

Problem 3463: Check If Digits Are Equal in String After Operations II

Problem Information

Difficulty: **Hard**

Acceptance Rate: 13.79%

Paid Only: No

Tags: Math, String, Combinatorics, Number Theory

Problem Description

You are given a string `s` consisting of digits. Perform the following operation repeatedly until the string has **exactly** two digits:

* For each pair of consecutive digits in `s`, starting from the first digit, calculate a new digit as the sum of the two digits **modulo** 10. * Replace `s` with the sequence of newly calculated digits, maintaining the order in which they are computed.

Return `true` if the final two digits in `s` are the **same**; otherwise, return `false`.

Example 1.

Input: `s = "3902"`

Output: `true`

Explanation:

* Initially, `s = "3902"` * First operation: $(s[0] + s[1]) \% 10 = (3 + 9) \% 10 = 2$ * $(s[1] + s[2]) \% 10 = (9 + 0) \% 10 = 9$ * $(s[2] + s[3]) \% 10 = (0 + 2) \% 10 = 2$ * `s` becomes `"292"` * Second operation: $(s[0] + s[1]) \% 10 = (2 + 9) \% 10 = 1$ * $(s[1] + s[2]) \% 10 = (9 + 2) \% 10 = 1$ * `s` becomes `"11"` * Since the digits in `"11"` are the same, the output is `true`.

Example 2.

****Input:**** s = "34789"

****Output:**** false

****Explanation:****

* Initially, `s = "34789"`. * After the first operation, `s = "7157"`. * After the second operation, `s = "862"`. * After the third operation, `s = "48"`. * Since `4 != 8`, the output is `false`.

****Constraints:****

* `3 <= s.length <= 105` * `s` consists of only digits.

Code Snippets

C++:

```
class Solution {
public:
    bool hasSameDigits(string s) {

    }
};
```

Java:

```
class Solution {
    public boolean hasSameDigits(String s) {

    }
}
```

Python3:

```
class Solution:
    def hasSameDigits(self, s: str) -> bool:
```