Homework 5

Strings and Things

Due October 22, 2021 at 5pm

In this homework, you will be doing a series of exercises designed to make you practice using strings and modules, as well as to continue practicing using loops and functions. Each one of these programs should be in a separate Python file. You should use the elements of good basic Python style discussed in class.

Learning Goals

1. Use operations on string variables.
2. Gain additional practice with functions and loops.
3. Use the Python random module to produce guessing and variability.
4. Identify and fix errors.
5. Use elements of good basic coding style.

The Assignment

Write three small programs to do the following three tasks. For each program, you must prompt politely for input and print out the answer in an explanatory sentence. Each program you write **must** use at least one function!

1. 1. **hw5a.py** Write a program to generate random political slogans. Each slogan should have the grammatical format:

   <Name>: <verb> <direct object> <adverb phrase>

   Use the following word options:

   Names: Hulk, Spock, Daenerys, Aaron Burr, The Cowardly Lion, Cinderella, Black Panther, Merida, Uhuru, Freya, Frodo, Megan Rapinoe
   Verbs: Leading, Serving, Building, Creating, Putting, Fighting, Taking, Cleaning up, Protecting, Putting, Smashing, Working, Incinerating, Kicking
   Direct objects: the future, our community, jobs, education, corruption, action, families, change, progress, government, results, our enemies
   Adverb phrases: with integrity, for you, first, safe, for the future, for a change, for Maine, with experience, with vision

Your program should ask the user how many slogans to generate and generate that many slogans, each on its own line. Use the random number generator to pick an option from each category.

`Sample output:`

```
How many slogans would you like? 5
Hulk: Smashing the future with integrity
Cinderella: Cleaning up corruption for you
Black Panther: Protecting our community with experience
Frodo: Creating jobs for Maine
Daenerys: Incinerating our enemies with vision
```

2. **hw5b.py** Write a program to complete palindromes with the smallest number of additional letters to the end of the word. A palindrome is a word that reads the same from the front and the back. Your program should prompt for a starter string and then add the minimum number of additional letters to the end of the string to create a palindrome. The palindrome produced should use all lower- case letters, regardless of the capitalization of the input string. Treat any white space (for example, spaces) as any other character. Your program should continue to produce palindromes from user input until the user ends the execution by giving 'quit' as the input.

   Sample output:

```
String that you would like to palindromize:  blue
blueulb
String that you would like to palindromize:  Blue
blueulb
String that you would like to palindromize:  race
racecar
String that you would like to palindromize:  kayak
kayak
String that you would like to palindromize:  step on
step on no pets
String that you would like to palindromize:  rotat
rotator
```

3. **hw5c.py**. **Pig** is a folk jeopardy dice game described by John Scarne in 1945, and was an ancestor of the modern game **Pass the Pigs®** (originally called **PigMania®**). The rules are simple: Two players race to reach 100 points. Each turn, a player repeatedly rolls a die until either a 1 is rolled or the player holds and scores the sum of the rolls (i.e. the *turn total*). At any time during a player's turn, the player is faced with two decisions:

   - **roll** - If the player rolls a
     - **1**: the player scores nothing and it becomes the opponent's turn.
     - **2 - 6**: the number is added to the player's turn total and the player's turn continues.
   - **hold** - The turn total is added to the player's score and it becomes the opponent's turn.

Your task here is to implement a single turn of Pig where the player holds at 20. This program could be the first piece of a whole game implementation. Specifically, you will simulate a single turn of Pig where a player rolls until a 1 ("pig") is rolled, or the turn total is greater than or equal to 20. For each roll, print out the number rolled. When the turn completes, print the total earned.

Here are some sample of example turns:

```
Roll: 4
Roll: 5
Roll: 6
Roll: 5
Turn total: 20
```

```
Roll: 3
Roll: 1
Turn total: 0
```

```
Roll: 5
Roll: 2
Roll: 3
Roll: 6
Roll: 5
Turn total: 21
```

How to turn in your homework

Turn in each program in its own file. When turning in your own assignment make sure to add your last name to the file name (for example: Rheingans_hw5a.py).