

Unit 10 Assignment

Directions:

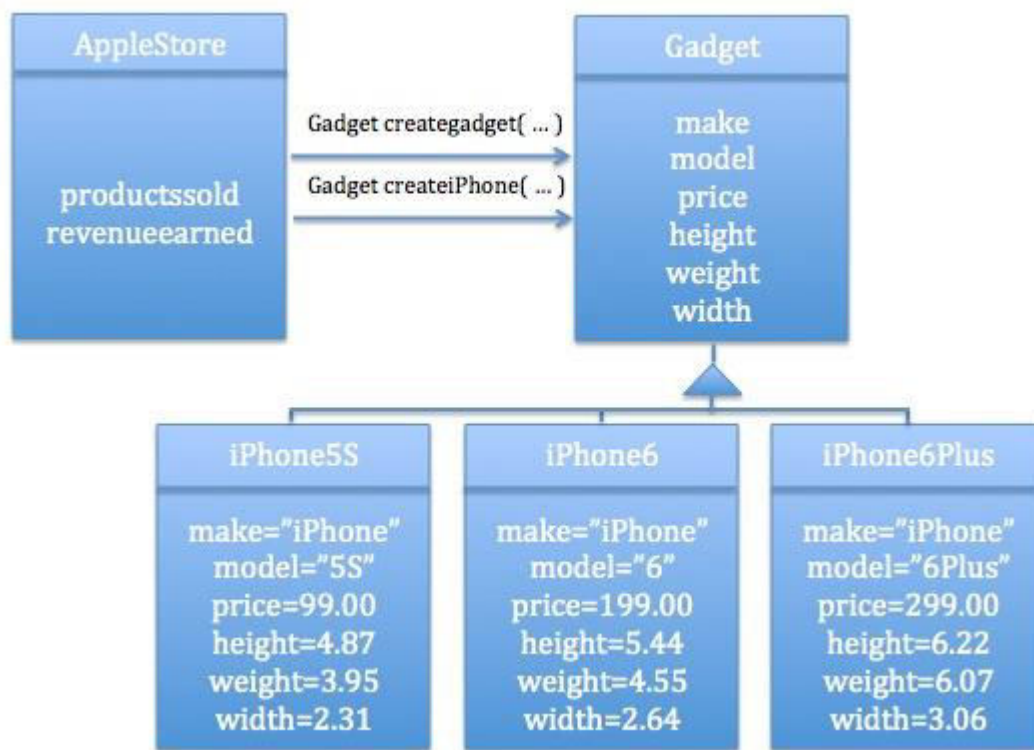
Please complete the following assignment to signify your completion of Unit 10. All programming projects need to be completed and submitted electronically, following the Electronic Submission Guidelines discussed in class.

Background:

The purpose of this assignment is to get practice working with inheritance. Within an object-oriented programming universe, inheritance is a fundamental way classes relate to one another and it promotes significant levels of code reuse. The programming project below will ask you to learn some of these new capabilities.

Project 1: iPhone

In celebration of the recent release of the iPhone 6, I'd like you to update the classes AppleStore and Gadget as described below to make them work with iPhones which should be subclasses of the type Gadget. You will be making three new classes, each of which represents a type of iPhone.



HINT #1: Please start by creating the classes that represent an iPhone. Each subtype should properly set its member variables as shown above for that kind of phone (height, weight, width, price, make and model).

HINT #2: AppleStore should track the number of products it has sold and the total price paid for them all. Each call to `.createiPhone(...)` should return a Gadget object to the client code that will wind up being a particular iPhone subclass. Again, this is referred to as a "factory design pattern".

IN ORDER TO RECEIVE FULL CREDIT, YOUR CODE SHOULD PROPERLY DEFINE FIVE CLASSES AND HAVE CLIENT CODE WORK WITH THESE TYPES.

Below is sample driver code which illustrates the kind of code I am looking for.

Client Code And Sample Output

```
a = AppleStore.new()
ipod = a.createGadget( :Apple, :iPodShuffle, 49, 1.14, 1.24, 0.44,
:ounces )
# arguments are make, model, price, height, width,
# weight and weight scale
puts( "here is your ipod!!" )
puts ipod
puts( "here is your AppleStore!!" )
puts a
macmini = a.createGadget( :Apple, :MacMini, 599, 1.4, 7.7, 2.7, :pounds )
puts( "here is your macmini!" )
puts macmini
puts( "here is your AppleStore!" )
puts a
iphone6 = a.createiPhone( :iPhone6 )
puts( "here is your iphone6! " )
puts iphone6
puts( "here is your AppleStore!" )
puts a
```

```
here is your ipod!!
A $49.00 iPod Shuffle weighing 0.44 ounces
here is your AppleStore!
A store having sold 1 product with revenue of $49.00 so far!
here is your macmini!
A $599.00 MacMini weighing 2.7 pounds
here is your AppleStore!
A store having sold 2 products with revenue of $648.00 so far!
A $199.00 iPhone 6 weighing 4.55 ounces
A store having sold 3 products with revenue of $847.00 so far!
```