C. « A Riddle »

Problem

A well-known riddle is to understand the following sequence :
$10, 1011, 1031, 102113$. The trick is to count the number of time each digit appears in the previous number.

One reads 10 as "One 0, one 1", i.e 1011. 1011 gives "One 0, three 1", i.e 1031. These results are sorted in increasing order of the counted digits, and digits that don't appear are not mentioned.

Given a number to start with, calculate the new number after applying N time the transform described above.

Input

On two separate lines :

— An integer $1 \leq L \leq 100$: the starting number.
— An integer $1 \leq N \leq 10^7$: the number of times the transform must be applied.

Output

— The integer obtained after N transforms.

Examples

Example 1

Input	Output
59 6	611213142519

Example 2

Input	Output
87 47	6122132425161718