COMP 10280
Programming I (Conversion)
Practical Sheet 18
Thursday, 17 October 2019

For each of the following questions, write an algorithm in pseudocode first before writing a Python program. Submit your algorithms in psuedocode as well as your Python programs.

When writing functions, use one-line or multi-line docstrings, as appropriate, to document your functions.

1. Write an *iterative* version of an `isPal` function to check whether a supplied string is a palindrome.

   Save this program as `p18p1.py`.

2. Write a function that takes a string as an argument and returns the number of times that the string "code" (case-sensitive) appears anywhere in the given string.

   Save this program as `p18p2.py`.

3. Write a function that takes a string as an argument and returns the number of times that the string "code" (case-sensitive) appears anywhere in the given string, except that any letter will be accepted for the "d", so "that cope", "cooe" and "coDe" will also be accepted, but co3e", "co-e" and "coe" will not be.

   Save this program as `p18p3.py`.

4. Write a function that takes as arguments two strings and returns `True` if either of the strings appears at the very end of the other string, ignoring upper/lower case differences (in other words, the computation should not be case sensitive). Recall that `s.lower()` returns the lowercase version of a string.

   Save this program as `p18p4.py`.

5. Write a function that takes a string as an argument and returns `True` if the given string contains an appearance of "xyz" where the "xyz" is not directly preceeded by a period ("."). So "xxyz", "xxyz.x.xyzz" and "xyz.xyz" are accepted but "x.xyz" is not.

   Save this program as `p18p5.py`.

6. Write a program that takes a page (eg the source of a Web page that you have saved), counts the occurrences of left angle brackets (<), right angle brackets (>), newlines, the lowercase letter e, the string `<!--` and the string `-->` and prints out the results to a file `results.txt`. Your program should make appropriate checks regarding the existence of the input and output files.

   Save this program as `p18p6.py`.

(Questions 2–5 come from or were inspired by problems on the **CodingBat** Website, http://www.codingbat.com.)

**Please upload your work to
the Brightspace site before next
Wednesday evening.**

**You should keep a copy of your programs
for your portfolio.**