

3755 Being Smarty!

A web *template engine* is a software that is designed to process web templates and content information to produce web documents. A template is an html page, but without the content. In a way, a template system facilitates the separation between *the information* in a web page, and *the presentation* of it.

A template system normally comes with a (restricted and specialized) programming language to allow the variation of the presentation depending on certain properties of the information. For example, when presenting a bank statement, the bank may decide to display in red any transaction with an amount above \$1,000 in order to grab the attention of the user.

Another technique, frequently used in printing tables, is to alternate the background color of rows to make it easier for the reader to visually follow a row. For example, the background color in Table (a) alternates after each row, while in Table (b) the color alternates every three rows.

A properly designed template language would have a construct to allow the designer to alternate the properties of table rows. In this problem we shall concentrate on one such construct that takes three arguments: N , P_1 , and P_2 . The template engine would then apply P_1 on the first N rows, P_2 on the second N rows, and then back to P_1 on the third N rows, and so on.

Write a program that takes the current row number (starting at one,) the number N , and properties P_1 , and P_2 and determines which of P_1 or P_2 should be applied to the current row.

Input

Your program will be tested on one or more test cases. Each test case is specified on a separate line. Each line specifies four values: R , N , P_1 , and P_2 , all separated by one or more spaces.

R is the current row number (first row is numbered 1) while N is as described above. Note that $0 < R, N < 1,000,000,000$.

P_1 and P_2 are properties. A property is a string made of upper- or lower-case letters, digits, and/or spaces. A property may be surrounded by double quotes, (but the double quotes are not part of the property.) If a property contains spaces, the surrounding double quotes are mandatory. No property will be longer than 512 characters (including the double quotes, if present.)

The last line of the input file is made of a single zero.

Properties of Elements		
Sym.	Name	At.#
Ac	actinium	89
Ag	silver	47
Al	aluminum	13
Am	americium	95
Ar	argon	18
As	arsenic	33
At	astatine	85
Au	gold	79
B	boron	5
Ba	barium	56
Be	beryllium	4
Bi	bismuth	83

Table (a)

Properties of Elements		
Sym.	Name	At.#
Ac	actinium	89
Ag	silver	47
Al	aluminum	13
Am	americium	95
Ar	argon	18
As	arsenic	33
At	astatine	85
Au	gold	79
B	boron	5
Ba	barium	56
Be	beryllium	4
Bi	bismuth	83

Table (b)

Output

For each test case, output the result on a single line using the following format:

$k.\sqcup result$

Where k is the test case number (starting at 1,) and $result$ is P_1 or P_2 . Note that the double quotes are never printed. In addition, all letters are printed in lower case.

Sample Input

```
1 1 red blue
2 1 red blue
3 1 red blue
6 3 "big font" "small font"
0
```

Output

```
1. red
2. blue
3. red
4. small font
```