Tales From the Crypt

Program Name: cipher.java   Input File: cipher.in

Some secret communications use a set of publicly-available text (such as the Declaration of Independence) as a key. If only the sender and recipient know the key, the sender can encode a message, character by character, by finding an instance of the same character in the key and using its position to create the encrypted message. Since the recipient already knows the key, he can take the encrypted message, which is just a list of character locations in the key, and reconstruct the original message.

Given a paragraph of text (the key) and an encrypted message, write a program that can display the decrypted message.

Input
The input to this problem will be split into two parts: the key, and a list of messages to decrypt.

The first line of input will contain a single integer n indicating the number of lines making up the key (less than 10). The following n lines contain the text that makes up the key. Each line will contain no more than 100 characters.

The next line of input will contain a single integer m indicating the number of messages to decrypt. The following m lines each contain a message that needs to be decrypted. Each messages is a non-empty series of up to 20 space-separated ordered pairs of the format "x, y". Each ordered pair corresponds to exactly one character in the key where x is the line and y is the column where the character occurs in the key. The line and column positions are unit indexed (i.e., they start at 1).

Output
For each encrypted message in the input, output the decrypted version on its own line.

Example Input File
```
6
When in the Course of human events, it becomes necessary for one people
to dissolve the political bands which have connected them with another,
and to assume among the powers of the earth, the separate and equal station
to which the Laws of Nature and of Nature's God entitle them, a decent
respect to the opinions of mankind requires that they should declare the
causes which impel them to the separation.
3
6,1 1,6 2,17 4,5 6,5 5,1
6,10 1,5 4,14 2,2 2,10 6,5 2,3 1,13 3,1 5,31 5,72 6,42
5,4 5,1 2,2 3,19 5,1 6,2 3,12 3,12 1,6 3,2 3,19 3,4 1,6 6,6 3,7 1,58 1,24 1,4
```

Example Output To Screen
```
cipher
i Love Cake.
programming is fun
```