CS 100 Lab Four – Spring 2016

Create a directory called **lab4** on your machine. Move into that directory. Complete the four tasks shown below.

1. Name this program **math.c** – This program takes three command line arguments. The first is an integer. The second is an operator, one of +– * / %. The third is a second integer. It does the integer math requested and prints the result. You can assume the input will always be legal. Several sample executions are shown below.

```
./a.out 2 + 3
./a.out 100 - 99
./a.out 3 * 30
./a.out 15 / 4
./a.out 20 % 6
```

   Note, since * is a wildcard character, you need to handle multiplication via `./a.out 3 \* 30`
   If you do this, then your third command line argument is simply the * character itself.

2. Name this program **day.c** – This program gets two numbers from the command line, as shown below.

```
./a.out 2 22
```

   The first number represents the month and the second number represents the day. For example, **2 22** represents February 22. **Your program should print out the day-of-the-year for this date.** Since this is 2016, it is a leap year (February has 29 days). For this task, you will always be given two legal input values. Check your answers at http://mistupid.com/calendar/dayofyear.htm if you want.

3. Name this program **range.c** – This program should read five command line arguments, all of which are integer values, and **print the range of these values**. Recall that the range of a set of numbers is the largest number in the group minus the smallest number in the group. Your program can assume that any values that the user enters are valid integers and that the user always enters five integer values. Sample executions of the program are shown below

```
./a.out 2 4 6 8 10              range is 8
./a.out 55 102 -12 87 900       range is 912
```

4. Name this program **rpsls.c** – The game of rock-paper-scissors was expanded so that it now includes rock-paper-scissors-lizard-spock. The expansion was created by Sam Kass and Karen Bryla and made famous on the Big Bang Theory. See http://bigbangtheory.wikia.com/wiki/Rock_Paper_Scissors_Lizard_Spock for complete details. Your program should read the two player moves from the command line, as shown below, and **print a message indicating the winner**. You can assume that the first move (lizard in the case below) is for Player One, and the second move (paper in the case below) is for Player Two.

```
./a.out lizard paper
```

   You can also assume that the user will always enter a valid input for each player. That is, the word will be lowercase and will be one of "rock" or "paper" or "scissors" or "lizard" or "spock".

Submit your lab

First, on your local machine, bundle the files in your **lab4** directory into a single (compressed) file. To do this:

- PC: Using Windows Explorer, right click on the **lab4** directory and select "Send To" and then "Compressed (zipped) folder"
- Mac: Using Finder, use a secondary click on the **lab4** directory and then select "Compress *foldername*"

Once you have a compressed file that contains your four lab4 programs, submit that file to Blackboard.

Attendance: We will circulate a roster sheet shortly after lab starts and again about half-way through the lab. Not being present to sign the roster sheet will result in a deduction of 25 points for each missed signature.