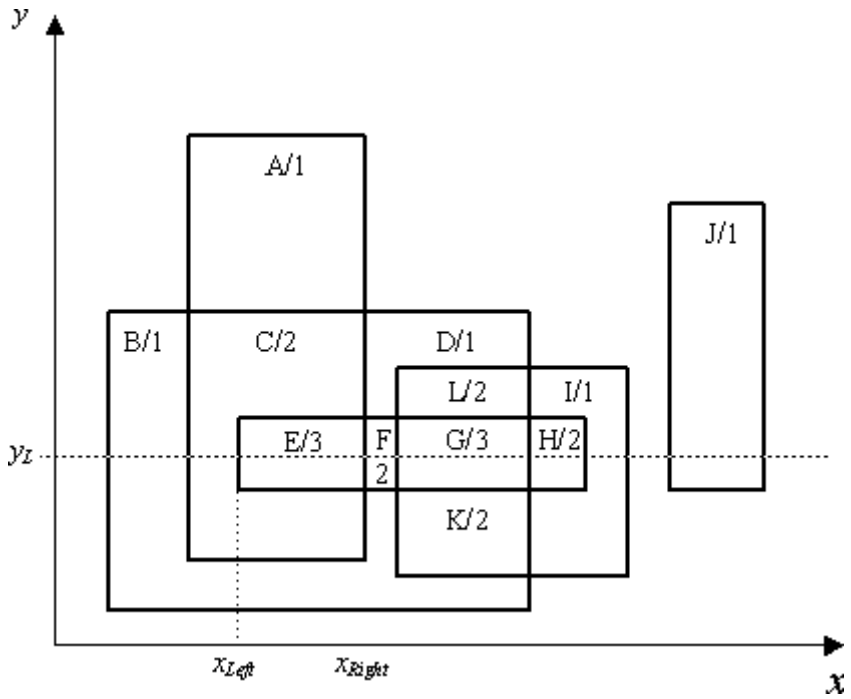
883 Overlapping Rectangles

Consider a set of rectangles in *2D* space as illustrated in the following figure. Overlapping or not, they define a set of regions with different shapes. In the example of the figure, there are twelve regions, identified from A to L). Let OD (Overlapping Depth) be the number of rectangles that overlap in each region (in the figure, the number associated to each region corresponds to its OD). Consider now a horizontal line, $y = y_L$. This line traverses the above structure and finds different values of OD. Note that there can be repeated values of OD, hence, there can be more than one maximum value of OD. In the example of the figure, the maximum value of OD is 3 and it appears twice (regions E and G).



Given a set of rectangles and a horizontal line, the problem consists in the evaluation of the OD_{FM}, that is the first maximum value of OD, found when the horizontal line is followed from left to right (this corresponds to region E, in the example of the figure). The result must also contain the correspondent limits, x_{Left} and x_{Right}. In order to avoid numerical problems, it is ensured that there are no coincidences between edges of different rectangles or between edges and the horizontal line.

Input

The input begins with a single positive integer on a line by itself indicating the number of the cases following, each of them as described below. This line is followed by a blank line, and there is also a blank line between two consecutive inputs.

The input is a text file, containing several lines as follows. The first text line of the input contains the number NR (integer format) of rectangles. It is followed by NR text lines containing, each one, with the coordinates of two opposed vertices of a rectangle, in the sequence x_1, y_1, x_2, y_2, separated by single spaces. No order is supposed, in this case, for point 1 and point 2 and numbers may be written in integer or decimal format.

The next text line is the number NL (integer format) of horizontal lines to process. It is followed by NL text lines, each one containing the value y_L defining the horizontal line (integer or decimal format).

The separator between values in a text line is the space character.

Output

For each test case, the output must follow the description below. The outputs of two consecutive cases will be separated by a blank line.

NL text lines, each one containing the three values that characterise the problem solution for a horizontal line (in this order): OD_{FM} (integer format), x_{Left} and x_{Right} (decimal format with two decimal digits). If the horizontal line does not intersect any rectangle, the output text line contains only the value '0' (integer format).

The separator between values in a text line is the space character. The output text lines must keep the order of the input text lines related to horizontal lines.

Sample Input

```
1

3
-5.00 -2.00 -1.00 2.0
2.5 -1 -4.5 1.0
4 3 0 -4
4
-0.2
-4.50
-3.8
1.50
```

Sample Output

```
2 -4.50 -1.00
0
1 0.00 4.00
1 -5.00 1.00
```