Count Unique Characters of All Substrings of a Given String

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Let's define a function countUniqueChars(s) that returns the number of unique characters on s.

For example, calling countUniqueChars(s) if s = "POSTCODE" then "P", "S", "T", "C", "D","E" are the unique characters since they appear only once in s, therefore countUniqueChars(s) = 6.

Given a string s, return the sum of countUniqueChars(t) where t is a substring of s. The test cases are generated such that the answer fits in a 32-bit integer.

Notice that some substrings can be repeated so in this case you have to count the repeated ones too.

Example 1:

Input: s = "ABC"

Output: 10

Explanation: All possible substrings are: "A","B","C","AB","BC" and "ABC".

Every substring is composed with only unique letters.

Sum of lengths of all substring is 1 + 1 + 1 + 2 + 2 + 3 = 10

Example 2:

Input: s = "ABA"

Output: 8

Explanation: The same as example 1, except countUniqueChars("ABA")

= 1.

Constraints:

1 <= s.length <= 105

s consists of uppercase English letters only.