



Multiply

Time Limit: 2 s Memory Limit: 128 MB

Write a program that computes a product of two non-negative integers A and B . The integers are represented in decimal notation and have N and M digits, respectively.

Constraints

- $1 \leq N, M \leq 50\,000$

Subtask 1 (20 points)

- $N, M \leq 4$

Subtask 2 (20 points)

- $N, M \leq 9$

Subtask 3 (30 points)

- $N, M \leq 5\,000$

Subtask 4 (30 points)

- no additional constraints

Input

The first line contains the lengths N and M , separated by a space. A is given on the second and B on the third line. The numbers will not have leading zeros.

Output

Output the product of A and B without leading zeros.

Examples

Input

3 4
123
4567

Output

561741

Input

3 1
100
0

Output

0