# Problem F. Exactly One Point

| | |
|---|---|
| Input file: | standard input |
| Output file: | standard output |
| Time limit: | 2 seconds |
| Memory limit: | 512 megabytes |

There are $n$ segments on a line. You should place some points onto this line so that:

- every point is contained in at least one segment,
- every segment contains exactly one point.

## Input

The first line contains an integer $n$ ($1 \le n \le 200000$) — the number of segments.

Each of the next $n$ lines contains two integers $L_i$ and $R_i$ ($L_i < R_i$) — the endpoints of the $i$-th segment.

For convenience, all endpoints of all segments are even numbers from 0 to $4n - 2$.

## Output

If it's impossible to place points in a required way, output "-1".

Otherwise, in the first line output an integer $m$ — the number of points that should be placed onto the line.

In the next line, output $m$ distinct integers from 0 to $4n - 2$ — the coordinates of the points.

You don't have to minimize the number of points. If there are several possible solutions, output any of them.

## Examples

| standard input | standard output |
|---|---|
| 3<br>0 10<br>2 4<br>6 8 | -1 |
| 2<br>0 6<br>2 4 | 1<br>4 |
| 3<br>0 2<br>2 4<br>4 6 | 3<br>1 3 6 |