Problem K
Kilt Quilt

An image set to be painted onto a tartan canvas consists of n rows of m pixels with each colour represented as a lowercase letter of the alphabet.

You are going to paint the image using long brush strokes that cover either a whole row of m pixels, or a whole column of n pixels. Each brush stroke overwrites any pixels that were previously there. You must cover the whole canvas with brush strokes.

Is it possible to do so? If so, output a sequence of instructions of the form `x=[1-m] [a-z]` or `y=[1-n] [a-z]`. If there are multiple sequences, output any of the shortest possible lists of instructions.

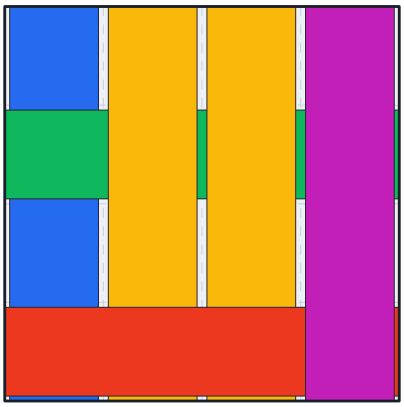


Figure K.1: Illustration of Sample Input 2.

Input

- The first line of input contains n and m ($1 \leq n, m \leq 200$)
- The next n lines of input contain a string of m lowercase characters in `a-z`, each representing a colour.

Output

On the first line, output the minimum number of instructions needed. If no sequence of instructions covers the canvas, output `impossible` and exit.

On each of the next lines, output one instruction to follow in order. For example, "`x=5 z`", and "`y=100 b`" are both valid instructions.

Sample Input 1	Sample Output 1
4 6 aaaaba aaaaba aaaaba aaaaba	5 y=1 a y=2 a y=3 a y=4 a x=5 b

Sample Input 2	Sample Output 2
4 4 laaq daaq laaq bbbq	6 x=1 l y=2 d x=2 a x=3 a y=4 b x=4 q