Integer to Roman

Given an integer from 1 to 3999, return the roman numeral equivalent  
  
Input: Integer  
Output: String

M = 1000, D = 500, C = 100, L = 50, X = 10, V = 5, I = 1

# Example

Input: 9 => Output: ‘IX’

Input: 8 => Output: ‘VIII’

Input: 49 => Output: ‘XLIX’

# Constraints

Time Complexity: O(1)  
Auxiliary Space Complexity: O(1)

# Solution

1. If the number is out of range return an empty string
2. Otherwise create a result and set as empty
3. Create two arrays with the following values:
   1. roman = ["M", "CM", "D", "CD", "C", "XC", "L", "XL", "X", "IX, "V", "IV", "I"]
   2. values = [1000, 900, 500, 400, 100, 90, 50, 40, 10, 9, 5, 4, 1 ]
4. Initiate i = 0 which points at the first elements in ‘values’ and ‘roman’
5. Perform a while loop until the input reaches zero
   1. Perform another while loop as long as the input is greater than values[i]
      1. Inside the nested while loop, subtract values[i];
      2. Concatenate roman[i] to the end of the result string
6. Once the input reaches zero, both while loops should complete so return the result string.

Java Solution  
  
public static String intToRoman(int num){

if (num < 1 || num > 3999) return "";

StringBuilder result = new StringBuilder();

String[] roman = {"M", "CM", "D", "CD", "C", "XC", "L", "XL", "X", "IX", "V", "IV", "I"};

int[] values = {1000, 900, 500, 400, 100, 90, 50, 40, 10, 9, 5, 4, 1 };

int i = 0;

while (num >0) {

while ( num >= values[i]) {

num -= values[i];

result.append(roman[i]);

}

i++;

}

return result.toString();

}

# Notes

Twitter technical screen problem

# Resources

https://leetcode.com/problems/integer-to-roman/  
http://www.roman-numerals.org/chart100.html