

## Problem A. Edit Distance Yet Again

Input file: *standard input*  
Output file: *standard output*  
Time limit: 20 seconds  
Memory limit: 512 mebibytes

Have you ever heard of the *edit distance* problem? Given two strings of lowercase English letters, you must determine the minimum number of operations needed to transform the first one into the second one. A single operation can be either:

- inserting a character into the sequence, at any spot,
- deleting any character from the sequence,
- substituting a character with another one.

Everyone at our university loves this problem a lot – maybe a little bit too much – so we decided to create a problem which is easier! You are given two strings  $s = s_1 \dots s_n$ ,  $t = t_1 \dots t_m$  and an integer  $k$ . Find out whether the edit distance between the strings is less than or equal to  $k$ . If so, you are also asked to provide any sequence of minimum possible number of operations to transform the first string into the second one.

### Input

The first line of input contains the number of test cases  $z$  ( $1 \leq z \leq 100$ ). The descriptions of the test cases follow.

The first line of each test case contains three integers  $n, m, k$  ( $1 \leq n, m \leq 1\,000\,000$ ,  $0 \leq k \leq 1000$ ) – the lengths of the strings and the parameter from the problem description.

The second line contains a string of length  $n$  consisting of lowercase English letters – the string  $s$  from the problem description.

The third line contains a string of length  $m$  consisting of lowercase English letters – the string  $t$  from the problem description.

The total length of all strings in all test cases will not exceed  $10^7$ .

### Output

For each test case, if the edit distance is greater than  $k$ , output a single line containing the word “NO”. Otherwise, the first line should contain the word “YES”, and the next lines should describe the answer as follows:

In the second line output the minimum number  $r$  of operations required to transform  $s$  into  $t$ . In the next  $r$  lines output the operations, one per line.

- To insert a lowercase English character  $c$  into a sequence of size  $w$  at the position  $p$  ( $1 \leq p \leq w + 1$ ), print **INSERT**  $p$   $c$ .
- To delete a character from a sequence of size  $w$  from the position  $p$  ( $1 \leq p \leq w$ ), print **DELETE**  $p$ .
- To substitute a character in a sequence of size  $w$  from the position  $p$  ( $1 \leq p \leq w$ ) with a lowercase English character  $c$ , print **REPLACE**  $p$   $c$ .

### Example

standard input	standard output
2	YES
3 4 3	2
kot	REPLACE 1 l
plot	INSERT 1 p
5 7 3	NO
zycie	
porazka	