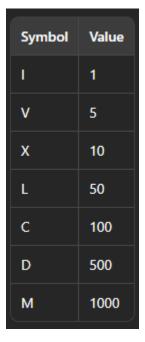
12. Integer to Roman

Seven different symbols represent Roman numerals with the following values:



Roman numerals are formed by appending the conversions of decimal place values from highest to lowest. Converting a decimal place value into a Roman numeral has the following rules:

- If the value does not start with 4 or 9, select the symbol of the maximal value that can be subtracted from the input, append that symbol to the result, subtract its value, and convert the remainder to a Roman numeral.
- If the value starts with 4 or 9 use the **subtractive form** representing one symbol subtracted from the following symbol, for example, 4 is 1 (I) less than 5 (V): IV and 9 is 1 (I) less than 10 (X): IX. Only the following subtractive forms are used: 4 (IV), 9 (IX), 40 (XL), 90 (XC), 400 (CD) and 900 (CM).
- Only powers of 10 (I, X, C, M) can be appended consecutively at most 3 times to represent
 multiples of 10. You cannot append 5 (V), 50 (L), or 500 (D) multiple times. If you need to
 append a symbol 4 times use the subtractive form.

Given an integer, convert it to a Roman numeral.

Example 1:

Input: num = 3749

Output: "MMMDCCXLIX"

Explanation:

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3000 = MMM as 1000 (M) + 1000 (M) + 1000 (M)
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$$700 = DCC \text{ as } 500 \text{ (D)} + 100 \text{ (C)} + 100 \text{ (C)}$$

$$40 = XL \text{ as } 10 (X) \text{ less of } 50 (L)$$

$$9 = IX \text{ as } 1 (I) \text{ less of } 10 (X)$$

Note: 49 is not 1 (I) less of 50 (L) because the conversion is based on decimal places

Example 2:

Input: num = 58

Output: "LVIII"

Explanation:

50 = L

8 = VIII

Example 3:

Input: num = 1994

Output: "MCMXCIV"

Explanation:

1000 = M

900 = CM

90 = XC

4 = IV

Constraints:

• 1 <= num <= 3999