COS 125 HW #1 Due Weds Sept 14, 2016 EoD (11:59pm)

SUBMIT YOUR HOMEWORK IN A SINGLE PDF FILE ON BLACKBOARD.

Your submission should include your name, the date, and the assignment number. Please give your homework file a name that includes your name and the assignment number. For example, if your name is Jane Brown, the filename could be Brown_Jane_hw1.pdf.

PROBLEM 1 (25 points) Using just the * and space characters write a Python program that will print out your first initial, a period and your last name on the same line. Example: `C. MEADOW` If your last name is longer than 8 characters you can just do the first 8. Use any size grid that will make the characters readable. Just try to make the result look as good as you can. You may use any of the techniques presented in class. Be sure to include a listing of your program and a copy of the output in the document that you submit.

PROBLEM 2 (15 points) Enter the Let's Make a Deal program (with swapping) from notes #3 into Python, or copy and paste it from the notes. Run it 30 times, never taking the offer to swap, and record how many times you were able to guess correctly which curtain is hiding the prize. Then run it another 30 times, this time always taking the swap. Record how many times you win the prize. Can you explain the results? (Note: for this exercise, just submit a statement of what your results were)

PROBLEM 3 (25 points). Modify the program from problem 2 by running it in a loop, and using **`random.choice()`** to simulate the human player. Use variables to control the number of iterations, the decision to take or not take the swap, and to record the results. Run the program 1,000 times for each of the following scenarios: human never swaps; human always swaps, and human randomly decides whether or not to swap. Your program should print the results (print "to the screen"). Submit your program and the output.

PROBLEM 4 (20 points) Draw a complete flowchart for the Odd-Even game. This works as follows. One player selects Even and the other player selects Odd. The two players simultaneously display either one finger or two. If the sum of the two fingers is even, the player who selected Even wins. Otherwise, the player who selected Odd wins. **Note: Both MS Word and LibreOffice have flowchart symbols.**

PROBLEM 5 (3 points) Explore or search python.org and find out what the acronym PEP stands for, in the context of the Python programming language.

PROBLEM 6 (7 points) Enter the following program as hw1-7.py, and then run it. Note: you can paste from a PDF, but you will have add the indents manually (use 4 spaces).

```
x = 2.2 - 2.0
print '2.2 - 2 = ',x
if x == 0.2:
    print "Python is a math whiz."
else:
    print "Huh, what?? x is NOT equal to 0.2"
```

To see what is really stored in x, just type x and press enter at the >>> prompt. Note the difference between this and the statement **`print x.`**

Show the value that Python gives for x without the print statement, and then using python.org or other internet resources, find out and try to explain why Python produces apparently inaccurate results when doing floating-point arithmetic.

PROBLEM N (5 points) HOMEWORK ASSISTANCE STATEMENT

- List the names of people who helped you, and explain what sort of help they provided.
- List any resources that you used (e.g., websites, books) other than the textbooks and lecture notes.