

COMP 10280

Programming I (Conversion)

Practical Sheet 18

Déardaoín, 19 Deireadh Fómhair 2023

For each of the following questions, write an algorithm in pseudocode first before writing a Python program. Submit your algorithms in pseudocode 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 preceded by a period ("."). So "xxyz", "xyz.x.xzz" 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 Sunday
evening.**

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