Introduction to Python Programming
Andrew J. Pounds, Ph.D.

Exercise Five: The While Loop

Executing a block of code over and over until a certain condition is met is one of the things that makes computer programming much easier than spreadsheeting for certain problems. The simplest, and most general form of this type of procedure, called a loop, is implemented in python with the while statement

1. **The while construct**

   The while statement will look a lot like the if statement; it has a boolear argument. The difference is that the while loop will keep executing the indented code inside until the boolean statement is false. For example

   ```
   A = 0
   while ( A < 5 ):
       print A
       A+=1
   ```

   will print out

   ```
   0
   1
   2
   3
   4
   ```

   Any boolean expression can be used as the argument to the while loop. If you want the loop to run forever (called an infinite loop) you could just write…

   ```
   while (True):
       print "Help me -- I can't stop!"
   ```

2. **Unintentional Infinite Loops**

   Unintended infinite loops are common errors that new programmers often face. While they can generally be traced back to a logic error, the most common cause is that the programmer, in the indented sections of code, does not update variables used in the boolean expression that controls whether or not the loop is executed. For example, image what would happen if there were no A+=1 in the first loop presented.