

CPSC 230: Computer Science I
Spring 2020 Programming
Assignment 6 Due: 4/3/20

Overview Implement the following problems as self-contained python modules.
YOU ARE NOT ALLOWED TO USE A DICTIONARY.

1. Write a module, `complement.py`, with a function, `complement`, that returns the complement of a DNA string. Also provide a function, `rev_complement` that takes a DNA sequence as string input and returns the reverse complement of the sequence as a string. Recall that the valid alphabet is {A, C, T, G} and that A-T and G-C are complements. A reverse complement is found by reversing the input string and replacing every nucleotide with its complement. This means that your `rev_complement` function should use your `complement` function internally rather than duplicating code. Your functions should do appropriate error checking and return an error message as appropriate. Test your functions with input from the user.

For example, if your input is ACTG, your complement should be TGAC and your reverse complement should be CAGT.

2. Write a module, `latin.py`, with two functions `word_to_pig` and `name_to_pig`. Your `word_to_pig` function will take 1 parameter that converts the word based on the below rules. Your `name_to_pig` function takes 2 input parameters, `first_name` and `last_name`, and will use your `word_to_pig` function to do the translation to avoid duplicating code. Your `name_to_pig` function returns the names in pig Latin. Test your functions with input from the user, **you only need test a name, not a word and then a name.**

Please use the following guidelines for Pig Latin:

- **Words beginning with consonants:** move the consonant from the start of the word to the end of the word. Then add the suffix "ay" to the end of the word. For example, the word "hello" would become ellohay, the word "duck" would become uckday.

- o For a bonus, remove all consonants from the start of the word to the end of

- the word and then add the suffix "ay" to the end. For example, "Chapman" becomes Apmanchay.

- **Words beginning with vowels:** all you need to do is add "yay" to the end of the word. You don't need to change any letters around, just say the word as normal then add "yay" to the end. For example: the word "egg" becomes eggay and the word "ultimate" becomes ultimateyay.

Make sure to use your string methods so you have capital letters where appropriate and not otherwise. Test your functions with input from the user. Assume the user enters his/her name with capitals for both their first and last name.

i.e. – Elizabeth Stevens become Elizabethyay Tevenssay (bonus – Evensstay)

Due Date

This assignment is due at 11:59 pm on 4-3-2020. Submit via Canvas; create a zip file with all your files in it. It should be labeled firstinitiallastname_Assignment6. Please make sure to include all the required files (README, source files).

Grading

Your program will be evaluated for correctness and elegance. In particular, you should make sure your code is properly commented and obeys standard naming conventions.