COSC 101: Fall 2017
Lecture 13: while Loops

1) while Loops

   a. What is the output of the statements below?

       ```python
       for cnt in range(8):
           result += 2
       print(result)
       ```

   b. The for loop in the above example can be re-written as a while loop. Re-write the loop.

   c. What is the output of the statements below?

       ```python
       mynum = 3
       for i in range(1,15,mynum):
           mynum += i
       print(mynum)
       ```
d. Rewrite the above for loop as a while loop.

e. What if we wanted i in the program in example 3 to increase by the increasing value of mynum? Which loop should be used for this? Why?

f. Re-write the program with the appropriate loop.

g. What is the output of the following code?

```python
num1 = 4
num2 = 2
while num1 > 0:
    num2 *= 2
    num1 -= 1
    num2 *= 2
    num1 -= 1
    num2 *= 2
    num1 -= 1
print("num1 =", num1, "num2 =", num2)
```
2) **while loop practice**

An event coordinator wants to create a program that will create a random group of event participants so that the average age of the group is between 10 and 20. The group should also have at least two people in it. The event coordinator has the attendees in the form of a list of tuples, like so:

```python
attendees = ["Jack", 14], ["Lily", 19],
           ["Manish", 8], ["Alisa", 40],
           ["Ava", 6], ["Damaris", 35],
           ["Charles", 50], ["Nicolas", 9]]
```

a. What is the appropriate type of loop to use for this task? Why?

b. Write the program described above. Use a function to create the group. The function should take a list of attendees similar to above as an argument and return a list of the group members.
3) Challenge Problem

a. Revisit the game winner program again. Is there a better way to write the game winner code with the while loop? Recall that the game had three rounds but could be won in less.

b. Revise the game winner program to use while loops where appropriate. At this point you may also wish to divide the program tasks into functions in order to make the code more manageable. What kind of functions might you write to make your functions the most reusable?