

Articulation Points and Bridges

<https://www.hackerearth.com/practice/algorithms/graphs/articulation-points-and-bridges/tutorial/>

Given an undirected graph containing **N** vertices and **M** edges, find all the articulation points and all the bridges in the graph.

Input:

First line consists of two space separated integers denoting **N** and **M**. **M** lines follow, each containing two space separated integers **X** and **Y** denoting there is an edge between **X** and **Y**.

Output:

If the number of articulation points in the graph is **p** and that of bridges is **q**, then print as shown below:

p

p space separated integers, the articulation points, sorted in increasing order

q

q lines, each containing two space separated integers, the bridges in the graph. For a bridge **u-v**, print **u** first if **u < v**, otherwise print **v** first. Print all the bridges in increasing order of first vertex, and if first vertex is same, then in increasing order of second vertex.

Constraints:

$1 \leq N, M \leq 10$

$0 \leq X, Y \leq N-1$

SAMPLE INPUT	SAMPLE OUTPUT
3 2 0 1 1 2	1 1 2 0 1 1 2

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