SCORE: (out of 40)

CS 8 – Introduction to Computer Science
HOMEWORK 8
Print this form and write your answers on it.

Submit this homework (hardcopy) to class. DUE DATE is 06/08/17.

Name: _____

Umail: _____@umail.ucsb.edu

Lab Time Circle one: 3 PM 4 PM 5 PM 6 PM

1. (10 pts) Examine the following Python source code that uses a while loop:

```
i = 100
while (i < 499):
    print(i)
    i = i + 100
```

a. (2 pts) How many times will this loop execute?

b. (2 pts) What is the value of i after the loop is done executing?

c. (6 pts) Rewrite the code to use a for loop instead. Be sure the printed results will exactly match the results printed by the while loop above.

2. (2 pts) What is wrong with the following code, and what must be done to fix it (*if* anything's wrong):

```
i = 0
while (i < 4):
    print(i)
```

3. (14 pts) Write a Python function, **`ListNames`**, that keeps asking the user to input an undetermined number of names and creates a growing Python list of these names. Once the user enters 'q' or 'Q' at the input prompt, however, the program stops asking for names and instead prints out the message: "You entered *N* names." (where *N* is the number of people the user entered). The function returns the Python list of names in alphabetical order. That last 'q' or 'Q' entry should not be counted towards the calculation of *N* and should not be in the final returned list.

You can submit the answer to this question as a print out on a separate attached sheet to this homework.

4. (14 pts) Consider **ΣX(n)**, a sum of numbers in the following infinite series:

2 + 5 + 8 + 11 + 14 + 17 + … etc

Write TWO Python functions: **`SeriesX1`** and **`SeriesX2`**, where **`SeriesX1(n)`** calculates the value of the sum up until the n^{th} position (assume the first position is position 0) using a recursive function approach, and where **`SeriesX2(n)`** does so using a for loop.

You can submit the answer to this question as a print out on a separate attached sheet to this homework.