Intro to Python

Exercise: Roman Numerals

Assignment

This exercise is designed to give you experience in writing more control structures. A good solution will use loops and if/elif/else control structures.

Roman Numeral Conversion (roman_to_arabic.py)

Today, we use Arabic numerals (0, 1, 2, 3, 4, 5, 6, 7, 8, 9). These are very handy, since the same 10 digits can be used to create very large numbers based on the position (1’s, 10’s, 100’s, etc.) of the numerals. Most of modern arithmetic requires such a number system.

The Romans used Roman numerals are (I(1), V(5), X(10), L(50), C(100), D(500), M(1000)). These are not near as handy. In order to represent numbers, combinations of these values are used.

“I” is one, “II” is two, and “III” is three. However, “IIII” is not used for four, “IV” is used. This pattern holds for higher values. “XXX” is thirty, but “XL” is forty; and “CCC” is three hundred, while “CD” is four hundred. In other words, the Arabic numeral 4 is represented by a Roman numeral for a 1 followed by a Roman numeral for a 5.

A similar pattern exists for the 9 digits. “IX” is nine, “XC” is ninety, “CM” is nine hundred.

Six through eight are made by combining the 5 and a sequence of 1 digits. “VII” is seven, “LXXX” is eighty, etc.

The numerals are arranged with the most significant values on the left, and the least on the right.

You will write a program to convert a string containing a roman numeral to an integer.

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- Roman Numerals