Name: (as it would appear on official course roster)
UCSB email address: **@ucsb.edu**
Lab Section:
Optional: name you wish to be called if different from above
Optional: name of "homework buddy" (leaving this blank signifies "I worked alone")

h06: String Formats and File I/O

Assigned: Wednesday, May 15th, 2019
Due: Tuesday, May 21st, 2019
Points: 100

- You may collaborate on this homework with AT MOST one person, an optional "homework buddy". MAY ONLY BE TURNED IN THE LECTURE LISTED ABOVE AS THE DUE DATE. There is NO MAKEUP for missed assignments; in place of that, we drop the single lowest score (if you a zero, that is the lowest score.)
- **IMPORTANT**: When submitting this homework:
  o **DO NOT USE STAPLES**
  o WRITE YOUR **NAME ON EACH PAGE** IN THE SPACE PROVIDED
  o USE DARK INK PENS – PLEASE **DO NOT USE PENCIL**
  o PRINT THIS HOMEWORK **DOUBLE-SIDED** PLEASE!
- **REMEMBER**: If you use code/techniques we have not learned in class, you will **NOT** get credit!

READING ASSIGNMENT: Read Chapter 4 in Perkovic, review your lecture slides/notes. Then complete these problems.

1. (10 pts) Finish the code below such that I am printing numbers from 7 to 12 like this (IMPORTANT: note the use of space character(s) BEFORE the numbers):

```
 7
 8
 9
10
11
12
```

```
for num in range(_____):

    print(_____)
```

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2. (30 pts) Write Python code that will show the square roots of all integers from 0 to 10, printed on ONE line, each separated by a comma and space (except for the last entry, which has a newline at the end), and showing up to 3 places after the decimal point.

Exactly like this:
```
0.0, 1.0, 1.414, 1.732, 2.0, 2.236, 2.449, 2.646, 2.828, 3.0, 3.162
```

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3. (60 pts) Go to **http://cs.ucsb.edu/~zmatni/cs8s19/itsybitsy.txt**.

    a. Copy the text and save it on your computer on a file using your favorite text editor (example, Notepad or Notepad++ on Windows, or Sublime or TextEdit on MacOS, or vim or emacs on Linux). ***Be careful to save it as a simple TEXT file only*** (that is, NOT as a Rich Text File or Microsoft Word File, etc…).

    b. Run the following Python program that reads the file in part (a) **and then <u>explain what it</u> <u>does and wh</u>**y. Specifically, explain:

        i. Why do the print statements inside the for-loops have the **end=''** option?
        ii. What differences do the strings **f1** and **f2** seem to do?
        iii. How are each of the 3 runs in the program different from one another?

        (write your answers on the next blank page)

```python
f1 = '{0:1}'
f2 = '{0:>55}'

InFile = open('itsybitsy.txt', 'r', encoding='utf-8')
LoL = InFile.readlines()

print("***RUN 1***")
for line in LoL:
    print(line, end='')

print("***RUN 2***")
for line in LoL:
    if "and" in line:
        line = line.replace("and", "AND")
    print(f1.format(line), end='')

print("***RUN 3***")
for line in LoL:
    if "spider" in line:
        line = line.replace("spider", "Gaucho")
    print(f2.format(line), end='')

InFile.close()
```

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Write your answers for question 3 here:

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EXTRA QUESTIONS 4 U!

As announced in class, these are extra problems for you to work on IF you want. These are COMPLETELY OPTIONAL to do and will not be graded. Solutions will be given when the homework is due (next Tuesday).

A) If you want the output of the (incomplete) Python code below to print out the following on the screen:

```
111.00
108.00
105.00
102.00
99.00
96.00
```

Then, complete the code:

```
for n in range(_____):

        print(_____)
```

B) Complete this code:

```
for x in range(_____):

    for y in _____:

        f = "Trial_____"

        print(f._____)
```

So that the output is (IMPORTANT: note the spacing of everything):
```
Trial 0, on Student  Morty
Trial 0, on Student   Rick
Trial 0, on Student Eugene
Trial 0, on Student   Tina
Trial 0, on Student Louise
Trial 1, on Student  Morty
Trial 1, on Student   Rick
Trial 1, on Student Eugene
Trial 1, on Student   Tina
Trial 1, on Student Louise
```

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C) Write a Python program that will continuously ask a user to keep inputting positive, non-zero floating point numbers – and then stop if the user enters zero. As the user is entering these numbers, the program is writing them each on a separate line inside an output file (call it, "out.txt"). When the user finally enters a zero, the program stops asking for more numbers and closes the output file that it's been writing. It then finally prints out a message on the standard output (display) that says "All Done!".