Sam is a University student. The professor at the university asked his students to write a course for him. He assigned each student 3 pages to write and said that it's going to be graded. Sam got really upset as he felt the professor was obliging students to work for his own benefit. He decided thus to seek revenge.

The professor missed a very important point: He never mentioned in what language the students must write the course. Sam was smart enough to notice that, and he developed a peculiar way of writing the course. He developed a new language and named it "RevoX".

The method goes as follows:

- First, Sam is going to shuffle the order of the English alphabet. This way, the letter 'a' won't necessarily be the first letter anymore.
- Second, he is going to respect the new order in copying the course. For example, if the new order is: z a q w s x c d e r f v b g t y h n m j u I k l p o, the word "hello" will be written as "dsvvt". This is because "h" is the 8^{th} letter of the alphabet, and in the new order, the 8^{th} letter is d. The same thing applies to all other letter.
- He then mapped each letter to a certain sequence of bits. For example suppose that "d" is mapped to "0011", "s" is mapped to "1010", "v" is mapped to "1110", and "t" is mapped to "0101", then the word "hello" would first be converted into "dsvvt" , and then converted to "00111010111011100101".

Sam thought that this way is really great, but it's going to take more time and thus oblige his colleagues to exert more effort. As you are the best programmer in the class, Sam asked you to write a program that converts a text from English language to RevoX language.

Input format:

- The first line will contain a string that describes the new order of the alphabet. It's guaranteed this string is a shuffled version of the string "abcdefghijklmnopqrstuvwxyz".
- 26 lines follows, each line contains a sequence of bits to which the ith character **of the English alphabet** is mapped.
- The last line contains a string that is extracted from the course and is to be converted. Thus, string will contain ONLY lower-case English letters and white spaces. (No punctuation).

Output format: Display on the screen the result of conversion of the extract from English language to "RevoX" language. Do not remove white spaces.

Sample input:

qazxswedcvfrtgbnhyujmklpoi

11001

11000

10111

10110

10101

10100

10011

10010

10001

10000

01111

01110

01101

01100

01011

01010

01001

01000

00111

00110

00101

00100

00011

00010

00001

00000

current controlled current source is controlled by current

Sample output:

00000011010000100001001111001110000 00000110001001110000000011100001000010000011100010
00000011010000100001001111001110000 00101110000110100001000000111 1011100101
00000110001001110000000011100001000010000011100010 1100101011
00000011010000100001001111001110000