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## Intuition

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This code converts a Roman numeral string `s` to an integer. It employs a dictionary, `roman`, to map each Roman numeral character to its corresponding integer value. The algorithm iterates through the input string, evaluating each character. If the current character represents a smaller value than the next one, it subtracts the current value from the result; otherwise, it adds the current value. This accounts for cases where a smaller numeral precedes a larger one, signifying subtraction. The result is the accumulated integer value of the entire Roman numeral string. The approach ensures an accurate conversion by considering the subtractive notation in Roman numerals. The time complexity is  $O(n)$ , where  $n$  is the length of the input string, as each character is processed once. The space complexity is  $O(1)$  since the dictionary and result variable use constant space regardless of the input size.

## Approach

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### 1. Dictionary Initialization:

- Create a dictionary, `roman`, to map each Roman numeral character to its integer value.

### 2. Iterative Process:

- Iterate through the characters in the input string using a for loop.

### 3. Value Calculation:

- For each character, check if the next character is of greater value (according to Roman numeral rules).
- If true, subtract the current character's value from the result.
- Otherwise, add the current character's value to the result.

### 4. Accumulation of Result:

- Accumulate the result as the sum of individual Roman numeral values.

### 5. Return Result:

- Return the final result, which represents the integer equivalent of the Roman numeral string.

# Complexity

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- Time complexity:  $O(n)$
- Space complexity:  $O(1)$

## Code

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```
class Solution:
    def romanToInt(self, s: str) -> int:
        roman = {"I":1, "V":5, "X":10, "L":50, "C":100, "D":500, "M":1000}
        result = 0
        for i in range(len(s)):
            if i+1 < len(s) and roman[s[i]] < roman[s[i+1]]:
                result -= roman[s[i]]
            else:
                result += roman[s[i]]
        return result
```

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