Task Kist

Ivo is in a square matrix of n rows and n columns where n is an odd number and holds a magic brush of thickness k. All cells of the matrix are marked with the symbol ".", and Ivo is in the central cell of the matrix.

Ivo has received a string of instructions, a word consisting of uppercase letters of the alphabet where each letter represents one instruction. He executes the instructions in order and does the following depending on the current instruction:

- L - Ivo moves one cell to the left
- R - Ivo moves one cell to the right
- U - Ivo moves one cell up
- D - Ivo moves one cell down
- If the current character is any other letter of the alphabet, Ivo **does not** change his position. Instead, he paints all the cells of the matrix that are * **less** than k cells away from his current position with the current color, regardless of whether they have already been painted in another color.

If Ivo moves outside the matrix, he will **skip** that step and continue executing the subsequent instructions. Your task is to print the appearance of the matrix after Ivo has executed all the instructions.

*The distance between two cells of a matrix is the minimum number of moves needed to get from one cell to the other, with movement allowed in four directions (up, down, left, right).

Input

The first line contains the natural numbers n, k ($1 \leq n, k \leq 50$), from the text of the task.

The second line contains a word consisting of uppercase letters of the English alphabet. The length of the word will be less than or equal to 50.

Output

In n lines, print n characters per line, the appearance of the matrix after Ivo executes all the instructions.

Scoring

Subtask	Points	Constraints
1	2	$n = 1$
2	10	$k = 1$
3	15	$k = 2$
4	23	No additional constraints.

Examples

input

```
1 1
ALURDF
```

output

```
F
```

input

```
3 2
LUUADDRCRB
```

output

```
AA.
ACB
CBB
```

Clarification of the first example:
Ivo will never move from the only cell of the matrix and will only paint that cell. After executing all the instructions, that cell is colored in color F.