Given a string word, return *the* ***sum of the number of vowels*** *(*'a', 'e'*,* 'i'*,* 'o'*, and* 'u'*)* *in every substring of* word.

A **substring** is a contiguous (non-empty) sequence of characters within a string.

**Note:** Due to the large constraints, the answer may not fit in a signed 32-bit integer. Please be careful during the calculations.

**Example 1:**

Input: word = "aba"  
Output: 6  
Explanation:   
All possible substrings are: "a", "ab", "aba", "b", "ba", and "a".  
- "b" has 0 vowels in it  
- "a", "ab", "ba", and "a" have 1 vowel each  
- "aba" has 2 vowels in it  
Hence, the total sum of vowels = 0 + 1 + 1 + 1 + 1 + 2 = 6.

**Example 2:**

Input: word = "abc"  
Output: 3  
Explanation:   
All possible substrings are: "a", "ab", "abc", "b", "bc", and "c".  
- "a", "ab", and "abc" have 1 vowel each  
- "b", "bc", and "c" have 0 vowels each  
Hence, the total sum of vowels = 1 + 1 + 1 + 0 + 0 + 0 = 3.

**Example 3:**

Input: word = "ltcd"  
Output: 0  
Explanation: There are no vowels in any substring of "ltcd".

**Constraints:**

* 1 <= word.length <= 105
* word consists of lowercase English letters.