

## E. Soldier and Traveling

time limit per test: 1 second  
 memory limit per test: 256 megabytes  
 input: standard input  
 output: standard output

In the country there are  $n$  cities and  $m$  bidirectional roads between them. Each city has an army. Army of the  $i$ -th city consists of  $a_i$  soldiers. Now soldiers roam. After roaming each soldier has to either stay in his city or to go to the one of neighboring cities by at **moving along at most one road**.

Check if it is possible that after roaming there will be exactly  $b_i$  soldiers in the  $i$ -th city.

### Input

First line of input consists of two integers  $n$  and  $m$  ( $1 \leq n \leq 100$ ,  $0 \leq m \leq 200$ ).

Next line contains  $n$  integers  $a_1, a_2, \dots, a_n$  ( $0 \leq a_i \leq 100$ ).

Next line contains  $n$  integers  $b_1, b_2, \dots, b_n$  ( $0 \leq b_i \leq 100$ ).

Then  $m$  lines follow, each of them consists of two integers  $p$  and  $q$  ( $1 \leq p, q \leq n$ ,  $p \neq q$ ) denoting that there is an undirected road between cities  $p$  and  $q$ .

It is guaranteed that there is at most one road between each pair of cities.

### Output

If the conditions can not be met output single word "NO".

Otherwise output word "YES" and then  $n$  lines, each of them consisting of  $n$  integers.

Number in the  $i$ -th line in the  $j$ -th column should denote how many soldiers should road from city  $i$  to city  $j$  (if  $i \neq j$ ) or how many soldiers should stay in city  $i$  (if  $i = j$ ).

If there are several possible answers you may output any of them.

### Examples

input	
4 4	
1 2 6 3	
3 5 3 1	
1 2	
2 3	
3 4	
4 2	
output	
YES	
1 0 0 0	
2 0 0 0	
0 5 1 0	
0 0 2 1	

input	
2 0	
1 2	
2 1	
output	

### Codeforces Round #304 (Div. 2)

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### → Submit?

Language: Java 1.8.0\_112

Choose file: Choose File No file chosen

Be careful: there is 50 points penalty for submission which fails the pretests or resubmission (except failure on the first test, denial of judgement or similar verdicts). "Passed pretests" submission verdict doesn't guarantee that the solution is absolutely correct and it will pass system tests.



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### → Problem tags

[flows](#) [math](#)

No tag edit access

### → Contest materials

- Announcement 
- Tutorial 

NO

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