Lab 1 Python Exercise
COMP4901K and MATH 4824B
Fall 2018

Prerequisites

You should have basic python programming skills. If don't, you can check out:

- Lecture 2: Getting started with Python

- COMP1021 Introduction to Computer Science: `https://course.cse.ust.hk/comp1021/`

- Codecademy python tutorial: `https://www.codecademy.com/learn/learn-python`

1 Setting up Python3.6 Environment

You need to use your own computer or in this lab, and set up the python environment:

- Install python through `https://www.python.org/downloads/release/python-366/`

- Set environment variables path.

  - Windows : `https://www.pythoncentral.io/add-python-to-path-python-is-not-recognized-as-an-internal-or-external-command/`
    * Right click My Computer. Click on Advanced System Settings.
    * Click on Environment Variables
    * Find the PATH variable and click Edit. You want to add Python to this PATH variable by adding `C\:\\Python36` to the end of that string (or whatever the path to your Python installation is).
  - MAC & Linux: Open terminal, type this command

    export PATH=$PATH:<PATH−to−Python>

- Open Command Prompt (Windows) or Terminal (Mac/Linux) and use the following command to verify the python installation

  ```
  python −−version
  ```

- Install nltk package using pip:

  ```
  pip3 install −−upgrade nltk
  ```

- Packages will be used in future classes

```
pip3 install —upgrade numpy scipy matplotlib \
                ipython tensorflow keras gensim
```

You can also use python in lab PCs at `L:\\apps\\comp4901k\\conda\\envs\\tf\\python.exe`

2 Assignment

You need to download the following files from canvas:

- `lab1_skeleton.py`: the program skeleton.

- `lab1_text.txt`: the data file, contains space separated alphanumeric words.

and put them under the same directory.

Q1 For the given list of words, write code to perform the following tasks. The result should be in the form of a space-separated list of words:

word1 word2

1. Print all words beginning with *"z"*

2. Print all words longer than four characters

Q2 Write expressions for finding all words in file `lab1_text.txt` that meet the conditions listed below. The result should be printed in the form of a space-separated list of words.

1. Ending in *"ize"*

2. Containing the letter *"z"*

3. Containing the sequence of letters *"pt"*

4. Having all lowercase letters except for an initial capital (i.e., titlecase)

Q3   Given a string, determine if it is a palindrome, considering *only alphanumeric charac-*
ters and *ignoring cases*. The result shuold be printed as True or False.

Note: For the purpose of this problem, we define empty string as valid palindrome.

Example 1
Input: "A man, a plan, a canal: Panama"
Output: True

Example 2
Input: "race a car"
Output: False

3   Submission

You need to submit two files, program output and your python script. After you finished
the assignments, make sure you include a this header information in the beginning of your
code

 # author: Your_name
 # student_id: Your_student_ID

Copy all the program output in to text file named `StudentID_lab1_output.txt`, and submit
with your python script solution named `StudentID_lab1.py` to canvas.