In this problem you should submit a <u>complete program with the main function</u>, reading with functions such as scanf and printing with functions such as printf.

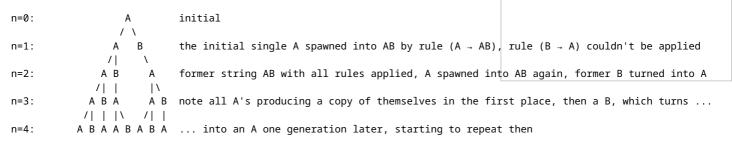
[PI034] Evolving Words

The Problem

Your task is to compute the evolution of a word (made up of just letters 'A' and 'B') showing consecutive generations of it according to the following rules:

- Any 'A' becomes 'AB'
- Any 'B' becomes 'A'

For instance, if we start with "A" and ask for 4 generations, the following happens:



Input

The first line of input contain a string S representing the initial word to consider (made only of letters 'A' and/or 'B').

The second line contains an integer **K** indicating the number of generations to compute.

Output

The output should contain exactly N+1 lines: the first line contains the initial word S and the following N lines contain the next N generations of that word.

Constraints

The following limits are guaranteed in all the test cases that will be given to your program:

 $1 \le |\mathbf{W}| < 10$ Length of the initial word $1 \le \mathbf{K} \le 10$ Number of generations

You can be assured that the final generation will not have more than 10&nsbp;000 letters.

Example Input 1	Example Output 1
A	A
4	AB
	ABA
	ABAAB
	ABAABABA

Example Input 2	Example Output 2
ABBA 3	ABBA ABAAAB ABAABABABA ABAABABAABAABAAB