CS 100 Lab One – Spring 2016

Coding – 80 points

Create a directory called **`lab1`** on your machine. Move into that directory.
Complete any four of the following problems – 20 points each

1. Name this program **`stats.c`** – Write a program that reads in five values, all integers, and prints the sum and the average (a real number) of these five numbers. Prompt the user for each number and make sure your print statements identify what the output actually is. Your prompt can be very simple, something like "Enter a number" and your print statements can be brief, as in "the sum is xxx" and "the average is yyy"

2. Name this program **`sleep.c`** – This program will prompt the user for the average number of hours he/she sleeps each night (a real number). Calculate and print the total number of hours that the user sleeps in one year (365 days). Also, print the percentage of that year the person is sleeping. Finally, using this average, calculate the total number of hours the person has slept by his/her twenty-first birthday.

3. Name this program **`twizzler.c`** – A Twizzler is eight inches long, and there are 30 Twizzlers in a package. If you took Twizzlers (pick your favorite flavor) and placed them end-to-end, how many packages of Twizzlers do you need to travel a certain distance? For example, it is 157 miles from Tuscaloosa to Auburn. How many Twizzlers is this? Your program should read an input (in miles) and tell how many Twizzlers you would need to build a string of Twizzlers that long.

4. Name this program **`snow.c`** – If you believe what you find on the web, a snowflake weighs about 3 mg (milligrams). A gallon of water weighs 3.78 kilograms. Write a program that prompts the user for a number of gallons of water (an integer) and computes how many snowflakes you could generate with that water.

5. Name this program **`change.c`** – You pull a bunch of change out of your pocket and wonder how much money you have. Rather than count it, you decide to write a program to do the math. Write a program that reads in four numbers – quarters, dimes, nickels and pennies. Print the value of this change (in cents). You can assume valid input, each number entered in an integer that is zero or greater. You can also assume that you always enter the number of quarters, then dimes, then nickels, then pennies.

Compiling your programs on the cs-intro Server – 20 points

- Log into the cs-intro server. From a terminal window, use "ssh xxx@cs-intro.ua.edu" where xxx is your myBama userid. Enter your myBama password when requested. Use vim to write "hello world" and then compile and run your program.
- Use FileZilla to connect to the cs-intro server
    - Host=**cs-intro.ua.edu**, Username = ***myBama userid***, Password = ***myBama passwd***, Port=**22**
    - Move the four programs that you wrote to the cs-intro server. To do this, just drag the lab1 directory from your local machine to the cs-intro server.
- Log into the cs-intro server (again). Your four programs should now be there (in the lab1 subdirectory). Change into that directory, compile, and run these four programs on the cs-intro server.

Submit your lab

First, on your local machine, bundle the files in your **lab1** directory into a single (compressed) file. To do this:

- PC: Using Windows Explorer, right click on the **lab1** directory and select "Send To" and then "Compressed (zipped) folder"
- Mac: Using Finder, use a secondary click on the **lab1** directory and then select "Compress *foldername*"

Once you have a compressed file that contains your four lab1 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.