

COCI '14 Contest 1 #3 Piramida

Time limit: 0.6s **Memory limit:** 32M

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.

```
  J
 N A
J E T
J A N I
A N J E T
N A J A N I
```

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 Input 1

```
6
JANJETINA
5
1 J
1 A
6 N
6 I
5 E
```

Sample Output 1

```
1
0
2
1
1
```

Explanation for Sample 1

See the pyramid in the task statement.

Sample Input 2

```
5
A
5
1 A
2 A
3 A
4 A
5 B
```

Sample Output 2

1
2
3
4
0

Sample Input 3

3
AB
3
2 A
2 B
3 B

Sample Output 3

1
1
2