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“Arrange” is a planetary popular Flash game. In “Arrange” the player is given a permutation of numbers 1 to  $N$  and a list of allowed swaps. He then has to perform a sequence of swaps that transforms the initial permutation back to the ordered sequence 1,2,3,4,5... $N$ .

In order to break the high score list, you need to perform the minimal amount of swaps possible. You can't do that, but you can write a program that does it for you!

### INPUT

The first line of input contains two integers,  $N$  ( $1 \leq N \leq 12$ ), the length of the initial sequence and  $M$  ( $1 \leq M \leq N*(N - 1) / 2$ ) number of allowed swaps.

The second line of input contains a permutation of number 1 to  $N$ .

The next  $M$  lines contain descriptions of allowed swaps. If the line contains numbers  $A$  and  $B$  you are allowed to swap the  $A$ -th number with the  $B$ -th number. The input will never contain two identical swaps.

**Note:** the test data shall be such that the solution, not necessarily unique, will always exist.

### OUTPUT

In the first line of input print the minimal number of swaps,  $X$ .

In the next  $X$  lines print the required swaps, in order. In each line print the index of the swap performed. Swaps are numbered increasingly as they appear in the input, starting from 1.

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**SAMPLE TESTS**

<b>input</b> 2 1 2 1 1 2	<b>input</b> 3 2 2 1 3 1 3 2 3	<b>input</b> 5 5 1 2 3 4 5 1 5 2 5 1 4 1 1 3 5
<b>output</b> 1 1	<b>output</b> 3 2 1 2	<b>output</b> 0