

W-shaped Rail Fence Cipher

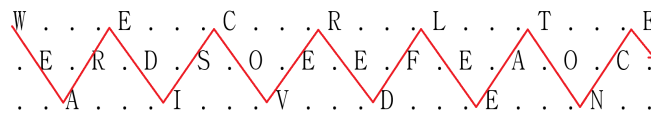
Input file: **standard input**
Output file: **standard output**
Time limit: **2 seconds**
Memory limit: **256 megabytes**

The W-shaped rail fence cipher is a well-known classical cipher that takes a plaintext string m and the number of rails k as input, producing a ciphertext c as output. For instance, if the plaintext $m = \text{WEAREDISCOVEREDFLEEATONCE}$ and $k = 3$, the encryption process unfolds as follows:

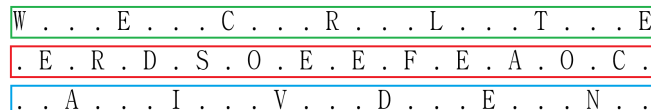
Begin by creating k empty strings, and then enumerating each character in the plaintext:

- Add the 1st character to the end of the 1st string.
- Add the 2nd character to the end of the 2nd string.
- Add the 3rd character to the end of the 3rd string.
- Add the 4th character to the end of the 2nd string.
- Add the 5th character to the end of the 1st string.
- ...

Continue this pattern until all characters have been added. The process is illustrated below:



Next, concatenate the three strings to produce the ciphertext $c = \text{WECRLTEERDSOEFEFAOCAIVDEN}$.



Alice and Bob want to communicate using this cipher. However, since the W-shaped rail fence cipher is relatively simple to decipher, they opt to encrypt the plaintext multiple times. For example, Alice has the string **HELLOBOB**. She employs the W-shaped rail fence cipher with rail numbers 3 and 4 in order to perform two rounds of encryption, resulting in the ciphertext **HLOBOEBL**.

As an expert hacker, Eve has intercepted a ciphertext and discovered Alice and Bob's encryption technique. Her task is to recover the corresponding plaintext.

Input

The first line contains a string c ($1 \leq |c| \leq 10^6$) consisting of only uppercase letters, representing the ciphertext.

The second line contains an integer n ($0 \leq n \leq 10^6$), representing the number of rounds of encryption.

The third line contains n integers, representing the number of rails k_i ($1 \leq k_i \leq 10^6$) used in each encryption.

It is guaranteed that $n \times |c| \leq 10^7$, where $|c|$ indicates the length of string c .

Output

Output the plaintext.

Example

standard input	standard output
HLOBOEBL 2 3 4	HELLOBOB