INTRODUCTION TO COMPUTER SCIENCE I
Fall 2014
LAB 2
Loops

In this lab we'll practice a bit with loops, using them in some familiar contexts, and then in some less familiar ones.

1 Loop practice

Begin by practicing your use of loops by writing a couple of simple ones. Because we are now using more complex structures like *loops* (i.e., `while`), we will write this code into a `.py` file and run that module, rather than type the Python commands directly into the interaction (a.k.a., *shell*) window. So, to write these loops, do the following:

1. Open IDLE.
2. Create a new module by going to the `File:New Window`. Within the new window, select `File:Save`, naming the new module `practice-loops.py` and placing it wherever you have been storing your work for this course.
3. Within this new module, write code that **counts down from 10 to 1**, printing each value as it counts. You should use a `while`-loop here.
4. Next, add to the module code that obtains an integer from the user (let's call it `v`), and then, assuming that `v` is non-negative, **counts from 0 to** `v`, printing each value as it counts. Again, a `while`-loop seems a wise starting point.

Test your code with various input values to be sure that it works correctly, and then move on to the next section.

2 Your assignment

Write a program, in a new module named `fib.py`, that does the following:

- Ask the user for a value, which we'll call `n`, that is an integer whose value is **at least 2**. Your program may **not accept any lesser integer value**; that is, if the user enters `-3`, your program should prompt the user again for a value for `n`. It should repeatedly do so until a valid value for `n` is provided.
- Given `n`, calculate the n^{th} *Fibonacci number*. Note that this sequence is defined like so:

$$fib(n) = \begin{cases} n & \text{if } 0 \leq n \leq 1 \\ fib(n-2) + fib(n-1) & \text{if } n \geq 2 \end{cases}$$

  Have your program use a loop to calculate $fib(n)$ and then print that result.

3 Submitting your work

Go to the CS submission system to submit your work for this lab. You need only submit your `fib.py` module.

This assignment is due on Monday, Sep-15, 1:00 pm