CIS 246 – C++ Programming

Program:	**Week 03**
Points:	**20**
Chapter(s):	**4 & 5**
File(s) to Submit:	**Phone.h, PhoneDriver.cpp (within a zip)**

Description

The JJC Phone Store needs a program to compute phone charges for some phones sold in the store. There are two different pricing systems, depending on the phone purchased. Tax must be added on after the phone charge is computed. Each customer gets a neatly formatted receipt displayed to the screen.

You must write **a driver and a class** using separate files for full credit.

Learning Objectives

In this assignment, you will practice:

- Using selection control structures
- Creating a driver program and a class
- Calling member functions.
- Displaying neatly formatted output to the screen using C++ syntax

Requirements for the Phone Class

Data Members

1. Phone price (in dollars)
2. bool data member to indicate if phone is an iPhone or not
3. AppleCare years

Be sure to:

- use the appropriate data type for each data member
- use the appropriate access modifier for each data member
- initialize each data member using an in-class initializer

Member Functions

1. **One 3-parameter constructor** – The constructor uses three parameters representing the phone price, whether or not the phone is an iPhone, and the AppleCare years. Use a member initializer list.
2. **Getter and setter for each data member**

3. **getTotalPurchase function**

   This function must call the appropriate getter member functions where necessary. Do not access the data members directly.

   This function calculates and returns the total amount of the phone.

   If the phone is an iPhone, calculate additional charges for AppleCare as follows:

   - If the user chooses one year, the charge for AppleCare is 12% of the phone's price.
   - If the user chooses more than one year, the charge for AppleCare is 10% of the phone's price multiplied by the number of years.
   - The user cannot choose less than 1 year of AppleCare if the phone is an iPhone.
   - Compute the purchase subtotal by adding the AppleCare charges to the phone's price.

   Use a tax rate of 5% of the purchase subtotal to compute the sales tax amount in dollars. Add the sales tax amount to the purchase subtotal to determine the total purchase amount.

   Return the total purchase amount to the calling code.

Requirements for the PhoneDriver Program

main Function

1. The user must be prompted appropriately.
2. All values related to money may include values after a decimal point. All values displayed to the screen must display with 2 places after the decimal.
3. The user must indicate whether or not the phone is an iPhone by typing a **single character** (y for yes, and n for no). Your program must be able to handle an upper or lowercase letter: Y, y, N, n.

   Optional: Handle any other characters here by displaying an error message.
4. If the phone is an iPhone, prompt the user for the number of AppleCare years.
5. Instantiate a Phone object using the 3-parameter constructor.

   Note that the parameter that indicates if the phone is an iPhone is a **bool data type**. The user must type a **single character**. You will have to use selection to instantiate a Phone object with the correct data type for this parameter.
6. Display the values in the output by calling the appropriate member function of the Phone object. The output 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
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
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
Total purchase           $940.80
```

Requirements for Full Credit on This Project

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 each source code or header file that includes your name, the assignment number, and a description of the code in that file. There must be comments at each important step in your algorithm that describes that step.

FOLLOW BEST PRACTICES – Follow best practices in C++ programming, including, but not limited to, appropriate use of private/public, appropriate use of classes and/or header files, sets & gets, white space, alignment, meaningful variable names, naming conventions, using

statements, etc. Points will be deducted for sloppy code that is hard to read, even if it works, so pay attention to these details.

SUBMIT ALL FILES BEFORE THE DUE DATE – Submit a .zip of ONLY source code files to the dropbox for this assignment on Canvas before the due date. Do not submit anything except .cpp and/or .h, within a zip. Do not submit .exe files. Do not submit a folder structure. Do not submit project files from an IDE.