CCC '01 S5 - Post's Correspondence Problem

Canadian Computing Competition: 2001 Stage 1, Senior #5

Let A and B be two sequences of non-empty strings: $A = (a_1, a_2, ..., a_n), B = (b_1, b_2, ..., b_n)$. Let m be a positive integer. Does there exist a sequence of integers $i_1, i_2, ..., i_k$ such that $m > k > 0$ and $a_{i_1} a_{i_2} ... a_{i_k} = b_{i_1} b_{i_2} ... b_{i_k}$? 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 Specification

The first two lines of input will contain m and n respectively, and $m \times n \leq 40$. 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 Specification

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.`

Sample Input 1

```
7
3
a
abaaa
ab
aaa
ab
b
```

Sample Output 1

```
4
2
1
1
3
```

Sample Input 2

```
10
3
abc
def
ghi
jkl
mno
pqr
```

Sample Output 2

```
No solution.
```