

Problem 2232: Minimize Result by Adding Parentheses to Expression

Problem Information

Difficulty: **Medium**

Acceptance Rate: 68.14%

Paid Only: No

Tags: String, Enumeration

Problem Description

You are given a **0-indexed** string `expression` of the form `"<num1>+<num2>"` where `<num1>` and `<num2>` represent positive integers.

Add a pair of parentheses to `expression` such that after the addition of parentheses, `expression` is a **valid** mathematical expression and evaluates to the **smallest** possible value. The left parenthesis **must** be added to the left of `'+'` and the right parenthesis **must** be added to the right of `'+'`.

Return `expression` after adding a pair of parentheses such that `expression` evaluates to the **smallest** possible value. If there are multiple answers that yield the same result, return any of them.

The input has been generated such that the original value of `expression`, and the value of `expression` after adding any pair of parentheses that meets the requirements fits within a signed 32-bit integer.

Example 1:

Input: `expression = "247+38"` **Output:** `"2(47+38)"` **Explanation:** The expression evaluates to $2 * (47 + 38) = 2 * 85 = 170$. Note that `"2(4)7+38"` is invalid because the right parenthesis must be to the right of the `'+'`. It can be shown that 170 is the smallest possible value.

Example 2:

****Input:**** expression = "12+34" ****Output:**** "1(2+3)4" ****Explanation:**** The expression evaluates to $1 * (2 + 3) * 4 = 1 * 5 * 4 = 20$.

****Example 3:****

****Input:**** expression = "999+999" ****Output:**** "(999+999)" ****Explanation:**** The expression evaluates to $999 + 999 = 1998$.

****Constraints:****

* $3 \leq \text{expression.length} \leq 10$ * `expression` consists of digits from `'1'` to `'9'` and `'+'`. * `expression` starts and ends with digits. * `expression` contains exactly one `'+'`. * The original value of `expression`, and the value of `expression` after adding any pair of parentheses that meets the requirements fits within a signed 32-bit integer.

Code Snippets

C++:

```
class Solution {
public:
    string minimizeResult(string expression) {

    }
};
```

Java:

```
class Solution {
    public String minimizeResult(String expression) {

    }
}
```

Python3:

```
class Solution:
    def minimizeResult(self, expression: str) -> str:
```