Problem E. Graph Completing

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	512 megabytes

Given a simple connected undirected graph with n vertices and m edges, you may add as many edges (possibly zero) as you want and count the number of different ways modulo $998\,244\,353$ to make the graph biconnected while keeping it simple. Two ways of adding edges are considered different, if and only if there exists at least an edge (u, v) added in one way and not added in the other.

Note that:

- A simple graph contains no self-loops and no multiple edges.
- For any two different vertices in a connected graph, there always exists at least a path from one vertex to the other.
- For any two different vertices in a biconnected graph, there always exist two or more paths sharing no common edges from one vertex to the other.

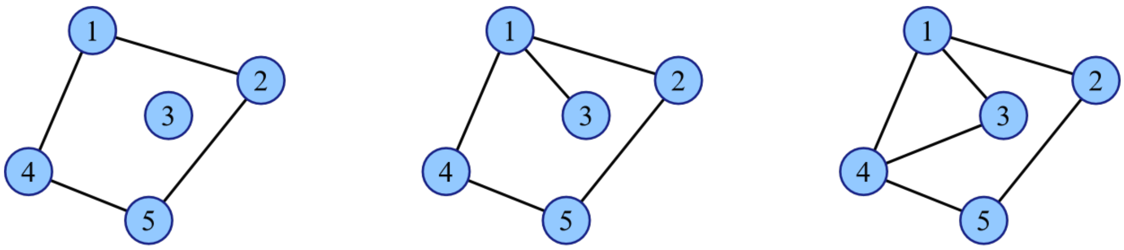

Figure: a simple graph, a connected graph, and a biconnected graph

As shown above, the graph on the left is simple but not connected because the 3rd vertex can't reach any other vertex by a path, while the graph in the middle is connected but not biconnected because it's impossible to find two paths sharing no common edges from the 3rd vertex to any other vertex.

Input

The first line contains two integers n ($2 \le n \le 5\,000$) and m ($n-1 \le m \le \min(\frac{n(n-1)}{2}, 10\,000)$), specifying the number of vertices and edges in the given graph.

Then m lines follow, the i-th of which contains two integers u and v ($1 \le u, v \le n$), indicating that the i-th edge connects the u-th and the v-th vertices.

Output

Output a line containing a single integer, indicating the number of different ways of adding edges modulo $998\,244\,353$.

Examples

standard input	standard output
3 2 1 2 2 3	1
4 4 1 2 2 3 3 4 4 1	4