COMP0015 Exercises: Strings

These exercises are taken from Chapter 4, Building Python Programs, A Back to Basics Approach by Stuart Reges, Marty Stepp, and Allison Obourn. **ISBN-10:** 0135205980, **ISBN-13:** 978-0135205983.

1. Write a function called `repl()` that accepts a string and a number of repetitions as parameters and returns the string concatenated that many times. For example, the call `repl("hello", 3)` should return `"hellohellohello"`. If the number of repetitions is zero or less, the function should return an empty string. Do not use the string * operator in your solution; use a cumulative algorithm.

2. Write a function called `xo()` that accepts an integer size as a parameter and prints a square of size by size -characters, where all characters are “o” except that an “x” pattern of “x” characters has been drawn from the corners of the square. On the first line, the first and last characters are "x"; on the second line, the second and -second-from-last characters are "x"; and so on. For example, the calls of `xo(5)` and `xo(6)` should produce the following outputs, respectively:

```
xooox
oxoxo
ooxoo
oxoxo
xooox

xoooox
oxooxo
ooxxoo
ooxxoo
oxooxo
xoooox
```

3. Write a function called `print_palindrome()` that prompts the user to enter one or more words and prints whether the entered string is a palindrome (i.e., reads the same forwards as it does backwards, like "abba" or "racecar"). For an added challenge, make the code case-insensitive, so that words like "Abba" and "Madam" will be considered palindromes. Note: you must not Python slice notation `x [::-1]` to reverse your string in your solution.

4. A useful technique for catching typing errors is to use a check digit. For example, suppose that a school assigns a six-digit number to each student. A seventh digit can be determined from the other digits with the use of the following formula:

   7th digit = (1 * (1st digit) + 2 * (2nd digit) + .. . + 6 * (6th digit)) % 10

   When a user types in a student number, the user types all seven digits. If the number is typed incorrectly, the check digit will fail to match in 90% of the cases. Write an interactive program that prompts for a six-digit student number and reports the check digit for that number, using the preceding formula.

Further problems can be found at: Code step by step and Codingbat Python

Note: you do not have to create accounts on these websites if you do not wish to.