CS 100 Lab Two – Spring 2019

Create a directory called **lab2** on your machine using `mkdir lab2` and move into that directory with `cd lab2`

Complete the following problems. Make sure to prompt the user for any input needed by the program. Whenever possible, please end the prompt with a newline, which will make the output more readable by the grader.

1. Name this program **digits.c** – The program reads a non-negative integer and prints the sum of all the digits in the integer. The basic algorithm for this process is as follows

   While the number is not zero
   Add the one's digit to the sum
   Update the number to remove the one's digit

   Example: If the user enters **1234**, the program generates the answer **10**
   Example: If the user enters **314159**, the program generates the answer **23**
   Example: If the user enters **1001**, the program generates the answer **2**

2. Name this program **range.c** – This program reads in a series of integers, stopping when the user presses CTRL-D to indicate end-of-input. The program should print out the range of the numbers seen. Note that the range is the difference between the maximum and the minimum. You can assume there will always be at least one number entered. For example, given the input shown at the right, the program generates:

   `Range of input = 3847`

84
105
37
873
-2016
-85
412
-407
55
22
1831
CTRL-D

3. Name this program **pic.c** – This program reads a single number (**num**), which is a positive integer, from the user and then prints a large X that is **num** rows high and **num** columns wide. For example, reading the value 5 generates the output shown on the left, and reading the value 8 generates the output shown on the right.

$$b == (num -1 - a)$$

Submit your lab

First, on your local machine, compress your **lab2** directory into a single (compressed) file, i.e. **lab2.zip**. To do this:

- PC: Using Windows Explorer, right click on the **lab2** directory and select "Send To" and then select "Compressed (zipped) folder."
- Mac: Using Finder, use a secondary click on the **lab2** directory and then select "Compress **lab2**."

Please make sure lab2.zip contains the lab1 directory as well as digits.c, range.c and pic.c under it.

Second, once you have a compressed file named **lab2.zip**, submit that file to Blackboard.