CS-1181 Lab Problem 3: Shopping Trip

PURPOSE: To review custom interfaces and polymorphism

DIRECTIONS:

Part A (Due by end of first lab session)

The total cost of a group of items at a grocery store is based on the sum of the individual product prices and the tax (which is 5.75%). Products that are considered "necessities" are not taxed, whereas products that are considered "luxuries" are.

Your task is to write an interface called **`Product`**. The **`Product`** interface should contain a method called **`getTotalPrice`**. Additionally, the **`Product`** interface should contain a **`isTaxable`** method. These methods should return appropriate data types

Part B

Your task is to create two class that implement **`Product`**: **`NecessaryProduct`** and **`LuxuryProduct`** and implement the **`getTotalPrice`** and **`isTaxable`** method in each of these classes appropriately. Then write a driver program to instantiate four products (two necessary and two luxury) and store them into a **`Product`** array, print out each item in the array, and display the total cost of the items

For full credit, ensure that your program is well commented and follows JavaDoc standards for your method(s). Comments are only required for the Part B segment of the lab.

EXAMPLE: Cheese and bread are necessities and soda and candy are luxuries

The computation is 1.50 + (3.50 * 1.0575) + 2.25 + (2.00 * 1.0575) = 9.57. Note that the price displayed next to each product is the price without tax.

```
Cheese $1.50
Soda $3.50
Bread $2.25
Candy $2.00

The total cost is $9.57
```

Keep in mind that to receive credit your code needs to work for all valid inputs, not just for the particular example shown above.

RUBRIC:

[1pt] Documentation

[1pt] Part A correct

[1pt] Part B correct