COP 2930 - Individual Programming Assignment #10

Due date: Please consult WebCourses for your due date/time

Objectives

1. Practice using strings.
2. Write a program that uses, lists, functions and strings.

Problem A: Blended Family (blended.py)

In the traditional days, when a man married a woman, the woman would take the last name of the man and all of the children would also take the man's last name.

But, in these times, not all marriages are between men and women and it's not always the case that the whole family just takes one name.

In an effort to become more equitable, you've come up with a great compromise naming system that should treat both spouses and their children equitably. The spouses get to keep their own last names, but all the children will get the same last name, that is a mix of the last names of both parents. To really show that the family is blended, we'll do the following:

1. The first half of the new last name will be formed with the first half of the last name of the first spouse, concatenated with the second half of the last name of the second spouse.

2. The second half of the new last name will be formed with the first half of the last name of the second spouse, concatenated with the second half of the last name of the first spouse.

Spouses will have to decide who is the "first spouse" and who is the "second spouse"! (If they can't do this, maybe they shouldn't be getting marries =))

For example, if the first spouse's last name is Murray and the second spouses last name is Johnson, then the composite last name will be Murson-Johnray. As can been seen with this example, if the length of a spouse's last name is odd, then the first half is the deemed to be one letter longer than the second half.

In your program, prompt the user to enter the first spouse's last name and the second spouses last name. Then, output the blended name using the directions in this prompt!

Input Specification

Note: It is guaranteed that whoever uses your program will adhere to these specifications. This means that you do NOT have to check for them!

Both spouses names will start with a single capital letter and then be followed by 1 to 20 lowercase letters.

Output Specification

Output the blended family name using the following format:

Your children will have the last name X-Y.

where X is the first half of the blended name and Y is the second half of the blended name.

Output Samples

Below is one sample output of running the program. **Note that this sample is NOT a comprehensive test.** You should test your program with different data than is shown here based on the specifications given above. In the sample run below, for clarity and ease of reading, the user input is given in *italics* while the program output is in **bold**. (Note: When you actually run your program no bold or italics should appear at all. These are simply used in this description for clarity's sake.)

Sample Run #1

What is the first spouse's last name?
Murray
What is the second spouse's last name?
Johnson
Your children will have the last name Murson-Johnray.

Sample Run #2

What is the first spouse's last name?
Gellman
What is the second spouse's last name?
Higgins
Your children will have the last name Gellins-Higgman.

Sample Run #3

What is the first spouse's last name?
Biden
What is the second spouse's last name?
Harris
Your children will have the last name Bidris-Haren.

Sample Run #4

What is the first spouse's last name?
Trump
What is the second spouse's last name?
Pence
Your children will have the last name Truce-Penmp.

Problem B: Quarantine Letters (quarantine.py)

Local schools are in session, but if a student on campus gets COVID-19, then not only does that student have to quarantine at home, but also all other students who were in close proximity to that student for an extended duration of time do as well.

Luckily, each teacher has a seating chart, which can be modeled as a list of lists, where each row is a list of strings, where the strings are the names of the students in the corresponding seats. The following list of lists represents the classroom plan shown below it:

```
scienceClass = [["Anya", "Jane", "Mick", "Lauren"],
                ["Jamil", "Prince", "Janie", "Talia"],
                ["George", "Madison", "Connor", "Jade"]]
```

Anya	Jane	Mick	Lauren
Jamil	Prince	Janie	Talia
George	Madison	Connor	Jade

The school rules are that if a student has COVID-19, in all of their classes, if a student sits directly in front of them, behind them, to their left or to their right, then those students must quarantine as well. (Note: This isn't the real rule, I just made it up for this problem.)

The student who already has COVID-19 knows they do, so they don't need to receive a quarantine letter, but those adjacent to them in class need to receive a letter. In the example above, if Janie (highlighted in yellow) has COVID-19, then Mick, Connor, Prince and Talia would also be asked to quarantine.

For this problem, write a function that takes in a list of lists, where the elements in each of the single dimension lists are strings, and the name of a student who has COVID-19. Your function should return a list of names of students who should quarantine. It is guaranteed that the names of the students in the class (the lists of lists) is unique. But, it is NOT guaranteed that the student who has COVID-19 is in the class. If the student is NOT in the class, then the function should return an empty list. If the student is in the class, the list returned should have 0, 1, 2, 3 or 4 students in it, depending on how many students are adjacent to the infected student. Remember that this list should NOT include the student who has COVID-19.

To ease testing, several test cases are provided for you in the file to fill in for this problem, `quarantine_framework.py`. Please edit this file, adding your code for the function, save the edited file as `quarantine.py` and submit.

It should be straight-forward for you to work out what the correct answers to each of the tests is.

Restrictions

Please IDLE 3.6 (or higher) to develop your programs. Write each in a separate file with the names specified previously, **blended.py** and **quarantine.py**

Each of your **two** programs should include a header comment with the following information: your name, course number, assignment title, and date. Also, make sure you include comments throughout your code describing the major steps in solving the problem. For the second program, please leave our tests in the file for ease of grading.

Grading Details

Your programs will be graded upon the following criteria:

1) Your correctness and filling in the given function prototype appropriately.

2) Your programming style and use of white space. Even if you have a plan and your program works perfectly, if your programming style is poor or your use of white space is poor, you could get 10% or 15% deducted from your grade.

3) Compatibility to IDLE.