Comp625: Data Structures & Algorithms - Lab 1

Synopsis

For this lab you will continue to practice using the tools that you need in order to compile and then run your programs. As noted previously we will use a text editor (nano) and the C++ compiler (g++). The purpose of this lab is to write a program that uses the concepts covered in class.

Note that lab work should be don on linus.unh.edu so everyone uses the same software.

Lab Folder

You should first create a folder in your home directory called "lab1" and cd into it. All your work should go into that folder. (Note, you may find it useful to create a labs folder and place both lab0 and lab1, as well as all future labs, within that to better organize your environment.)

Be sure to also get into the habit of doing a directory listening (i.e. either "ls" or "dir") to make sure you are in the directory that contains the filse you want to compile. Don't try and compile or run your code blindly, become proficient with the Linux command shell environment.

Task

For this lab you will get more experience working in C++. First, type in the following code and save it with the file name: *GradeAverage.cpp*

```
// This program will compute the letter grades for
// a set number of grades to be entered by the user.

#include <iostream>
using namespace std;

int main()
{

}
```

Your task is to fill in the code within **main()** that will do the following:

1. First it asks the user how many grades there are

2. Next it asks the user for each grade *(Hint: you may want to start adding them here)*

3. Once it has received them all it should take the sum of those numbers and compute the average and store that value in a **float** variable called *grade*.

4. Finally it takes grade and uses a conditional statement to print out the equivalent letter grade in the form "Your grade was: A" for example. The ranges are:

   A+ 97 – 100

   A 93 – 97

   A- 90 – 93

   … this repeats for B's, C's, D's and the rest is an F (i.e there is no F+ or F-)

   Note: the ranges above assume that the grade lies between the first number up to but not including the second number, except for an A+ which of course can be a 100 (i.e. a B would be an 83 up to but not including an 87…*Hint, you're dealing with real numbers here not integers*)

   Note2: You can do this using either **if/else** or the **switch** statement, your choice.

Compiling

Next you need to compile the code. To do so simply type the following command:

```
g++ GradeAverage.cpp –o GradeAverage.exe
```

You should see no messages returned on the command line. If you do that means you have a syntax error. In that case you need to carefully look at the code and correct errors.

Running

To run your program simply type:

```
GradeAverage.exe
```

After hitting Enter, your program should run. Note in Unix/Linux you will need to append the string "./" in front to tell the operating system to look for it in current directory.

Now What?

Once you're done, submit the finished lab to me. Note, it's easiest if you move your source file (i.e. the .cpp file) onto the desktop of your machine (use sftp to grab the file from linus.unh.edu). Then create folder with your first and last name called *First.Last.Lab1*, and place your lab work into that folder. Next, zip up the folder (please use zip) and then attach it to an email to me with the subject: **COMP625 Lab1**