J2 ==> Bullcode

As an excellent and maybe slightly paranoid programmer, Ivancho does everything possible to hide his passwords. He has made a program called Bullcode, with which he can generate a password with a given string *P* of length *N*. He does that with the help of another string made up of exactly 26 characters - *C*. Both strings contain only lowercase latin letters and *C* contains each letter only once.

In order to get the password, he transforms P by performing the following operation: each symbol in it turns into `C[1]` if it is “a’, into `C[2]` if it is “b”, into `C[3]` if it is “c”, etc. (the indices start from 1 here, not from 0). **But since he is afraid of people finding his password, his program does that K times.**

Unfortunately a professional hacker under the name of peter_pan7 managed to sabotage his computer. Now Ivancho can’t find his program and asks you to make a program `bullcode`, which does exactly the same.

Input

At the first line of the file `bullcode.in` , the two integers *N* and *K* - the length of *P* and how many times the operation will have to be executed - can be read. At the second line there is the string *P*. At the third line - the string *C*.

Output

At the first and only line of the file `bullcode.out` the program must print a string - the resulting password.

Constraints

```
1 <= N <= 1000
1 <= K <= 1000000 (10^6)
```

Example

Input (bullcode.in)	Output (bullcode.out)
9 2 redpandas thefivboxngwzardsjumpqckly	nxvfmtvmp