CSCI.UA.0002
While Loops - PRACTICE
Introduction to Computer Programming (Python)

Name: ______________________

NetID / Email: ____________________
“while” Loop Practice Problems

Question #1: Trace the output of the following programs:

```python
x = 0
while x < 10:
    print (x)
    x += 2
```
Solution:

```
0
2
4
6
8
```

```python
x = 0
y = 10
while x < y:
    print (x, y)
    x += 1
    y -= 1
```
Solution:

```
0 10
1 9
2 8
3 7
4 6
```

```python
x = 5
y = 10
while x > y:
    print ("Looping!")
    x += 1
```
Solution:

No output (loop never iterates)

```python
name = "Python"
while len(name) < 10:
    print (name)
```
Solution:

```
Python
Python
Python
... (infinite loop)
```
Question #2

Part 1: Ask the user to enter a positive integer. Only accept positive integers – if the user supplies a negative integer you should re-prompt them

**SOLUTION**

```python
while True:
    num = int(input(“Enter a positive number: “))
    if num <= 0:
        print(“try again”)
    else:
        break
```

Part 2: Next, extend your program to print all numbers between 0 and the number the user supplied as follows:

Enter a positive integer: 5

0 1 2 3 4 5

**SOLUTION**

counter = 0

while counter <= num:
    print(counter, end=“ “)
    counter += 1
Question #3: Write a “bird watcher” program that prompts the user to enter in the number of birds that they spotted on a given day. The user can enter in values for an unlimited # of days. The user can elect to stop entering data by indicating that they saw 0 birds on a particular day. The user will always supply positive integers for the purpose of this program.

When you’re finished gathering data you should display the number of birds seen, the number of days that the user watched birds as well as the average number of birds seen per day. Here’s a sample running of the program:

How many birds did you see today? Enter 0 to end: 5
How many birds did you see today? Enter 0 to end: 10
How many birds did you see today? Enter 0 to end: 15
How many birds did you see today? Enter 0 to end: 0

You watched birds for 3 days
In total you saw 30 birds
That’s an average of 10.0 birds per day

#SOLUTION

days = 0
birds = 0

while True:
    b = int(input("How many birds? 0 to end: "))
    if b == 0:
        break
    else:
        birds += b
        days += 1

print ("you watched birds for", days, "days")
print ("in total you saw", birds, "bird")
print ("that’s an average of", birds/days, "birds per day")