Progressive Art (progressiveart)

Carlo is a big fan of progressive music and he recently found out that progressive paintings exist too! Clearly, he wants to dive into it, therefore he hired you as his assistant. A progressive painting is made using Vim, and consists of a rectangle of $N \times M$ coloured square cells. Since Carlo wants to be even more progressive, he only uses the colors red, green, and blue.

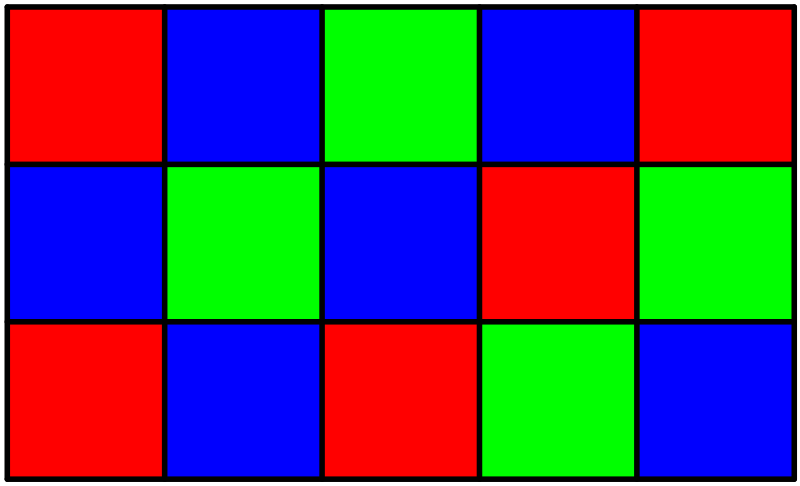


Figure 1: One of Carlo's masterpieces

Carlo has a weird way of judging the beauty of his works. He invented a measure called L-beauty. A square of size L (that is, consisiting of $L \times L$ contiguous cells of the painting) is beautiful if it contains and equal number of red, green, and blue cells. The L-beauty of the painting is the number of beautiful squares of size L in it.

Carlo asked you a question to test your skill. Given N, M, L and K, does a painting with N rows, M columns, and an L-beauty equal to K exist? If so, could you paint one for him?

> ☞ Among the attachments of this task you may find a template file `progressiveart.*` with a sample incomplete implementation.

Input

The input file consists of a single line, containing the integers N, M, L, and K.

Output

If it is possible to produce a suitable painting, you have to output $N + 1$ lines:

- One line containing the string `"YES"`.
- N lines, each containing a string of length M, consisting of `R`, `G`, and `B` only, representing red, green, and blue cells in the painting.

If it is not possible to do so, you have to output a single line containing the string `"NO"`.

Constraints

- $1 \leq N \leq 1000$.
- $1 \leq M \leq 1000$.
- $1 \leq L \leq \min(N, M)$.
- $0 \leq K \leq N \cdot M$.

Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.

– **Subtask 1** (0 points) Examples.

– **Subtask 2** (30 points) $K \leq 1$.

– **Subtask 3** (50 points) $N \leq 3$.

– **Subtask 4** (20 points) No additional limitations.

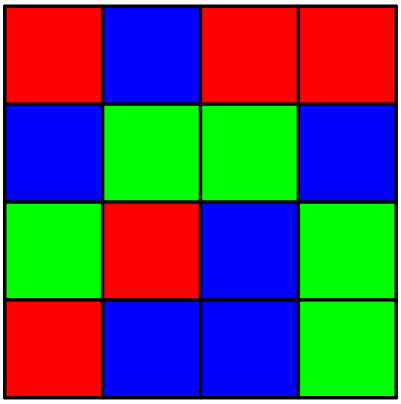
Examples

input	output
4 3 2 4	NO
4 4 3 2	YES RBRR BGGB GRBG RBBG

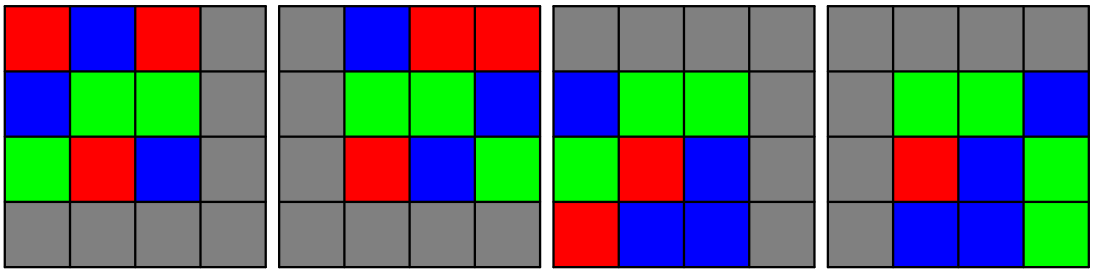
Explanation

In the **first sample case** it is not possible to make a painting satisfying the constraints.

In the **second sample case** one possible painting, represented in the output, is the following:



It contains 4 squares of size 3, that are the following:



Only the first 2 of them contain the same amount of red, green and blue cells. Hence, the painting satisfies Carlo's request.