

## Problem G. Collider

Input file: `collider.in`  
Output file: `collider.out`  
Time limit: 2 seconds  
Memory limit: 256 megabytes  
Detailed Feedback: none

Physicians are investigating particles of three types:  $x$ ,  $y$  and  $z$ . They load a numbered row of  $n$  particles into collider. During the experiment an exposure on a concrete particle is having place, after which the particle disappears from  $i$ -th position of the row and instantly appears on position  $j$ . After disappearance of the particle numbers of particles to the right are decreased by 1 and after the appearance number of particles to the right of that place are increased by 1. After a number of exposures scientists want to know, which particle is on place  $k$ . Write program, which will help them.

### Input

The first line of the input file contains two integer number:  $n$  — number of particles and  $m$  — total number of exposures and queries ( $1 \leq n \leq 1000000$ ,  $1 \leq m \leq 15000$ ).

In the second line there is a sequence of characters  $x$ ,  $y$  and  $z$  of length  $n$ . Each of the next  $m$  lines contains exposure or query description. Line, containing an exposure, starts with character  $a$  and space and contains two integer number from interval  $[1; n]$ . First number is start position of the particle during the exposure and the second one is finish position. Line, describing a query, starts with character  $q$  and space and contains one number from interval  $[1; n]$  — position, which scientists are interested in.

### Output

Output one line for each question from input file. Line number  $i$  must contain the answer to the question  $i$  — name of the corresponding particle  $x$ ,  $y$  or  $z$ .

### Examples

<code>collider.in</code>	<code>collider.out</code>
15 6	y
xzxyyzxxzxyzyx	z
a 2 10	y
a 15 4	
q 3	
a 12 2	
q 14	
q 2	

Note. Sequence after the first exposure — xxyyzxxzxyzyx, after the second — xxyyzxxzxyzyx, after the third — xyxyyzxxzxyzy.