CSI201 – Tip Calculator

Practical:

Write a program that asks the user for a bill amount, and then calculates and displays: the amount of a 20% tip, and the total of the bill amount and this tip. Ensure that tips are always at least $1, and never zero. And also be sure to print a warning in response when the user attempts to enter a negative bill amount. As a first assignment, I have broken the construction of this program down into the following steps for you:

1. Create an empty new project in Visual Studio called *YourName*\_Assmt1 with a single C++ file. Fill this file with C++ code that prints the following text message to the screen: *Tip Calculator 1.0*.
2. Create a new variable called **checkAmount**, and give it an initial value of 65.
3. Create a new variable called **tipAmount**, and set it equal to 20% of the value in the **checkAmount** variable. Then print out the result for the user to see.
4. Create another new variable, this one called **totalPaid**. Set this variable equal to the sum of the **checkAmount** and **tipAmount** variable values. Then print this result out to the screen. Make sure your printouts make it clear which number is the **tipAmount**, and which is the **checkAmount**.
5. Now update your code so that it reads in the **checkAmount** from the user, instead of using a fixed value of 65. Be sure that you prompt the user to let them know that you are expecting them to enter this **checkAmount**.
6. While testing this program, you may notice that it is possible to get a **tipAmount** of zero. We want to be sure we always tip at least one dollar. So add some code to this program that changes the **tipAmount** to 1, whenever a tip of zero is calculated.
7. Try entering a negative number for the checkAmount when running this program. You’ll see this produces a somewhat nonsensical result. Add some code to check for this kind of result, and display an appropriate warning message like: *Warning: this program is unsure of how to tip for negative check amounts*.

# Problems:

(1-2). Which of the following are valid names for variables in C++ (highlight each)?

 Me2 8Lunch gr8Name good-name

 Need$4 abc better\_name \_best\_name\_

3. What character is used to multiply two numbers in C++: \_\_\_\_\_\_\_\_\_\_\_\_

(4-7). Match the following operators with what they are used for:

 4. \_\_\_ write output to the screen A. cin

 5. \_\_\_ assign a new value to a variable B. cout

 6. \_\_\_ read input from the keyboard C. =

 7. \_\_\_ check if two numbers are equal C. ==

8. Write a line of code that creates an integer variable with the name *magic* and an initial value of 200.

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9. Write a line of code to change the value of this *magic* variable, so that it become eight times larger than it previously was (do not assume that it starts out at 200).

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10. Write a line of code that only prints out “you need more magic” when the *magic* variable has a value that is less than 75. This can be written as one or more lines of code.

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Submission:

**Name:** [REPLACE WITH YOUR NAME]

**Honor Code:** [REPLACE WITH YOUR HONOR CODE PLEDGE]

**Resources:** [REPLACE WITH NAMES OF PEOPLE, WEBSITES, AND OTHER RESOURCES USED, ALONG WITH A BRIEF DECSRIPTION OF THE KIND OF HELP THEY PROVIDED]

After you have completed the practical portion of this assignment, zip your project folder into a single file and upload it to Canvas. After you have completed the written problems above, save this document (with your answers), and then upload it to canvas. For full credit, you will need to submit both halves of this assignment on Canvas, no later than **Tuesday February 3rd, 2015**.