**Task A. ABECEDEA**

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There are many languages on the planet Abecedea, but having several common properties:

1. Each language has its alphabet reflecting language’s sounds arranged in some order.
2. Some sounds can be called with our term “vowels”. The rest we traditionally call “consonants”.
3. A “syllable” is formed by a concatenation “vowel”-“consonant”.
4. Words consist of one or more syllables.
5. Each word in these languages has its meaning.
6. Vocabularies of all tribes on Abecedea are similarly organized: first come the one-syllable words, ordered “alphabetically”, followed by the two-syllable ones (also in “alphabetical” order) etc.

Abecedeans can spend days digging in the huge vocabularies and counting while looking for the answer of the most amusing game on the planet: which is the word written on place *N* in the vocabulary of some tribe. They adore your claim to be able to give the answer in “no time”! As a matter of fact, you are not, but you can write a program **abcd** to do the job.

Sounds in no language exceed 26, so you can code them “by proximity” with the well-known uppercase Latin letters. Abecedeans gladly inform you about the “alphabetical order” of the tribe and which sounds serve as “vowels”.

**Input**

Three lines are read from the standard input:

* line 1: a sequence of different capital letters (no delimiters), ordered according to the place of the corresponding sound in tribe’s alphabet (i.e. “alphabetically” for that language);
* line 2: a set of several different capital letters (without delimiters again), which are met in the first input line (not necessarily in the same order): these are the sounds to play role of “vowels” in the language;
* line 3: the positive integer *N*.

**Output**

Write to the standard output one line containing only the word written on place *N* in the tribe’s vocabulary.

**Constraints**

* the sounds in every language are at least three and no more than 26;
* there is at least one “consonant”, as well as at least one and no more than six “vowels”;
* 1 ≤ *N* ≤ 1 000 000 000.

**Example**

**Input**

RBAZ

AR

14

**Output**

ZRBA

***Example’s explanation***

Here is the beginning of that tribe’s vocabulary:

BR, BA, ZR, ZA, BRBR, BRBA, BRZR, BRZA, BABR, BABA, BAZR, BAZA, ZRBR, ZRBA, ZRZR, ZRZA, ZABR, ZABA, ZAZR, ZAZA, BRBRBR, BRBRBA, …