COMP 10280
Programming I (Conversion)
Practical Sheet 18
Thursday, 18 October 2018

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.