Annoying Donchik

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Batyr was given two 2-dimensional arrays A and B of the same size $N \times M$ filled with lowercase letters as a gift for the New Year's Eve. Batyr was disappointed that the arrays were different and decided to fix that. For that, he picks any row or column of the matrix A and reverses it. But Donchik screws everything up: any time Batyr reverses i-th row, Donchik reverses the $N - i + 1$-th row, and whenever Batyr reverses j-th column, Donchik reverses the $M - j + 1$-th column. Donchik does operations on matrix A. Batyr is fed up with Donchik's annoying tricks and he asks for your help. Find the set of operations that Batyr should perform, so that both arrays become identical, or tell that it is impossible.

Input

The first line of the input contains three non-negative integers N, M and *type* ($N \le M$, $1 \le N \times M \le 10^6$, $0 \le type \le 1$) — the sides of the 2-dimensional arrays and the type of the current testcase. The next N lines contain M lowercase letters without whitespaces describing the 2-dimensional array A. The further next N lines describe the array B.

Output

Output "-1" (without quotation marks) if the answer doesn't exist. Otherwise, the first line of the output should contain the number K: for $type = 0$ K can be an arbitrary integer up to 2×10^6, but for $type = 1$ K should be equal to the **minimal** number of operations. In the next K lines output the description of the operations that Batyr should perform. Each operation is given by a character and an integer — character "R" is used to describe the reverse of a row, and "C" is used for columns, while the number describes the index of the reversed row or column. The rows are numbered from 1 to N top-down and the columns are numbered from 1 to M from left to right.

Scoring

This problem is made up of 7 subtasks, that meet the following constraints:

1. $N = 2$, $M = 2$, $type = 1$. Worth 8 points.
2. $N \times M \le 10$, $type = 1$. Worth 13 points.
3. $N = 2$, $type = 1$. Worth 9 points.
4. $3 \le N$, $N \times M \le 100$, $type = 1$. Worth 7 points.
5. $N \times M \le 1000$, $type = 1$. Worth 13 points.
6. $type = 0$. Worth 23 points.
7. $type = 1$. Worth 27 points.

Example

standard input	standard output
2 2 1 ab ba ba ab	1 C 1