no self intersections (a simple polygon). The polygon consists of N points $(x_i,\ y_i)$ in the plane. Note that an axis of symmetry is different from another if they have distinct angles. Furthermore, she wants to know which is the paper sheet with more axes of symmetry and how many paper sheets have this maximum.

Input

The input file contains several test cases. Each test case starts with a line containing the number of polygons. For each polygon you will have a line containing N, and next N lines that contain the integer coordinates $(x_i,\ y_i)$ of the i-th polygon.

$1 \leq N \leq 2 * 10^5$
$-10^9 \leq x_i, y_i \leq 10^9$
$1 \leq N \leq 2 * 10^5$
It is guaranteed that the total amount of points doesn't exceed 10^6.

Below you can see the polygons from the sample input:



Output

Print the following information for every testcase: For each polygon print the amount of axes of symmetry. At the end of the case print two numbers: the maximum value among the axes of symmetry and the amount of polygons that have this maximum.

Samples

Sample Input	Sample Output
2 2 3 1 1 5 1 3 4 6 1 1 -1 0 -3 1 -3 -2 -1 -1 1 -2 1 3 1 1 5 1 3 4	1 2 2 1 1 1 1