## Logic test explanation

In alpha\_string.py file, in server folder, i applied the following logic:

- 1. First, I consider that for every set of Roman letters there is, necessarily, a non-Roman letter separating each sequence.
  - So, for the following string: AXXBLX, the separator letter is A and B.
- 2. I wrote down all roman letters in a python dictionary, like this:

```
VALUE_ROMAN_CHARACTERS = {
    "I": 1,
    "V": 5,
    "X": 10,
    "L": 50,
    "C": 100,
    "D": 500,
    "M": 1000,
    "IV": 4,
    "IX": 9,
    "XL": 40,
    "XC": 90,
    "CD": 400,
    "CM": 900
}
```

- 3. Given a sequence with pattern:  $(S_k s_n S_{k+1})^*$ , where:
  - $\circ~S_k$  is k-th roman letters set;
  - $\circ \ s_n$  is a separator letter between  $S_k$  and  $S_{k+1}$ ;

if 
$$: S_k \in [I, V, X, L, C, D, M, IV, IX, XL, XC, CD, CM]$$

then :  $value = VALUE\_ROMAN\_CHARACTERS[S_k]$ 

(That is, the set has only one of the Roman letters present in the dictionary)

else:

$$value = \sum_{i=0}^{len(S_k)} VRC[S_k[i]]$$

, where  $VRC={\sf VALUE\_ROMAN\_CHARACTERS}$  (That is, the sum of the conversions of each Roman letter in the set)