

## 6319 No Name

This is the most direct problem ever, you are required to implement some basic string operations like insert and substring.

In this problem  $|S|$  means the length of the string  $S$ .

**Note: We didn't find a good name for this problem.**

### Input

Your program will be tested on one or more test cases. The first line of the input will be a single integer  $T$ , the number of test cases ( $1 \leq T \leq 100$ ). Followed by the test cases, each test case starts with a line containing a string  $S$  ( $1 \leq |S| \leq 1,000,000$ ), followed by one or more lines each describing one of the following operations to perform on  $S$  (all indices are zero based, and the quotes are for clarity):

1. 'I  $R$   $X$ ' means insert the string  $R$  ( $1 \leq |R| \leq 1,000,000$ ) in  $S$  at index  $X$  ( $0 \leq X \leq |S|$ ), when  $X$  equals  $|S|$  this means append  $R$  at the end of  $S$ . For example, the result of inserting 'xy' in 'abc' at position 1 will be 'axybc', and the result of inserting 'xy' in 'abc' at position 3 will be 'abcxy', and the result of inserting 'xy' in 'abc' at position 0 will be 'xyabc'.
2. 'P  $X$   $Y$ ' means print the substring of  $S$  from  $X$  to  $Y$ , inclusive ( $0 \leq X \leq Y \leq |S|$ ). For example the substring from 0 to 2 of 'abc' is 'abc', and the string from 1 to 1 of 'abc' is 'b'.
3. 'END' Indicates the end of operations for the test case.

Strings  $S$  and  $R$  will consist of lower case English letters only ('a' to 'z'), and  $|S|$  will never get greater than 1,000,000 as a result of the operations for any test case. Also, the total number of characters to be printed for any test case will not exceed 1,000,000.

**Note:** Make sure to use fast IO operations, because the input and output files are very large.

### Output

For every 'P  $X$   $Y$ ' operation in the input, print one line with the corresponding substring.

### Sample Input

```
1
acm
I ac 3
P 0 3
I x 3
I xxxx 6
I pc 6
P 0 11
END
```

**Sample Output**

acma

acmxacpcxxxx