CSE 2050 - Programming in a Second Language (C++)
Homework Assignment 1

August 25, 2015

1 Due Date

- **September 1, by 11.59pm**

2 Description

In this assignment, you will implement a number of small programs. These programs are simple and somehow repetitive.
You will declare variables, and choose the appropriate type for each variable.
The names of variables should be descriptive (e.g., interestRate, maximumValue).
In most of the programs, you will implement simple mathematical calculations, and use the `cout` object to display results on the console.
Add one-line comments to describe the main steps of the program.
Your programs should contain a multi-line header comment similar to:

```
/*
   PROGRAM: CIRCLE.CPP
   Written by Bob the Great
   This program calculates the circumference of a circle.
   Last modification: 8/20/2010
*/
```

The directory `src/` contains a `.cpp` file for each question, the driver header file, and an *incomplete* `Makefile` that builds multiple projects. You will write your code inside the provided source files, and you will edit the makefile so it builds all programs. Each program *must* be a separate executable file.

You will submit:

1. only the source files (i.e., .cpp and .h files) and the associated Makefile. *Do not* submit `.o` files, executables, or test datasets.
2. files at point 1 (i.e. `.cpp` and `.h` files, and the `Makefile`) *must* be in a `src` directory compressed in a single ".tar.gz" file.

To compress the `src` directory, type the following command on the linux terminal:

```
tar -zcvf src.tar.gz src
```

Be careful when you create the archive and double check that everything worked out as expected.

3 Questions

1. **Sum of Two Numbers**
   Write a function that accepts two integers, stores the sum of these two numbers in a variable named `total`, and return the total.

2. **Sales Prediction**
   The East Coast sales division of a company generates 62 percent of total sales. Based on that percentage, write a function that accepts the amount of sales of the company in millions, and predicts how much the East Coast division will generate this year.

3. **Restaurant Bill**
   Write a function that computes the tax and tip on a restaurant bill for a patron with a given meal charge. The tax should be 6.75 percent of the meal cost. The tip should be 15 percent of the total after adding the tax. *Display the meal cost, tax amount, tip amount, and total bill on the screen.*

4. **Average of Values**
   To get the average of a series of values, you add the values up and then divide the sum by the number of values. Write a function that stores the following values in five different variables: 28, 32, 37, 24, and 33. The function should first calculate the sum of these five variables and store the result in a separate variable named `sum`. Then, the function should divide the

sum variable by 5 to get the average. Display the sum and the average on the screen, and return the computed average value.

5. **Annual Pay**
   Suppose an employee gets paid every two weeks and earns `payAmount` each pay period. In a year the employee gets paid `payPeriods` times. Write a function that display the following values:

   `payAmount` This variable will hold the amount of pay the employee earns each pay period.

   `payPeriods` This variable will hold the number of pay periods in a year.

   `annualPay` This variable will hold the employee's total annual pay, which will be calculated.

   and return the value held by `annualPay`.