Due: Thursday 6th August 2015 5:00 PM

**Goals:**
By the end of this assignment you should be able to:
1. Debug and Test Code
2. Write programs using random.

Getting started: This homework uses the editor window (open Idle, then go to the menu and choose File> New File (may say “New Window” in some versions), a shortcut is ctrl+N on Windows, probably command+N on Macs.

Add comments to indicate the start of a problem using the # sign. Example: #Problem 1 The # sign tells Python to ignore everything after it.

**Project Instructions:**
Test Cases: Test cases are particular inputs that reveal the working logic of the program. Show inputs that would test every branch in your program.

**Part 1: Debugging**  project5a.py
i) The following function is broken. The docstring describes what it is supposed to do.

```python
def t_triangle(n):
    ""
    (int) -> None
    Prints a right triangle with n lines, where the first line prints 1 'T' and the last line prints n 'T's. If n <= 0, do not print anything. None value is returned.
    For example,
    >>> t_triangle(6)
    T
    TT
    TTT
    TTTT
    TTTTT
    TTTTTT
    ""
    ct = 1
    while ct < n:
        print('T' * ct)
    return #None
```

a.) Generate 5 examples to test t_triangle. [5 points]
b) Fix the bug(s) in the current version of t_triangle. Comment any code you change [5 points]

ii) The following function is broken. fix the code so it works. 10 points

Write comments where you make changes

```python
def find_min_and_max(values):
    '''(string)-> None
    finds the minimum and maximum digits in a non-empty string of integers and prints them.
    >>> find_min_and_max('45312')
    The minimum is 1.
The maximum is 5.
    '''
    min = 0
    max = 0
    for value in values:
        if value > max:
            max = value
        if value < min:
            min = value
    print('The maximum value is ' + str(max) + '.
    print('The minimum value is ' + str(min) + '.)
```

iii) Another programmer was supposed to write a function that will average a bunch of survey values together while ignoring zeros. Unfortunately their code doesn’t work and you’ve been tasked with fixing it. fix the code so it works. 10 points

```python
def my_average(values):
    '''(string)->float
    returns average of the digits in the input string except for zeroes which are ignored.
    >>> my_average('23')
    2.5
    >>> my_average('203')
    2.5
    '''
    count = 0
    total = 0
    for value in values:
```

if value != '0':
    total += int(value)
    count += 1
avg = total/count
return avg

Part 2: Random project 5b.py

i) Using turtle (remember week 2?), loops and random, design and implement a turtle function to simulate a random walk. Sometimes they create very nice patterns. Note: The aim isn’t to have multiple turtles, it is write a program/function to simulate a random walk. XC for getting multiple turtles [10 points]
XC: upto 10 points Is there any other way you could combine random,loops and turtle? Please elucidate on what you make.

ii) **Password generator:**
Write a program that would help a user generate a ‘random’ password. Ask the user to input the Day and month they were born (eg. 1-30, Jan-Dec) and the name of their first pet. Using choice create a password that is 11 characters long. The generator follows the following formula

password = [3 random letters from the name] + [3 random letters from pet’s name] + [3 random letters from birthday month] + birthday date.

If you would like to take the month and date separately for the birthday it wouldn’t be considered incorrect.

Usage:
```python
g Gutham your random generated 10 character password is aaGfTfyyy
```
```python
Gutham your random generated 10 character password is aaGfTfyyy
```

XC +5: Make this a looping program to keep generating passwords. Keep track of the number of passwords generated.
+2 : Initialize the seed using random.seed(seed), what do you observe?