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 I/O 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
acmxacpcxxxxx
```