PROG 8010 Assignment 4

You are only required to complete the programming problem that has been assigned to your group. However, you are encouraged to work through as many programming problems as possible.

Each group is to submit one solution to eConestoga. Someone from your group will be selected at random to present their solution to the class. Your mark on the assignment will depend on a combination of the quality, functionality, and adhesion to coding standards of your code. If you are absent without excuse, your mark for the presentation portion of the assignment (20%) is zero.

Group 1/10 Problem – Time Calculator

Create an application that lets the user enter a number of seconds and works as follows:

- There are 60 seconds in a minute. If the number of seconds entered by the user is greater than or equal to 60, the program should display the number of minutes in that many seconds
- There are 3,600 seconds in an hour. If the number of seconds entered by the user is greater than or equal to 3,600, the program should display the number of hours in that many seconds.
- There are 86,400 seconds in a day. If the number of seconds entered by the user is greater than or equal to 86,400, the program should display the number of days in that many seconds.

Group 2/11 Problem – Workshop Selector

The following table shows a training company's workshops, the number of days of each, and their registration fees.

Workshop	# Days	Registration Fee
Handling Stress	3	$1,000
Time Management	3	$800
Supervision Skills	3	$1,500
Negotiation	5	$1,300
How to Interview	1	$500

The training company conducts its workshops in the six locations shown in the following table. The table also shows the lodging fees per day at each location.

Location	Lodging/Day
Austin	$150
Chicago	$225
Dallas	$175
Orlando	$300
Phoenix	$175
Raleigh	$150

When a customer registers for a workshop, he or she must pay the registration fee plus the lodging fees for the selected location. For example, here are the charges to attend the Supervision Skills workshop in Orlando: $1,500 (Registration) plus 3 x $300 (Lodging) = $2,400 (Total). Create an application that lets the user select a workshop and location and calculates the total cost.

Group 3/12 Problem – Change for a Dollar Game

Create a change-counting game that gets the user to enter the number of coins required to make exactly one dollar. The program should let the user enter the number of pennies, nickels, dimes, and quarters. If the total value of the coins entered is equal to one dollar, the program should congratulate the user for winning the game. Otherwise, the program should display a message indicating whether the amount entered was more than or less than one dollar.

Group 4/7 Problem – Distance Converter

In the English measurement system, 1 yard equals 3 feet and 1 foot equals 12 inches. Use this information to create an application that lets the user convert distances to and from inches, feet and yards. Use a ListBox to allow the user to chose the source units and another ListBox for selecting the target units.

Group 5/8 Problem – BMI

A person's Body Mass Index (BMI) is used to determine whether a person is overweight, underweight, or at the correct weight. A person's BMI is calculated with the following formula:

$$BMI = Weight \times 703 / Height^2$$

In the formula, weight is measured in pounds and height is measured in inches. A person's weight is considered to be optimal if his or her BMI is between 18.5 and 25. If the BMI is less than 18.5, the person is considered to be underweight. If the BMI value is greater than 25, the person is considered to be overweight. Create an application that calculates and displays the user's BMI and then indicates in which range the user's BMI falls.

Group 6/9 Problem – Fat Percentage Calculator

One gram of fat has 9 calories. If you know the number of fat grams in a particular food, you can use the following formula to calculate the number of calories that come from fat in that food:

Calories from fat = Fat grams x 9

If you know the food's total calories, you can use the following formula to calculate the percentage of calories from fat:

Percentage of calories from fat = calories from fat / total calories

Create an application that allows the user to enter:

- The total number of calories for a food item
- The number of fat grams in that food item

The application should calculate and display

- The number of calories from fat
- The percentage of calories that come from fat

Also, the application's form should have a CheckBox that the user can check if he or she wants to know whether the food is considered low fat. If the calories from fat are less than 30% of the total calories of the food, the food is considered low fat.