CS150-01 Lab 4

Arithmetic Operators

Date: Tuesday, September 16, 2008

The purpose of today's lab session is to allow you to gain experience mathematical expressions.
- Don't forget to add comments to each program.
- Be sure your output looks exactly like the specified output.
- Be sure to submit each project to **CS150-01 Lab** when you are done.
- Show the instructor to TA your solution to each problem before submitting it.

Lab 4.1

For this lab, you will need to create a new Visual Studio project that will contain your source code. Name this project "04aLaundryXXXXXXXX", replacing the XXXXXXXX with your PUNetID.
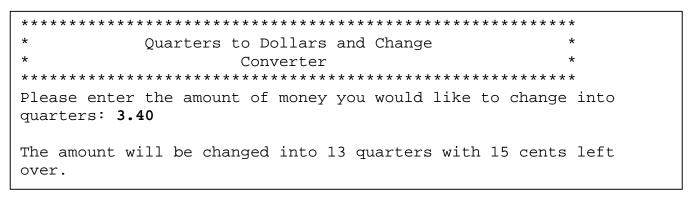
Be sure to add comments to your code to detail how each variable is used and the purpose of each calculation. Be sure to make your output look exactly like the sample shown below.

The goal of this program is to solve the following problem:

> After years of doing laundry at a laundromat, you have finally purchased your own washer and dryer. Congratulations on achieving one of life's sweetest goals! The only unfortunate consequence of this wonderful purchase is that you now have jars and jars of quarters that will take you years to spend. So, you've decided to start selling those quarters to all of your poor friends who are still visiting the laundromat. You want to write a nice program that will calculate how many quarters to give your friends when they start bringing you money to change.

What data will you need to store for this program?

_____

_____

What formulas are required?

_____

_____

Sample Input/Output

```
********************************************************
*           Quarters to Dollars and Change           *
*                    Converter                        *
********************************************************
Please enter the amount of money you would like to change into
quarters: 3.40


The amount will be changed into 13 quarters with 15 cents left
over.
```

Lab 4.2

For this lab, you will need to create a new Visual Studio project that will contain your source code. Name this project "04bMarathonXXXXXXXX", replacing the XXXXXXXX with your PUNetID.

The goal of this program is to convert marathon runners' time in seconds, to hours, minutes, and seconds.

Sample input and output follow. Be sure to make your output look exactly like the sample shown below. Pay particular attention to spacing.

Before you start writing your program, answer these questions:

What data will you need to store for this program?

_____

_____

_____

_____

What formulas will be needed?

_____

_____

_____

_____

Sample Input/Output

```
*********************************************
*                 Marathon Time             *
*********************************************

Hello runner. Please enter your time in seconds: 18532

Congratulations! Your time is 5 hours, 8 minutes, and 52 seconds.
```

Challenge!

For this lab, you will need to create a new Visual Studio project that will contain your source code. Name this project "04cMarathonXXXXXXXX", replacing the XXXXXXXX with your PUNetID.

The goal of this program is to modify the above program so that it calculates the difference between the winning time and the runner's time.

Sample input and output follow. Be sure to make your output look exactly like the sample shown below. Pay particular attention to spacing.

Before you start writing your program, answer these questions:

What data will you need to store for this program?

_____

_____

_____

_____

What formulas do you need?

_____

_____

_____

_____

_____

_____

Sample Input/Output

```
*********************************************
*            Super Marathon Time            *
*********************************************

Hello runner. Please enter your time in seconds: 18532

The winning time for the marathon was 15030 seconds.

Congratulations! Your time is 5 hours, 8 minutes and 52 seconds.
It's 0 hours, 58 minutes and 22 seconds slower than the winning
time.
```