

Zoran and Tomislav don't really have anything important to do, so they spend their days doing various activities. Today, they built a pyramid of the height N in the back garden and wrote their favorite word on it, repeating it from line to line and changing direction, as shown in the picture.

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      J
     N A
    J E T
   J A N I
  A N J E T
 N A J A N I
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Pyramid of the height 6 marked with the word "JANJETINA"

Tomislav has now chosen K lines of the pyramid, marked with a_i , and has chosen a letter c_i for each line. Then he asked Zoran K tricky questions: "How many times does the letter c_i appear in the row a_i ?"

You are Zoran's counselor. Write a programme that will, for the given pyramid height and their favorite word, answer Tomislav's questions.

INPUT

The first line of input contains the integer N ($1 \leq N \leq 10^{18}$).

The second line of input contains a word that consists of only uppercase letters of the English alphabet. The word's length will not exceed 10^6 .

The third line of input contains the integer K ($1 \leq K \leq 50\,000$), the number of lines Tomislav has chosen.

Each of the following K lines contains the pair a_i, c_i ($1 \leq a_i \leq N$, c_i uppercase letter of the English alphabet) which represent Tomislav's questions.

OUTPUT

Output K lines. The i^{th} line of output must contain a single integer – the number of appearances of letter c_i in the row a_i .

SCORING

In test cases worth 50% of total points, N will not exceed 1 000.

In test cases worth 70% of total points, length of the string will not exceed 10^5 .

SAMPLE TESTS

input	input	input
6	5	3
JANJETINA	A	AB
5	5	3
1 J	1 A	2 A
1 A	2 A	2 B
6 N	3 A	3 B
6 I	4 A	
5 E	5 B	
output	output	output

1	1	1
0	2	1
2	3	2
1	4	
1	0	

Clarification of the first sample test: See the pyramid in task statement.