CIS 236 – Programming in C

Program:	**Week 05**
Points:	**20**
Chapters:	**5**

Description

Rewrite your program 3 to use functions as noted below.

Learning Objectives

In this assignment, you will practice:

- Refactoring (restructuring) existing code
- Implementing programmer-defined functions with inputs and return values

Requirements

This version of the program will appear exactly the same to the user, with the same prompts and outputs. The only difference is how the code is arranged. You must use the same selection structure that you used for Program 3.

Refer to the instructions for Program 3 for the overall idea of what this project is about.

Remember to use fflush(stdin) where appropriate.

Requirements for Computing AppleCare Charges

The logic to compute AppleCare charges must be located in a function with the following requirements:

Function name:	computeAppleCareCharges
Parameters:	years of AppleCare (int), price of phone (double or float)
Return value:	AppleCare charges (double or float)

Note that this function will not be called if the phone is not an iPhone.

Requirements for Computing the Subtotal

The logic to compute the subtotal (the phone price plus any AppleCare charges) must be located in a function with the following requirements:

Function name:	computeAppleSubtotal
Parameters:	AppleCare charges (double or float), price of phone (double or float)
Return value:	subtotal (double or float)

Note that this function will not be called if the phone is not an iPhone.

Requirements for Computing the Tax Amount

The logic to compute the amount of tax must be located in a function with the following requirements:

Function name:	computeTax
Parameter:	subtotal (double or float)
Return value:	amount of tax (double or float)

If the phone is not an iPhone, use the price of the phone in place of the subtotal.

Requirements for Computing the Total

The logic to compute the total price of the phone, including tax, must be located in a function with the following requirements:

Function name:	computeTotalCharges
Parameters:	subtotal (double or float), tax (double or float)
Return value:	total (double or float)

If the phone is not an iPhone, use the price of the phone in place of the subtotal.

Output Requirements

The results must line up at the decimal point, as displayed in the sample runs.

Sample Run 1

```
Enter the price of the phone> 500.00
Is the phone an iPhone (Y/N)?> N

Price of phone           $500.00
Sales tax (5%)           $ 25.00
Total purchase           $525.00
```

Sample Run 2

```
Enter the price of the phone> 600
Is the phone an iPhone (Y/N)?> y
Enter the number of years of AppleCare> 3

Price of phone           $600.00
AppleCare price (10%)    $180.00
Subtotal                 $780.00
```

```
Sales tax (5%)           $ 39.00
Total purchase           $819.00
```

Sample Run 3

```
Enter the price of the phone> 800
Is the phone an iPhone (Y/N)?> Y
Enter the number of years of AppleCare> 1

Price of phone           $800.00
AppleCare price (12%)    $ 96.00
Subtotal                 $896.00
Sales tax (5%)           $ 44.80
Total purchase           $940.80
```

Requirements for Full Credit on This Project

SUBMIT YOUR OWN WORK – Plagiarism is not tolerated in this course. Please review the section on the Academic Honor Code in the syllabus. I will not hesitate to drop you from this class if you submit a program that is plagiarized.

COMPLETE AND ACCURATE – Your program must compile, execute, and give accurate output.

FOLLOW ALL REQUIREMENTS ACCORDING TO THE INSTRUCTIONS – Follow the instructions as written for completing this project, even if you [think you] know a "better" way to do something.

COMMENTS – Include comments in your code. There must be a comment at the top of your program that includes your name, the program number, and a description of the program. There must be comments at each important step in your program that describes that step. Every variable must include a comment describing its purpose.

BEST PRACTICES – Follow best practices in C programming as discussed in class and in the textbook, including, but not limited to, appropriate use of white space, indenting, alignment, meaningful identifier names, etc. Points will be deducted for sloppy code that is hard to read, even if it works, so pay attention to these details.

SUBMIT ONLY .c SOURCE CODE – Pay attention to the file extension of the source code file you submit. I will deduct points for not following this requirement.

SUBMIT ALL FILES BEFORE THE DUE DATE – Submit your .c source code file to the dropbox for this assignment on Canvas before the due date. Do not submit executable files. Do not submit project files from an IDE. I will not accept links to online storage.