CS8, Spring 2017, UCSB
Hw5: Worth 50% of Lab05 score (50 total points)

Print this form, staple loose pages together, and write your answers on it.

Accepted: On paper, at *your* lab section on Tuesday, May 9.
          Place on the front desk as you walk in, before getting seated.

Name (2 pts): _____

Umail (2 pts): _____@umail.ucsb.edu

Lab Time (2 pts) Circle one: 8am   9am   10am   11am

To answer the questions on this homework, it will be very helpful to have a computer system running Python 3.x available to you.

Review pp. 83-94 from Chapter 3 in your textbook, and then read pages 117-128 from Chapter 4. Then answer the following questions.

    1. (2 pts) In Python, a "sequential collection of characters" is called what?

    2. (2 pts) What kind of sequential Python collection would allow us to have an integer in each position, instead of a character?

    3. In Chapter 3 we learned to access the individual characters of a string by using an index (i.e. a number inside square brackets such as [1] or [2]). As explained in Chapter 4, the operator [ ] can also be used to represent a list in Python, and then it can be used to access individual items. For example:

        ["Go", "Gauchos"] is a list of strings
        [2,3,5,7,11,13,17] is a list of numbers

        a. (4 pts) What do I write to assign a variable named friends to a new list containing "Sonia", "Ernie", "Alice" and "Bob" (in that order)?

        b. (2 pts) Say I type the assignment statement in (a) at the >>> prompt. What would be the result if I then type friends[2] at the >>> prompt?

        c. (2 pts) (continuing....) What would be the result for friends[-2] ?

        d. (4 pts) What TWO different expressions could I write that involve filling in the [ ] in friends[ ] with some number, that would return the final friend name (e.g., "Bob" in this case)?
[Hint: one uses a positive index, and the other uses a negative index.]

4. (4 pts) Chapter 4 introduces the terms "mutable" and "immutable". What do we mean when we say that a list is mutable, but a string is immutable?

5. Let scores be the name of a list of exam scores. For example, maybe scores = [92, 80, 78, 96, 85], or maybe scores is a list of 250 values or more For each of the following questions, write a single statement that reveals the answer in a Python shell.

    a. (2 pts) What is the total of all values in the list (added together)?

    b. (2 pts) How many values are in the list?

    c. (4 pts) What is the mean of the values in the list (i.e., average calculated as total of all values divided by the number of values).

    d. (2 pts) What is the greatest value in the list?

    e. (4 pts) What is the range of values in the list (i.e., greatest minus the least value)?

6. Continue processing the list named scores from problem 5. For the following questions, you may use more than one statement if you want.

    a. (5 pts) What is the average of the first n values in the list (assuming that n is less than or equal to the total number of values)?

    b. (5 pts) What is the greatest value in the first half of the list?

End of Hw5