Laboratory 2A

CS-102

Spring 2022

Laboratory 2A

- We’re going to get some practice in writing source code, compiling source code, and running our executables.
- You will find enclosed in this Lab, four programs that you are to enter and then run, plus a fifth program that will be an embellishment of Program 4.
  - Name the programs: *YourName*_Lab02A-1.cpp to *YourName*_Lab02A-4.cpp .
- Once the first three programs have been entered and are found to run properly,
  - If you are doing this Lab synchronously, call the instructor over to demonstrate that they all work as intended.
  - If you are doing this Lab asynchronously, submit the first four programs to Canvas.
- Then you may proceed to doing Programs 4 and 5.

```
// Your Name goes here!
// This program extracts the rightmost digit of a number.
#include <iostream>
using namespace std;

int main()
{
        int number = 12345;
        int rightMost = number % 10;

        cout << "The rightmost digit in "
                << number << " is "
                << rightMost << endl;

        return 0;
}
```

Program 1

a) Please Enter,
b) Compile
c) Run
d) Demonstrate

```
// Your Name goes here!
// This program calculates the sale price of an item
// that is regularly priced at $59.95, with a 20 percent
// discount subtracted.
#include <iostream>
using namespace std;

int main()
{
   // Variables to hold the regular price, the
   // amount of a discount, and the sale price.
   double regularPrice = 59.95, discount, salePrice;

   // Calculate the amount of a 20% discount.
   discount = regularPrice * 0.20;

   // Calculate the sale price by subtracting the
   // discount from the regular price.
   salePrice = regularPrice - discount;

   // Display the results.
   cout << "Regular price: $" << regularPrice << endl;
   cout << "Discount amount: $" << discount << endl;
   cout << "Sale price: $" << salePrice << endl;
   return 0;
}
```

Program 2

a) Please Enter,
b) Add 10% Sales Tax
c) Include Sales Tax in final Sale Price.
c) Compile
d) Run
e) Demonstrate

```
// Your Name goes here!
// This program converts seconds to minutes and seconds.
#include <iostream>
using namespace std;

int main()
{
        // The total seconds is 125.
        int totalSeconds = 125;

        // Variables for minutes and seconds
        int minutes, seconds;

        // Get the number of minutes.
        minutes = totalSeconds / 60;

        // Get the remaining seconds.
        seconds = totalSeconds % 60;

        // Display the results.
        cout << totalSeconds << " is equivalent to:\n";
        cout << "Minutes: " << minutes << endl;
        cout << "Seconds: " << seconds << endl;
        return 0;
}
```

Program 3

a) Please Enter,
b) Compile
c) Run
d) Demonstrate
e) Explain how it works

Program 4

Take Program 3, and now add the following additional requirements:

1. Allow the user to type in the total number of seconds, **totalSeconds**, from the keyboard. Call your new program: *YourName*_Lab02A-4.cpp.
   - Replace the line: int totalSeconds = 125; with the three following lines:
     - int totalSeconds;
     - cout << “Enter the total number of seconds”;
     - cin >> totalSeconds;
2. After adding an additional variable, **hours**, your program should now display the number of **hours**, the number of **minutes**, and the number of **seconds** contained in **totalSeconds**.
3. Test your program out typing in 100,000 for **totalSeconds**, and see if what you get makes sense.
4. When you have Program 4 working properly,
   - If you are doing this Lab synchronously, call the Instructor so that the instructor can check out your work and give you proper credit for it.
   - If you are doing this Lab asynchronously, submit the Lab to Canvas.

Program 5

Take Program 4, and now add the following additional requirement:

1. Allow the user to type in the total number of seconds, **totalSeconds**, from the keyboard. Call your new program: *YourName*_Lab02A-5.cpp.
2. Now add an additional variable, **days**, to your program
3. Your program should now display the number of **days**, the number of **hours**, the number of **minutes**, and the number of **seconds** contained in **totalSeconds**.
4. Test your program out typing in 200,000 for **totalSeconds**, and see if what you get makes sense.
5. When you have Program 6 working properly,
   - If you are doing this Lab synchronously, call the Instructor so that the instructor can check out your work and give you proper credit for it.
   - If you are doing this Lab asynchronously, submit the Lab to Canvas.