

Siena College's 33rd Annual High School Programming Contest

Sponsored by Transfinder

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Gold Problem #3: Et tu, Brute?

Background Information:

Last year, 2020, was a **Roman-equivalent** year because the number of digits in its base-10 representation equals the number of characters in its roman numerals representation. Your program will input a year and determine whether or not it is Roman-equivalent or not.

For this problem, Roman numerals contain seven characters, each with their own representative value.

Symbol	I	V	X	L	C	D	M
Value	1	5	10	50	100	500	1000

A number's Roman numeral value is written by representing each power of ten (thousands, hundreds, tens, and ones) from left to right in that order. Generally, the number's representation is the concatenation of letters, where each letter's value, when added together, sums to the original number. The exception occurs when a symbol with a smaller value precedes a symbol with a larger value; in this case, you subtract the smaller value from the larger value. For example XC is the proper way to represent 90 instead of LXXXX. In fact, no representation of input for this problem will have any one symbol repeated four or more times. You may only use the following subtraction representations:

	IV	IX	XL	XC	CD	and CM
for	4	9	40	90	400	and 900

Programming Problem:

Input: A positive integer N where $1 \leq N \leq 3999$

Output: The Roman Numeral representation, in all capital letters, followed by one space followed by ROMAN-EQUIVALENT if the input is a Roman-equivalent number or NOT ROMAN-EQUIVALENT if the input is not a Roman-equivalent number.

Example 1: Input:
1001

Output:
MI NOT ROMAN-EQUIVALENT

Example 2: Input:
3005

Output:
MMMV ROMAN-EQUIVALENT

Example 3: Input:
51

Output:
LI ROMAN-EQUIVALENT