CCC '01 S5 - Post's Correspondence Problem

Time limit: 1.0s   **Memory limit:** 256M

Canadian Computing Competition: 2001 Stage 1, Senior #5

Let A and B be two sequences of non-empty strings:

$$A = (a_1, a_2, \ldots, a_n)$$
$$B = (b_1, b_2, \ldots, b_n)$$

Let m be a positive integer. Does there exist a sequence of integers $i_1, i_2, \ldots, i_k$ such that $m > k > 0$ and $a_{i_1} a_{i_2} \ldots a_{i_k} = b_{i_1} b_{i_2} \ldots b_{i_k}$?

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 $m \times n \le 40$. 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
bcd
efg
hia
```

Sample Output 2

```
No solution.
```