

415 Add String

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Given two non-negative integers num1 and num2 represented as string, return the sum of num1 and num2.

Note:

1. The length of both num1 and num2 is < 5100.
2. Both num1 and num2 contains only digits 0-9.
3. Both num1 and num2 does not contain any leading zero.
4. You **must not use any built-in BigInteger library** or **convert the inputs to integer directly**.

来自 <<https://leetcode.com/problems/add-strings/description/>>

给定两个字符串形式的非负整数 num1 和 num2，计算它们的和。

注意：

1. num1 和 num2 的长度都小于 5100.
2. num1 和 num2 都只包含数字 0-9.
3. num1 和 num2 都不包含任何前导零。
4. 你**不能**使用任何内建 **BigInteger** 库，**也不能**直接将输入的字符串转换为整数形式。

Solution for Python3:

```
1 class Solution:
2     def addStrings(self, num1, num2):
3         """
4         :type num1: str
5         :type num2: str
6         :rtype: str
7         """
8         s = ''
9         i, j, carry = len(num1) - 1, len(num2) - 1, 0
10        while i >= 0 or j >= 0 or carry:
11            if i >= 0:
12                carry += ord(num1[i]) - ord('0')
13                i -= 1
14            if j >= 0:
15                carry += ord(num2[j]) - ord('0')
16                j -= 1
17            s = str(carry % 10) + s
18            carry //= 10
19        return s
```

Solution for C++:

```
1 class Solution1 {
2 public:
3     string addStrings(string num1, string num2) {
4         string s = "";
5         int up = 0;
6         int i = num1.length() - 1, j = num2.length() - 1;
7         for (; i >= 0 & j >= 0; i--, j--) {
8             up += num1[i] - '0' + num2[j] - '0';
9             s = to_string(up % 10) + s;
10            up /= 10;
11        }
12        while (i >= 0) {
13            up += num1[i--] - '0';
14            s = to_string(up % 10) + s;
15            up /= 10;
16        }
17        while (j >= 0) {
18            up += num2[j--] - '0';
19            s = to_string(up % 10) + s;
20            up /= 10;
21        }
22        while (up) {
23            s = to_string(up) + s;
24            up = 0;
25        }
26        return s;
27    }
28 };
29
30 class Solution2 {
31 public:
32     string addStrings(string num1, string num2) {
```

```
33     string s;
34     for (int i = num1.size() - 1, j = num2.size() - 1, carry = 0; i >= 0 || j >= 0 || carry; carry /= 10) {
35         if (i >= 0)
36             carry += num1[i--] - '0';
37         if (j >= 0)
38             carry += num2[j--] - '0';
39         s = to_string(carry % 10) + s;
40     }
41     return s;
42 }
43 };
```