Problem 2311: Longest Binary Subsequence Less Than or Equal to K

Problem Information

Difficulty: Medium
Acceptance Rate: 52.94%
Paid Only: No
Tags: String, Dynamic Programming, Greedy, Memoization

Problem Description

You are given a binary string `s` and a positive integer `k`.

Return _the length of the**longest** subsequence of _`s` _that makes up a**binary** number less than or equal to_ `k`.

Note:

* The subsequence can contain **leading zeroes**. * The empty string is considered to be equal to `0`. * A **subsequence** is a string that can be derived from another string by deleting some or no characters without changing the order of the remaining characters.

Example 1:

Input: s = "1001010", k = 5 **Output:** 5 **Explanation:** The longest subsequence of s that makes up a binary number less than or equal to 5 is "00010", as this number is equal to 2 in decimal. Note that "00100" and "00101" are also possible, which are equal to 4 and 5 in decimal, respectively. The length of this subsequence is 5, so 5 is returned.

Example 2:

Input: s = "00101001", k = 1 **Output:** 6 **Explanation:** "000001" is the longest subsequence of s that makes up a binary number less than or equal to 1, as this number is equal to 1 in decimal. The length of this subsequence is 6, so 6 is returned.

Constraints:

* `1 <= s.length <= 1000` * `s[i]` is either `'0'` or `'1'`. * `1 <= k <= 109`

Code Snippets

C++:

```
class Solution {
public:
int longestSubsequence(string s, int k) {

}
};
```

Java:

```
class Solution {
public int longestSubsequence(String s, int k) {

}
}
```

Python3:

```
class Solution:
def longestSubsequence(self, s: str, k: int) -> int:
```