



Problem F. Friendship Circles

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 512 mebibytes

Let p_0, p_1, \dots, p_{n-1} be n points in the plane. We say that two points are *friends* if one can draw a circle that contains both points in its interior and all the other $n - 2$ points in its exterior. Print the indices of the points that are friends with p_0 .

It is guaranteed that there is no circumference containing p_0 and three or more other points. It is also guaranteed that there is no line containing p_0 and two or more other points.

Input

The first line contains an integer t , the number of test cases ($1 \leq t \leq 10^4$).

Each test case starts with a line containing an integer n ($2 \leq n \leq 10^5$), the number of points. It is followed by n lines, each one containing two integers x_i and y_i ($-10^9 \leq x_i, y_i \leq 10^9$): the coordinates of the i -th point.

The tests are not explicitly targeting precision issues. In particular, it is guaranteed that, if we moved p_0 by a distance of at most 10^{-6} units in any direction, the answer would remain the same.

The total number of points in all test cases does not exceed 10^5 .

Output

For each test case, print a line containing one integer m , the number of friends of p_0 , followed by m integers: the indices of the friends of p_0 in lexicographical order.

Example

standard input	standard output
2	2 1 2
4	3 1 2 3
1 0	
3 1	
3 -2	
7 0	
5	
0 0	
-2 -1	
2 2	
-2 10	
-1 11	