CSC 401 – Introduction to Programming

Assignment 3

Your assignment is to solve the following problems (A & B) in Python. *These 2 should be put in 2 python files (**assgn3_a.py** and **assgn3_b.py**), to be executed in the Python IDLE interface as previously covered.*

Problem A)

1. Create a function that accepts a file name and search string parameter and returns the number of times the search string appears in the file. The below instructs how this must be done.

2. This function should load the specified text file (we will use the provided "Dracula.txt") and count all instances of the specified search string found in that file. ***NOTE: You must use the line-by-line method of processing the text file for this problem.*** The count should be returned from the method.

3. To call this function, prompt the user for the file name, then again prompt the user for the search string *(the search string should be alphabetic only).* Then pass the file name and the search string to your function. Save the returned count in a variable.

4. Print a result statement in this format: *SearchString* appears in *FileName ResultingCount* times

5. Examples for you to test with:

    ```
    Enter Text File Name: Dracula.txt          Enter Text File Name: Dracula.txt
    Enter Text to Search For: Whitby            Enter Text to Search For: Borgo
    Whitby appears in Dracula.txt 43 times      Borgo appears in Dracula.txt 11 times


    Enter Text File Name: Dracula.txt          Enter Text File Name: Dracula.txt
    Enter Text to Search For: Harker            Enter Text to Search For: Vampire
    Harker appears in Dracula.txt 160 times     Vampire appears in Dracula.txt 14 times
    ```

6. In your python file, be sure to define the function first, then add the user-interaction, function invocation, and output generation afterwards:

    ```python
    def your_function(file_name, search_string):

        your function code…

        your function code…

        your function code…


    #
    # Here get the file name and the search string from the user
    #

    #
    # Here call your function and save the resulting value
    #

    #
    # Here print the results as specified:  Whitby appears in Dracula.txt 43 times
    #
    ```

Problem B)

1. Create a function that accepts a file name and search string parameter and returns extracts of the text that contain the search string. The below instructs how this must be done.

2. This function should load the specified text file (we will use "Dracula.txt") and then find all instances of the search string found in that file.

   For each of these instances, print an output statement showing the instance count (1 through *n*), and a string containing the 30 characters before the search string, the search string, and the 30 characters after the search string. If there are any newline's, replace them with the "|" character. For example:

   ```
   he other two were Exeter, and Whitby on the|Yorkshire coast.||It w
   ```
   ●————30 chars————————————————————30 chars————●
   ```
   lington, No. 7, The|Crescent, Whitby, another to Herr Leutner, Var
   ```

   You do not have to use the line-by-line method for this problem. You can use any method you want to use. (Loading the text all-at-once makes this problem a bit easier)

3. Your output should go to a *new text file* named after the search details: ***InputFileName_SearchString**.txt*

   Note the file extension ".txt" should be removed from the input file name as is shown in the names below

   Example Output (Search String: "Whitby"), Output file name: **Dracula_Whitby.txt**

   ```
    1) he other two were Exeter, and Whitby on the|Yorkshire coast.||It w
    2) lington, No. 7, The|Crescent, Whitby, another to Herr Leutner, Var
    3)  MURRAY'S JOURNAL|||_24 July. Whitby._--Lucy met me at the station
        . . .
   41) did.|Oh, why did I ever go to Whitby? There now, crying again! I w
   42) ndows of St. Mary's Church at Whitby. I knew, too, the|red scar on
   43) or fly on shore, as he did|at Whitby. But if the day come before h
   ```

   Example Output (Search String: "Borgo"), Output file name: Dracula_Borgo.txt

   ```
    1) ally on the frontier--for the|Borgo Pass leads from it into Bukov
    2) on it is kept for you. At the Borgo|    Pass my carriage will aw
    3) on losing no|time in reaching Borgo Prund. I was told that this r
        . . .
    9) hey|would be about now at the Borgo Pass. God guide and help them
   10) by morning we shall reach the Borgo Pass. The|houses are very few
   11) go|unrecorded.||We got to the Borgo Pass just after sunrise yeste
   ```

4. In your python file, be sure to define the function first, then add the user-interaction, function invocation, and output generation afterwards.

Submission

- Your submission should consist of your Python ".py" file, submitted via D2L.

- This assignment is due (submitted via D2l) before the start of class in 2 weeks

- NO LATE ASSIGNMENTS CAN BE ACCEPTED.

- You may email me with any questions on this assignment at any time between now and the due date at chield@depaul.edu or christopher.hield@gmail.com.