

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	