Problem 3335: Total Characters in String After Transformations I

Problem Information

Difficulty: Medium
Acceptance Rate: 45.71%
Paid Only: No
Tags: Hash Table, Math, String, Dynamic Programming, Counting

Problem Description

You are given a string `s` and an integer `t`, representing the number of **transformations** to perform. In one **transformation** , every character in `s` is replaced according to the following rules:

* If the character is `'z'`, replace it with the string `"ab"`. * Otherwise, replace it with the **next** character in the alphabet. For example, `'a'` is replaced with `'b'`, `'b'` is replaced with `'c'`, and so on.

Return the **length** of the resulting string after **exactly** `t` transformations.

Since the answer may be very large, return it **modulo** `109 + 7`.

Example 1:

Input: s = "abcyy", t = 2

Output: 7

Explanation:

* **First Transformation (t = 1)** : * `'a'` becomes `'b'` * `'b'` becomes `'c'` * `'c'` becomes `'d'` * `'y'` becomes `'z'` * `'y'` becomes `'z'` * String after the first transformation: `"bcdzz"` * **Second Transformation (t = 2)** : * `'b'` becomes `'c'` * `'c'` becomes `'d'` * `'d'` becomes `'e'` * `'z'` becomes `"ab"` * `'z'` becomes `"ab"` * String after the second transformation: `"cdeabab"` * **Final Length of the string** : The string is `"cdeabab"`, which has 7 characters.

Example 2:

Input: s = "azbk", t = 1

Output: 5

Explanation:

* **First Transformation (t = 1)** : * `'a'` becomes `'b'` * `'z'` becomes `"ab"` * `'b'` becomes `'c'` * `'k'` becomes `'l'` * String after the first transformation: `"babcl"` * **Final Length of the string** : The string is `"babcl"`, which has 5 characters.

Constraints:

* `1 <= s.length <= 105` * `s` consists only of lowercase English letters. * `1 <= t <= 105`

Code Snippets

C++:

```cpp
class Solution {
public:
int lengthAfterTransformations(string s, int t) {


}
};
```

Java:

```java
class Solution {
public int lengthAfterTransformations(String s, int t) {


}
}
```

Python3:

```python
class Solution:
def lengthAfterTransformations(self, s: str, t: int) -> int:
```