

Problem G. 3-substrings

Input file: **substr.in**
Output file: **substr.out**
Time limit: 2 seconds
Memory limit: 256 mebibytes

You are given a string S of length N . For each $K = 1, 2, \dots, \lfloor \frac{N}{3} \rfloor$, you should find the number of different substrings of S of length exactly K such that each of them has at least three pairwise non-overlapping occurrences in S .

Input

The only line of input contains the string S ($3 \leq |S| \leq 100\,000$, S consists of lowercase English letters).

Output

You should output $\lfloor N/3 \rfloor$ numbers — answers for $K = 1, K = 2, \dots, K = \lfloor N/3 \rfloor$.

Examples

substr.in	substr.out
abracadabra	1 0 0
abacabaabacabaabacaba	3 4 4 4 3 2 1
aaaa	1