

A Condorcet Elections

It is a municipality election year. Even though the leader of the country has not changed for two decades, the elections are always transparent and fair.

There are n political candidates, numbered from 1 to n, contesting the right to govern. The elections happen using a variation of the *Ranked Voting System*. In their ballot, each voter will rank all n candidates from most preferable to least preferable. That is, each vote is a permutation of $\{1, 2, \ldots, n\}$, where the first element of the permutation corresponds to the most preferable candidate.

We say that candidate a defeats candidate b if in more than half of the votes candidate a is more preferable than candidate b.

As the election is fair and transparent, the state television has already decreed a list of m facts—the i-th fact being "candidate a_i has defeated candidate b_i"—all before the actual election!

You are in charge of the election commission and tallying up the votes. You need to present a list of votes that produces the outcome advertised on television, or to determine that it is not possible. However, you are strongly encouraged to find a solution, or you might upset higher-ups.

Input

The first line contains integers n and m ($2 \leq n \leq 50$, $1 \leq m \leq \frac{n(n-1)}{2}$) — the number of parties and the number of pairs with known election outcomes.

The i-th of the following m lines contains two integers a_i and b_i ($1 \leq a_i, b_i \leq n$, $a_i \neq b_i$) — candidate a_i defeats candidate b_i.

Each unordered pair $\{a_i, b_i\}$ is given at most once.

Output

Print `YES` if there is a list of votes matching the facts advertised on television. Otherwise, print `NO`.

If there is a valid list of votes, print one such list in the following lines.

Print the number k of votes cast ($1 \leq k \leq 50\,000$). It can be shown that if there is a valid list of votes, there is one with at most 50 000 votes.

Then print k lines. The i-th of these lines consists of a permutation of $\{1, 2, \ldots, n\}$ describing the i-th vote. The first number in the permutation is the most preferable candidate and the last one is the least preferable candidate.

For $1 \leq i \leq m$, a_i shall appear earlier than b_i in more than $k/2$ of the k permutations. For pairs of candidates $\{a, b\}$ not appearing in the election requirements list, the outcome can be arbitrary, including neither of a and b defeating the other.

Samples

Sample input 1	Sample output 1
2 1 1 2	YES 1 1 2

Sample input 2	Sample output 2
3 3 1 2 2 3 3 1	YES 3 1 2 3 2 3 1 3 1 2

Explanation of sample 2.
Observe that candidate 1 defeats candidate 2 because it goes earlier in two out of three voters' permutations, which is more than half of all votes. Similarly, candidate 2 defeats candidate 3, and candidate 3 defeats candidate 1.