Problem Specification

Given *n* line segments you have to calculate the intersecting points of them in **O(nlogn)** time.

Input

You have to take input from a file. The first line of input file contains *n*, number of line segments. Each of the following *n* lines contains start and end points of a line (each point corresponds to two integers)

Output

You have to print the intersecting points and the lines which intersect at each of these points. So, in each line print a single intersecting point followed by the lines which intersect at that point. Do this for all the points.

Sample

Input	Output
3 0 0 5 5 2 0 2 5 -1 0 10 0	Point: 0 0, Lines: 1, 3 Point: 2 0, Lines: 2, 3 Point: 2 2, Lines: 1, 2

Explanation

First & third line intersects at (0, 0). Second and third line intersects at (2, 0). First and second line intersects at (2, 2).

Tasks & Marks

1. Implement in **O(nlogn)** time – 7 Marks
2. Test cases (including some tricky ones) – 1
3. Show graphical output – 2

Submission Guideline

Same as previous assignments.

Deadline

11:55pm, January 27, 2019