Problem H. Hit

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

Place at most n integer points on the number line in such a way that each of the given n segments $[l_i, r_i]$ contains at least one point, and the largest number of points contained inside one of the given segments is as small as possible.

Input

The first line contains a single integer t ($1 \le t \le 10^5$), denoting the number of test cases.

Each test case is described with an integer n ($1 \le n \le 10^5$), followed by n lines containing two integers l_i and r_i each ($-10^9 \le l_i < r_i \le 10^9$), denoting a segment containing points $l_i, l_i + 1, \ldots, r_i$. Segments may coincide.

The sum of n over all test cases does not exceed 10^5.

Output

For each test case, display the largest number of points inside one of the given segments in your placement, followed by the number of points you place k ($1 \le k \le n$), followed by k distinct integers x_i ($-10^9 \le x_i \le 10^9$), denoting the coordinates of the points you place.

Example

standard input	standard output
4 4 0 1 2 3 4 5 3 5 5 0 70 0 10 20 30 40 50 60 70 8 -1 7 -2 -1 -9 -7 -8 9 -9 -7 -2 4 -7 4 3 9 5 0 1 0 2 2 3 3 5 4 5	1 3 1 2 5 4 4 10 30 50 70 2 3 -9 -1 9 2 3 1 3 5