Assignment #2 - Scala

The goal of this assignment is to learn Scala.

* Import the following notebook -
  + https://databricks-prod-cloudfront.cloud.databricks.com/public/4027ec902e239c93eaaa8714f173bcfc/4338404698899132/3226107731703896/2419783655524824/latest.html
* Change the <your name> part in the file name and in the first cell to your name
* For submission, please export your notebook and submit back the URL

**1) Write a function to validate whether parentheses are balanced**

Expecting true for the following strings

* (if (zero? x) max (/ 1 x))
* I told him (that it’s not (yet) done). (But he wasn’t listening)

Expecting false for the following strings

* :-)
* ())(

The following methods are useful for this challenge chars.isEmpty chars.head chars.tail Hint: you can define an inner function if you need to pass extra parameters to your function.

To convert a String to List[Char] ==> "ucsc school".toList

Extra credit: write another implementation that uses pattern match with list extraction pattern

**def** balance(chars: List[Char]): Boolean = {

}

notebook:1: error: type mismatch; found : Unit required: Boolean def balance(chars: List[Char]): Boolean = { ^

**2) Write two functions for performing run length encoding and decoding:**

encoding("WWWWWWWWWWWWBWWWWWWWWWWWWBBBWWWWWWWW") ==> "12W1B12W3B8W"

decoding("12W1B12W3B8W") ==> "WWWWWWWWWWWWBWWWWWWWWWWWWBBBWWWWWWWW"

**def** encoding(input:String) : String = {

""

}

encoding: (input: String)String

**def** decoding(input:String) : String = {

""

}

decoding: (input: String)String

**3) Convert decimal value roman numeral**

// Mapping between decimal to

**val** romanNumeralMap = Map(1000 -> "M", 900 -> "CM", 500 -> "D", 400 -> "CD",

100 -> "C", 90 -> "XC", 50 -> "L", 40 -> "XL",

10 -> "X", 9 -> "IX", 5 -> "V", 4 -> "IV", 1 -> "I")

romanNumeralMap: scala.collection.immutable.Map[Int,String] = Map(5 -> V, 10 -> X, 500 -> D, 1 -> I, 9 -> IX, 900 -> CM, 1000 -> M, 50 -> L, 40 -> XL, 4 -> IV, 400 -> CD, 90 -> XC, 100 -> C)

**import** scala.collection.mutable.ListBuffer

**def** decimalToRomanNumeral(n:Int) : String = {

}

// decimalToRomanNumeral(1997) => expecting MCMXCVII

// https://www.rapidtables.com/convert/number/roman-numerals-converter.html