

Python DSA Day-43

Leetcode 13 Roman to Integer

<https://leetcode.com/problems/roman-to-integer/>

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

TC – O(N)

SC- O(1)

Leetcode 8 String to Integer (atoi)

<https://leetcode.com/problems/string-to-integer-atoi/description/>

```
class Solution:
    def myAtoi(self, s: str) -> int:
        INT_MIN = -2**31
        INT_MAX = 2**31 - 1

        i = 0
        n = len(s)

        # 1. Skip whitespace
        while i < n and s[i] == " ":
```

```

        i += 1

    # If string is empty after spaces
    if i == n:
        return 0

    # 2. Sign
    sign = 1
    if s[i] == '-':
        sign = -1
        i += 1
    elif s[i] == '+':
        i += 1

    # 3. Read digits
    num = 0
    while i < n and s[i].isdigit():
        digit = ord(s[i]) - ord('0')

        # Overflow check
        if num > (INT_MAX - digit) // 10:
            return INT_MAX if sign == 1 else INT_MIN

        num = num * 10 + digit
        i += 1      # <<< ALSO REQUIRED

    return sign * num

```

TC – $O(n)$

SC- $O(1)$