E. Three strings

time limit per test: 2 seconds memory limit per test: 256 megabytes

input: standard input output: standard output

You are given three strings (s_1, s_2, s_3) . For each integer l $(1 \le l \le min(|s_1|, |s_2|, |s_3|)$ you need to find how many triples (i_1, i_2, i_3) exist such that three strings $s_k[i_k...i_k+l-1]$ (k=1, 2, 3) are pairwise equal. Print all found numbers modulo 1000000007 (10^9+7) .

See notes if you are not sure about some of the denotions used in the statement.

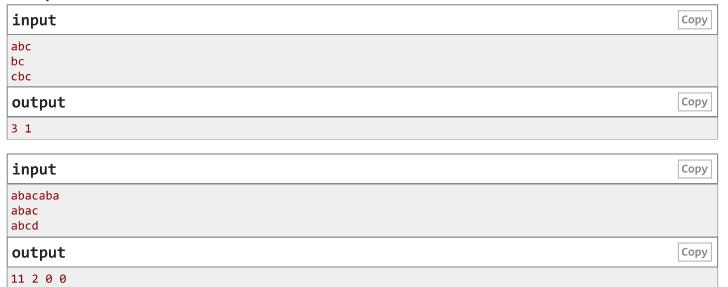
Input

First three lines contain three non-empty input strings. The sum of lengths of all strings is no more than $3 \cdot 10^5$. All strings consist only of lowercase English letters.

Output

You need to output $min(|s_1|, |s_2|, |s_3|)$ numbers separated by spaces — answers for the problem modulo $1000000007 (10^9 + 7)$.

Examples



Note

Consider a string $t = t_1 t_2 ... t_{|t|}$, where t_i denotes the i-th character of the string, and |t| denotes the length of the string.

Then t[i...j] $(1 \le i \le j \le |t|)$ represents the string $t_i t_{i+1}...t_j$ (substring of t from position i to position j inclusive).