## **COMP 1516 – Programming Fundamentals with Python - Lab 11**

**Goals**

* To write a simple OOP class in Python
* To create multiple instances of the class

**Part A – Creating and Testing a Car Class**

* Create a new Lab 11 project in PyCharm
* Create a file called car.py
* Add the following Car class to the file:

**class** Car:  
 *""" Represents a car in a car lot """* **def** \_\_init\_\_(self, make, model, year, cost, price):  
 *""" Initializes the car details """* self.\_make = make  
 self.\_model = model  
 self.\_year = year  
 self.\_cost = cost  
 self.\_price = price  
   
 **def** calc\_profit(self):  
 *""" Returns the projected profit """* **return** self.\_price - self.\_cost

* Add the following two methods to the Car class:

**def** get\_details(self):

**# TODO**

Returns a formatted string with the car details. The string should look like:

**2015** **Honda** **Civic** for sale for $**9999.99**

Where 2015 is the year (self.\_year), Honda is the make (self.\_make), Civic is the model (self.\_model) and 9999.99 is the price (self.\_price)

**def** reduce\_price(self, reduction):

**# TODO**

Reduce the price value (self.\_price) by the reduction amount (i.e., subtract reduction from the price value).

**Part B – Use Your Car Class**

1. Create a Python script called main.py
2. Add a main function to your script:

def main():

pass

if \_\_name\_\_ == “\_\_main\_\_”:

main()

1. In the main function, create a Car object:

car1 = Car(**"Honda"**, **"Civic"**, 2020, 15000.0, 20000)  
print(car1.get\_details())  
print(**"First Car’s Initial Profit is $%.2f"** % car1.calc\_profit())  
car1.reduce\_price(1000)  
print(**"First Car’s New Profit is $%.2f"** % car1.calc\_profit())

1. In the main function, create a second Car object (call it car2) with different details than car1. It should be a 2019 BMW M3 with a price of $50000 and a cost of $30000.
   1. Display the details for this car
   2. Display the initial profit for this car
   3. Reduce the profit by $5000.50
   4. Display the new profit for this car

You have now defined a class for cars in a car lot (called Car) and created two unique car object from that class (car1 and car2), but with different attributes.

The output from your main script should look exactly like this:

2020 Honda Civic for sale for $20000.00

First Car's Initial Profit is $5000.00

First Car's New Profit is $4000.00

2019 BMW M3 for sale for $50000.00

Second Car's Initial Profit is $20000.00

Second Car's New Profit is $14999.50

Submit the following as a zipfile (lab11.zip) to the Lab 11 dropbox on the Learning Hub (Assignments -> Lab 11))

* Your Car class (car.py)
* Your main.py script
* The console output after running main.py