

Lab 6: Review (Group B)

CS133, Beginning Programming: C#

The objective of this lab is to review all you've learned about C#, especially selection statements. You'll use both if and switch statements. You'll also review reading and writing programming logic using pseudocode.

Complete the following Programming Problems from the end of Chapter 4 in the textbook.

5. 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. Figure 4-35 shows an example of how the application's form might appear. In the example, the user enters the distance to be converted into a TextBox. A ListBox allows the user to select the units being converted from, and another ListBox allows the user to select the units being converted to.

Note: Be sure to handle the situation where the user picks the same units from both list boxes. The converted value will be the same as the value entered. (Gaddis 263)

7. Software Sales

A software company sells a package that retails for \$99. Quantity discounts are given according to the following table:

Quantity	Discount
10–19	20%
20–49	30%
50–99	40%
100 or more	50%

Create an application that lets the user enter the number of packages purchased. The program should then display the amount of the discount (if any) and the total amount of the purchase after the discount. (Gaddis 263)

10. 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:

$$\text{Calories from fat} = \text{Fat grams} \times 9$$

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

$$\text{Percentage of calories from fat} = \text{Calories from fat} \div \text{Total calories}$$

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

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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.)

Use the following test data to determine if the application is calculating properly:

Calories and Fat

200 calories, 8 fat grams

150 calories, 2 fat grams

500 calories, 30 fat grams

Percentage Fat

Percentage of calories from fat: 36%

Percentage of calories from fat: 12% (a low-fat food)

Percentage of calories from fat: 54%

Note: Make sure the number of calories and fat grams are not less than 0. Also, the number of calories from fat cannot be greater than the total number of calories. If that happens, display an error message indicating that either the calories or fat grams were incorrectly entered. (Gaddis 264)

Gaddis, Tony. *Starting out with Visual C# 2012 (with CD-Rom), 3/e, 3rd Edition*. Pearson, 06/2013. VitalBook file.

Files to Submit to Moodle

- A document containing screenshots of the applications you wrote for the Programming Problems running (label each screen-shot).
- Zipped VS solution folders for each problem.
- The completed code review form for your lab work.
- A copy of the code review you gave to your code review partner.