

## Problem H. Nikita

Input file:            Output file:           output .txt  
Time limit:            3 seconds  
Memory limit:         256 mebibytes

After Nikita failed to solve a problem about queries on a segment at IOI, he decided to please the participants of Petrozavodsk training camp by another problem of the same nature.

You are given a string  $s$ , an integer  $k$  and queries.

There are two types of queries:

1. For given numbers  $l$  and  $r$ , fill a substring  $s[l..r]$  with character  $c$ .
2. For given  $l$  and  $r$ , determine the number of pairs  $i, j$  such that  $l \leq i \leq j \leq r$ ,  $j - i + 1 \leq k$  and  $s[i..j]$  is a palindrome.

Characters in the string are numbered starting from one.

### Input

The first line contains a string  $s$  and an integer  $k$  ( $1 \leq k \leq 50$ ). The length of the given string does not exceed  $10^5$ . On the second line, you are given an integer  $m$  ( $1 \leq m \leq 10^5$ ) which is the number of queries. Next  $m$  lines describe the queries. Each line starts with a query type (1 or 2), then follow integers  $l, r$  ( $1 \leq l \leq r \leq |s|$ ) and a lowercase Latin letter  $c$  (for type 1 queries only).

### Output

For every type 2 query, print an integer on a separate line.

### Example

input.txt	output.txt
abacaba 4	4
3	10
2 1 3	
1 1 3 c	
2 1 4	