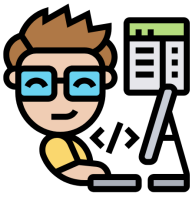

DAILY PROGRAMMING CHALLENGE

WISDOM SPROUTS
IT Training Hub

Count Substrings with Exactly K Distinct Characters

You are given a string s of lowercase English alphabets and an integer k. Your task is to count all possible substrings of s that contain exactly k distinct characters.

Input:

- A string s consisting of lowercase English letters.
- An integer k, where $1 \leq k \leq 26$
- The length of the string satisfies $1 \leq n \leq 104$

Output:

- Return an integer that represents the number of substrings of s that contain exactly k distinct characters.

Examples:

- Example 1
  Input: s = "pqpqs", k = 2
  Output: 7
  Explanation: The possible substrings with exactly 2 distinct characters are: "pq", "pqp", "qp", "pqs", "pq", "qs", and "pq". Thus, there are 7 such substrings.

Constraints:

- A string s consisting of lowercase English letters.
- An integer k, where $1 \leq k \leq 26$
- The length of the string satisfies $1 \leq n \leq 104$

Test Cases:

1. Input: s = "pqpqs", k = 2
   Output: 7
2. Input: s = "aabacbebebe", k = 3
   Output: 10
3. Input: s = "a", k = 1
   Output: 1
4. Input: s = "abc", k = 3
   Output: 1

5. Input: s = "abc", k = 2
   Output: 2

Edge Cases:

1. Small values of k: If k = 1, count the number of substrings with only one distinct character (such as repeated characters).
2. Large values of k: If k > n, it is impossible to have a substring with k distinct characters, so the result is 0.
3. String with all identical characters: If the string consists of repeated characters, count substrings based on their length for different values of k.