Lazy reachability

Winter Workshops, Day 5. Memory limit: 128 MB. *08.01.2020*

You need to construct a directed graph on n vertices. A list of m conditions is given. The condition number i says that there has to be a path from a_i to b_i. What's the smallest number of edges we need to use?

Input

In all testcases the following constraint holds: $1 \leq n, m \leq 200'000$.

n m a_1 b_1 ... a_m b_m

Output

Output the smallest possible number of edges in a directed graph that satisfies all conditions.

Example

Input	Output
4 5 1 2 1 3 1 4 2 3 2 4	3
4 6 1 2 1 4 2 3 2 4 3 2 3 4	4
6 6 1 2 2 3 1 3 4 5 5 6 6 4	5