COMP 1409

Intro to Software Development 1

Java

Assignment 1

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The purpose of this assignment is to exercise your knowledge from lessons 1 - 5.

Your client “Jalopies Are Us" is a small used car lot that is looking to expand their business. They have asked you to develop a system that tracks their auto sales. Your task is to start by developing a Vehicle class that will hold all data as it pertains to any vehicle they have on their lot. The second and third stage of the project will see additional features added.

Vehicle.java

The `Vehicle` class has the following instance variables.

- `stockCode, make, model, year, dealerCost, sellingPrice, profitMargin`

Constructors

Create a default constructor. The default values are up to you.

Create an overloaded constructor that has parameters for `stockCode`, `make`, `model` and `year`. Do not provide constructor parameters for any of the other fields. The constructor must check that the year parameter must be between `1970` and `2016`. If invalid, then this constructor will use the default value for that field.

Methods

For all fields in the class, provide accessor methods that return the value of the field. These methods must be named to start with “get”, eg. `getStockCode()`.

Provide mutator methods for `stockCode`, `make`, `model` and `year` that set the value for each field. The mutator for `year` must use the same validation as required in the constructor. If a `year` is not valid the field will remain unchanged and an error message is displayed. These mutator methods must be named to start with “set”, eg. `setStockCode()`.

Provide a method called `setDealerCost(data_type)`. This mutator method takes a parameter that specifies the value the dealer paid to purchase a jalopy from the scrap dealer and assigns it to the `dealerCost` field. The value must not be negative.

Provide a method called `checkStandardSellingPrice(data_type)`. This mutator method guarantees the selling price is at least 25% higher than `dealerCost`, and assigns the value to the `sellingPrice` field. If the parameter value is rejected be sure to display a message to the user that includes both the `dealerCost` and `sellingPrice`.

Provide another method called `setSellingPrice(data_type)`. This mutator method guarantees the selling price is not less than 0, and assigns the value to the `sellingPrice` field.

Provide a method called `calculateProfitMargin()`. This mutator calculates the profit made on selling a vehicle as a percentage. It also assigns the value to the `profitMargin` field. To calculate the profit margin use the following formula:

```
profitMargin = (sellingPrice - dealerCost) / sellingPrice
```

Provide a method called `calculateProfit()`. This method calculates and returns the profit made on selling a vehicle as a dollar value.

Provide a method called `printDetails()`. This method displays item information on the screen, and should be formatted as below:

Jalopies Are Us Vehicle Summary:
Vehicle: 1974 Chevrolet Monte Carlo
Stock Code: 1974ChevMC
Dealer Cost: $250.00
Selling Price: $395.95
Profit Margin: 37%
Dollar Profit: $145.95

Be sure to comment your code with appropriate JavaDoc.

Be sure to use proper camelCasing or PascalCasing.

Be sure to use reasonable data types/reference types.

Submission

Compress and submit your source code to the Dropbox in D2L.