

## C6 – Post’s Correspondence Problem

Let  $A$  and  $B$  be two sequences of non-empty strings:  $A = (a_1, a_2, \dots, a_n)$ ,  $B = (b_1, b_2, \dots, b_n)$ . Let  $m$  be a positive integer. Does there exist a sequence of integers  $i_1, i_2, \dots, i_k$  such that  $m > k > 0$  and  $a_{i_1} a_{i_2} \dots a_{i_k} = b_{i_1} b_{i_2} \dots b_{i_k}$ ? For example, if  $A = (a, abaaa, ab)$  and  $B = (aaa, ab, b)$ , then the required sequence of integers is  $(2, 1, 1, 3)$  giving  $abaaaaaab = abaaaaaab$ .

### Input:

The first two lines of input will contain  $m$  and  $n$  respectively, and  $m \cdot n \leq 40$ . The next  $2n$  lines contain in order the elements of  $A$  followed by the elements of  $B$ . Each string is at most 20 characters.

### Output:

If a solution exists, print  $k$  on a line by itself, followed by the integer sequence in order, one element per line. Otherwise, print a single line containing “No solution.”

### Input and output samples:

Input :	Output :
7	4
3	2
a	1
abaaa	1
ab	3
aaa	
ab	
b	

Input :	Output :
10	No solution.
3	
abc	
def	
ghi	
bcd	
efg	
hia	