Problem A. Lenin's great dream

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Lenin is one of the most important figures in Russian communism, having his own mausoleum in the Red Square, in Moscow. Following the big events happening recently in Moscow, as the 2018 World Cup and the ACM-ICPC World final in 2020, several organizations are invested in finding the historical secrets of the Russian culture.

The Association of Communists in Moscow (ACM) hired the well known historian Gaia "the curious" Fontenelle to investigate some notebooks which are believed to be written by Lenin. In these notes there are plans and ideas about the future of the Soviet Union. Gaia is interested in the following report.

Lenin wishes to unite all the Soviet Republics into one Republic, which he calls R_1. Initially, the soviet union is made of $N-1$ republics: $R_2, R_3, \ldots, R_N$. The republic R_i, for $i = 2, 3, \ldots, N$, is made of i cities and some (two way) streets among them. The cities inside the republic R_i are identified by the integers $1, 2, \ldots, i$. As the Russians are extremely efficient, we can be sure that

(a) The cities inside a republic are minimally connected. In other words, for every pair of cities there is a unique sequence of streets which connects them.

(b) Most of the republics were designed in such a way that there is a street between city 1 and every other city.

(c) The above condition **may not be valid** for only two of the republics, R_a and R_b.

In the notes found there are some remarks about the creation of republic R_1:

- The republic R_1 will have N cities, identified $1, 2, \ldots, N$.
- Between every pair of cities in R_1 there will be a street.
- Each republic R_i, with $i = 2, \ldots, N$, will have each of its cities reallocated into a different city in R_1. Note that, even though two cities of the same republic will not be reallocated into the same city in R_1, two cities from different republics can be reallocated into the same city in R_1.
- Every city in R_1 is big enough to receive any number of cities from the former republics.

Despite the fact that Lenin wished to gather everyone in the republic R_1, he knew that some of the republics had quarrels with each other, and he would like to avoid conflict. Hence, he decided that every street in R_1 would belong to at most one of the old republics, and created the following rule:

- Let x and y be cities that are connected by a street in R_i, for some $i = 2, \ldots, N$. If x and y are reallocated into the cities x' and y' (in R_1), then the street that connects x' to y' belongs to the republic R_i.

Gaia found also a map with the description of the republics $R_2, R_3, \ldots, R_N$. She wonders whether such grandiose creation as the republic R_1 is possible, and asks for your help.

Input

The first line of the input has 3 integers, N, a and b, separated by spaces, which respectively represent the number of cities in the republic R_1 and the size of the two republics mentioned in the condition (c) of the statement above.

The following $a-1$ lines has two integers each, u and v, indicating there exists a street that connects the cities u and v in the republic R_a. In these lines, it always holds that $1 \leq u, v \leq a$.

Likewise, the following $b-1$ lines has two integers each, u an v, indicating there exists a street that connects the cities u and v in the republic R_b. In these lines, it always holds that $1 \leq u, v \leq b$.

Constraints

- $3 \leq N \leq 2500$
- $2 \leq a < b \leq N$
- All the republics involved are minimally connected.

Output

If it is impossible to unite the republics, print `N`. If it is possible, print `Y`, followed by $N-1$ lines describing a way to reallocate each of the $R_2, R_3, \ldots, R_N$ republics. A description of a way to reallocate a republic R_i is a sequence of i integers a_j, with $1 \leq a_j \leq N$, where a_j indicates to which city of R_1 the jth city in R_i was reallocated.

Output

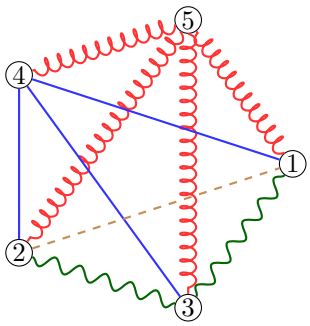
In the first line print '`Y`' if it is possible to pack $\mathcal{T}$ into K_N, otherwise print '`N`'. In case the packing is possible, the following $N-1$ describe a desired packing (if multiple packings are possible, print any of them). The i-th of those lines describe the packing of T_i by a sequence of i integers, say $f_1, \ldots, f_i$. The integer f_i indicates that in the packing, the vertex j of T_i is mapped to the vertex f_j of K_N.

Examples

standard input	standard output
5 4 5 1 2 1 3 1 4 1 2 1 3 1 4 1 5	Y 2 1 3 1 2 4 1 2 3 5 1 2 3 4
4 3 4 1 2 2 3 1 2 2 3 3 4	Y 2 1 2 4 3 4 1 3 2

Note

We have a picture of the solution described in the first test case. The numbers identify the cities in the republic R_1, and the streets of the old republics are shown by the different kinds of lines.


5
4
1
2
3