

2569. Number of Beautiful Partitions

Difficulty : Hard

<https://leetcode.com/problems/number-of-beautiful-partitions>

You are given a string s that consists of the digits '1' to '9' and two integers k and $minLength$.

A partition of s is called **beautiful** if:

- s is partitioned into k non-intersecting substrings.
- Each substring has a length of **at least** $minLength$.
- Each substring starts with a **prime** digit and ends with a **non-prime** digit. Prime digits are '2', '3', '5', and '7', and the rest of the digits are non-prime.

Return *the number of beautiful partitions of s* . Since the answer may be very large, return it **modulo** $10^9 + 7$.

A **substring** is a contiguous sequence of characters within a string.

Example 1:

Input: $s = "23542185131"$, $k = 3$, $minLength = 2$

Output: 3

Explanation: There exists three ways to create a beautiful partition:

"2354 | 218 | 5131"

"2354 | 21851 | 31"

"2354218 | 51 | 31"

Example 2:

Input: $s = "23542185131"$, $k = 3$, $minLength = 3$

Output: 1

Explanation: There exists one way to create a beautiful partition: "2354 | 218 | 5131".

Example 3:

Input: $s = "3312958"$, $k = 3$, $minLength = 1$

Output: 1

Explanation: There exists one way to create a beautiful partition: "331 | 29 | 58".

Constraints:

- $1 \leq k$, $minLength \leq s.length \leq 1000$
- s consists of the digits '1' to '9'.