EE 355 Lab 10
Python Scripting
Spring 2017 Nazarian

Score:___/210

Student ID: _____ Name: _____

Assigned: Friday, March 24th

Due: Friday, March 31st at 11:59pm

Late submissions will be accepted two days after the deadline with a maximum penalty of 15% per day: For each day, submissions between 12 and 1am: 2%, 1 and 2am: 4%, 2 and 3am: 8% and after 3am: 15%.

- **All assignments including this lab are based on individual work. No collaborations (including no discussions) are allowed.**
- **We may pick some students in random to demonstrate their design and simulations. Please watch the first lecture of this course regarding the academic integrity policies and also refer to the syllabus for a summary of AI policies (including the penalties for any violation).**
- **If you have any concerns or doubts about what is or is not allowed or prohibited in this course, please contact the instructor.**

Motivation

The objective of this assignment is to help you to learn scripting, which is used in industry and academia for various simulation and automation steps of design and verification of software and hardware systems. You will use Python for any EE355 scripting. Please note that we will continue to include Python scripting in your future PA and lab assignments and test you as part of our Midterm II and Prog. Test II.

Description

Part I – 70 Points

Write a script (lab10.py) that reads an input text file, in.txt (at least 500 strings)

The definition of a string in this lab is a group of characters (any characters including special characters and numbers; except the space character itself) the appear after a space and then followed by a space. E.g., given the following as part of in.txt:

1The grea. test? jobs$ presidentE
1” . …

there are 8 strings in order: #, 1The, grea., test?, jobs$, presidentE, 1”, ., and …

Your script then writes every string in in.txt into an output file, out1.txt, with the following additional details: The strings in in.txt should be counted (numbered), and out1.txt should list the string number and the corresponding string with the following format:

String	String Number
xxx	1
xxxx	2
xx	3
…	

e.g., for a file that starts with "In the last 20 years the $ investments in autonomous driverless cars.."
should be listed in out1.txt as:

String	String Number
In	1
the	2
last	3
…	

Note: Out1.txt has the strings in order (of their appearance in in.txt).

Part II – 70 Points

Your script should also locate article "the" and while copying in.txt into an output file, out2_the.txt, it should replace "the" with "THE".

Note: You would search for "the" exclusively, meaning no overlapping, e.g., "them" should not be taken as including "the", also "The", should not be accounted.

Part III – 70 Points

Your script should also randomly choose 10 strings from in.txt and write the string and its corresponding line number (the in.txt line where the string appears) in out3_random10.txt:

Randomly Selected String	Line Number
Great	1
locker-room	56
$	25

Note: Your random number generator should not allow repetitions.

Submission

1. Zip all the files you need to submit (Lab10.py, Readme.pdf) into a zip file named: "firstname_lastname_lab10".zip.
2. Your zip file should include all the coding parts the assignment asks for, and also a Readme.pdf. For this assignment it is okay that your zip file would only include one file, i.e., your Readme.pdf.
3. In your Readme.pdf, include any information that you think the course staff, especially the grader should know while grading your assignment: references, any non-working part, any concerns, etc.
   a. Any non-working part should be clearly stated
   b. The citations should be done carefully and clearly, e.g.: *"to write my code, lines 27 to 65, I used the Diijkstra's shortest path algorithm c++ code from the following website: www.SampleWebsite.com/..."*
   c. The Readme file content of labs and PAs can be hand-written or typed. In case you decide to hand-write, then please scan and include in your Readme.pdf.
      NOTE: this policy is different from that of the HW. For HW assignments, the solutions have to be handwritten.

Use the provided BB submission link to submit your zip file for this assignment