A. Points in Segments

time limit per test
1 second
memory limit per test
256 megabytes
input
standard input
output
standard output

You are given a set of n segments on the axis Ox, each segment has integer endpoints between 1 and m inclusive. Segments may intersect, overlap or even coincide with each other. Each segment is characterized by two integers l_i and r_i ($1 \le l_i \le r_i \le m$) — coordinates of the left and of the right endpoints.

Consider all integer points between 1 and m inclusive. Your task is to print all such points that don't belong to any segment. The point x belongs to the segment $[l;r]$ if and only if $l \le x \le r$.

Input

The first line of the input contains two integers n and m ($1 \le n, m \le 100$) — the number of segments and the upper bound for coordinates.

The next n lines contain two integers each l_i and r_i ($1 \le l_i \le r_i \le m$) — the endpoints of the i-th segment. Segments may intersect, overlap or even coincide with each other. Note, it is possible that $l_i = r_i$, i.e. a segment can degenerate to a point.

Output

In the first line print one integer k — the number of points that don't belong to any segment. In the second line print exactly k integers in *any* order — the points that don't belong to any segment. All points you print should be distinct.

If there are no such points at all, print a single integer 0 in the first line and either leave the second line empty or do not print it at all.

Examples

input

Copy

```
3 5
2 2
1 2
5 5
```

output

Copy

```
2
3 4
```

input

Copy

```
1 7
1 7
```

output

```
0
```

Note

In the first example the point 1 belongs to the second segment, the point 2 belongs to the first and the second segments and the point 5 belongs to the third segment. The points 3 and 4 do not belong to any segment.

In the second example all the points from 1 to 7 belong to the first segment.