Problem 3316: Find Maximum Removals From Source String

Problem Information

Difficulty: Medium
Acceptance Rate: 38.82%
Paid Only: No
Tags: Array, Hash Table, Two Pointers, String, Dynamic Programming

Problem Description

You are given a string `source` of size `n`, a string `pattern` that is a subsequence of `source`, and a **sorted** integer array `targetIndices` that contains **distinct** numbers in the range `[0, n - 1]`.

We define an **operation** as removing a character at an index `idx` from `source` such that:

* `idx` is an element of `targetIndices`. * `pattern` remains a subsequence of `source` after removing the character.

Performing an operation **does not** change the indices of the other characters in `source`. For example, if you remove `'c'` from `"acb"`, the character at index 2 would still be `'b'`.

Return the **maximum** number of _operations_ that can be performed.

Example 1:

Input: source = "abbaa", pattern = "aba", targetIndices = [0,1,2]

Output: 1

Explanation:

We can't remove `source[0]` but we can do either of these two operations:

* Remove `source[1]`, so that `source` becomes `"a_baa"`. * Remove `source[2]`, so that `source` becomes `"ab_aa"`.

Example 2:

Input: source = "bcda", pattern = "d", targetIndices = [0,3]

Output: 2

Explanation:

We can remove `source[0]` and `source[3]` in two operations.

Example 3:

Input: source = "dda", pattern = "dda", targetIndices = [0,1,2]

Output: 0

Explanation:

We can't remove any character from `source`.

Example 4:

Input: source = "yeyeykyded", pattern = "yeyyd", targetIndices = [0,2,3,4]

Output: 2

Explanation:

We can remove `source[2]` and `source[3]` in two operations.

Constraints:

* `1 <= n == source.length <= 3 * 103` * `1 <= pattern.length <= n` * `1 <= targetIndices.length <= n` * `targetIndices` is sorted in ascending order. * The input is generated such that `targetIndices` contains distinct elements in the range `[0, n - 1]`. * `source` and `pattern` consist only of lowercase English letters. * The input is generated such that `pattern` appears

as a subsequence in `source`.

Code Snippets

C++:

```
class Solution {
public:
int maxRemovals(string source, string pattern, vector<int>& targetIndices) {

}
};
```

Java:

```
class Solution {
public int maxRemovals(String source, String pattern, int[] targetIndices) {

}
}
```

Python3:

```
class Solution:
def maxRemovals(self, source: str, pattern: str, targetIndices: List[int]) -> int:
```