CS-521 Homework Assignment 6

Assignment Directions

Complete the 1 python coding problem below. It is worth 100 points (100%).

Style Requirements

For this assignment, follow the guidelines in the PEP8 Standards and Best Practices that have been shared to date, along with course specific requirements. Remember these to avoid minor deductions. In **bold** are new style requirements since the previous module.:

- Name your program properly
- Name objects appropriately
  - variables and functions must use snake_case (lower case plus underscores)
  - CONSTANT variables in all upper case
  - **Class objects must start with an Uppercase letter**
- Include docstrings, this includes:
  - At the start of your program
  - Immediately after function definitions
  - **Immediately after class object definitions**
  - **Immediately after method definitions**
- Include an adequate # line comments (just a few in each program, don't go crazy)
  - Line comments must be indented to match code lines
- Keep all code/comment lines under 80 characters
- Clearly explain the output you are printing (where not obvious)
- Trap errors from bad user input that might cause code to crash
- Keep scope for try blocks VERY small – generally one or two commands
- Use format() or format strings f' ()' to round output and add thousand separating commas (US standards)
  - 123456.126 should be 123,456.13 ➔ '{:,.2f}'.format(123456.126)
- NEVER use a "main()" function
  - Or any function that neither has input arguments nor return values

There are no user defined functions in this program, only class methods.

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Modules Allowed
You are welcome to import the following modules into your programs and use their methods and attributes without special permission from your facilitator.

Do not import a module unless you are using it.

- operator
- os
- random
- re
- string
- sys

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The following includes concepts taught in Chapter 11

Write a python class library called Sentence that evaluates and manipulates an English sentence. Your program will be called Sentence.py and contain the following class attributes and methods:

- A constructor that takes a sentence string as input.
    - The default value for the constructor should be an empty string
    - Converts the sentence to a list attribute
        - First remove all punctuation
    - The sentence must be a private attribute in the class
- get_all_words — Method to get all the words in a sentence
    - Takes no arguments
    - Return: all the words in the sentence as a list
- get_word — Method to get one desired word from the sentence
    - Arguments: Index location of desired word
    - Return: The single word or an empty string for a number outside the range
    - It is okay for the program to crash on a non-integer argument
- set_word — Changes the word at a given index location in sentence to a new word
    - Arguments: index, new_word
    - Does not return anything
    - The word change must persist within the instance
- scramble – Scrambles the words in a sentence
    - Takes no arguments
    - Return: a scrambled list of all the words in a sentence
        - **This does not change the sentence attribute in your sentence instance**
- A repr method — use the built-in method
    - Return: The sentence list as a single string, with a period at the end

In Sentence.py, include a unit test that does the following:

- Runs inside an if __name__ block
- Instantiates the class with a sentence of your choice
- Validates set_word() method in that instance to demonstrate it works correctly
    - Use assert command when checking for errors
- At the end of your unit test, print:
    - a message that the sentence worked correctly
        - For example ➔ Sentence unit test successful
    - the original version of your sentence
    - the scrambled version of your sentence
    - the final version of your sentence

Where to submit?

Click Assignments in the Navigation Area and then click on the title of the assignment to enter the submission area and **upload your Sentence.py program**. This should not be in a zip file.