K-Equal Substring

You are given a string S consisting of uppercase English letters. For a positive integer k, a *k-equal substring* of S is a substring of k consecutive characters of S which are all the same letter. Two k-equal substrings are different if they start at different positions. For example, the string `AAAB` has two 2-equal substrings (both are `AA`, starting at positions 1 and 2) and one 3-equal substring.

You may change **at most one** character of S to any uppercase English letter. For each $k = 1, 2, \ldots, |S|$, find the minimum possible number of k-equal substrings of S after the change. Note that the change is chosen independently for each k.

Input

Each test contains multiple test cases. The first line contains the number of test cases τ ($1 \le \tau \le 10^4$). The description of the test cases follows.

Each test case consists of a single line containing the string S ($1 \le |S| \le 10^6$), consisting of uppercase English letters.

It is guaranteed that the sum of $|S|$ over all test cases does not exceed 10^6.

Output

For each test case, print a line with $|S|$ integers. The k-th integer is the minimum possible number of k-equal substrings of S after changing at most one character.

Sample Input 1	Sample Output 1
2 Z AAB	1 3 0 0

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