Problem 91: Decode Ways

Problem Information

Difficulty: Medium
Acceptance Rate: 37.24%
Paid Only: No
Tags: String, Dynamic Programming

Problem Description

You have intercepted a secret message encoded as a string of numbers. The message is **decoded** via the following mapping:

`"1" -> 'A' "2" -> 'B' ... "25" -> 'Y' "26" -> 'Z'`

However, while decoding the message, you realize that there are many different ways you can decode the message because some codes are contained in other codes (`"2"` and `"5"` vs `"25"`).

For example, `"11106"` can be decoded into:

* `"AAJF"` with the grouping `(1, 1, 10, 6)` * `"KJF"` with the grouping `(11, 10, 6)` * The grouping `(1, 11, 06)` is invalid because `"06"` is not a valid code (only `"6"` is valid).

Note: there may be strings that are impossible to decode. Given a string s containing only digits, return the **number of ways** to **decode** it. If the entire string cannot be decoded in any valid way, return `0`.

The test cases are generated so that the answer fits in a **32-bit** integer.

Example 1:

Input: s = "12"

Output: 2

Explanation:

"12" could be decoded as "AB" (1 2) or "L" (12).

Example 2:

Input: s = "226"

Output: 3

Explanation:

"226" could be decoded as "BZ" (2 26), "VF" (22 6), or "BBF" (2 2 6).

Example 3:

Input: s = "06"

Output: 0

Explanation:

"06" cannot be mapped to "F" because of the leading zero ("6" is different from "06"). In this case, the string is not a valid encoding, so return 0.

Constraints:

* `1 <= s.length <= 100` * `s` contains only digits and may contain leading zero(s).

Code Snippets

C++:

```cpp
class Solution {
public:
int numDecodings(string s) {


}
};
```

Java:

```java
class Solution {
public int numDecodings(String s) {


}
}
```

Python3:

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