F. Substrings in a String

time limit per test: 6 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Given a string s, process q queries, each having one of the following forms:

- $1\ i\ c$ — Change the i-th character in the string to c.
- $2\ l\ r\ y$ — Consider the substring of s starting at position l and ending at position r. Output the number of times y occurs as a substring in it.

Input

The first line of the input contains the string s ($1 \le |s| \le 10^5$) of lowercase English letters.

The second line contains an integer q ($1 \le q \le 10^5$) — the number of queries to process.

The next q lines describe the queries and may have one of the following forms:

- $1\ i\ c$ ($1 \le i \le |s|$)
- $2\ l\ r\ y$ ($1 \le l \le r \le |s|$)

c is a lowercase English letter and y is a non-empty string consisting of only lowercase English letters.

The sum of $|y|$ over all queries of second type is at most 10^5.

It is guaranteed that there is at least one query of second type.

All strings are 1-indexed.

$|s|$ is the length of the string s.

Output

For each query of type 2, output the required answer in a separate line.

Examples

input
abababababa 3 2 1 7 aba 1 5 c 2 1 7 aba

output
3 1

input
abcdcbc 5 2 1 7 bc 1 4 b 2 4 7 bc 1 2 a 2 1 4 aa

output

```
2
2
1
```

Note

Consider the first sample case. Initially, the string `aba` occurs 3 times in the range $[1, 7]$. Note that two occurrences may overlap.

After the update, the string becomes `ababcbaba` and now `aba` occurs only once in the range $[1, 7]$.