Midterm Exam

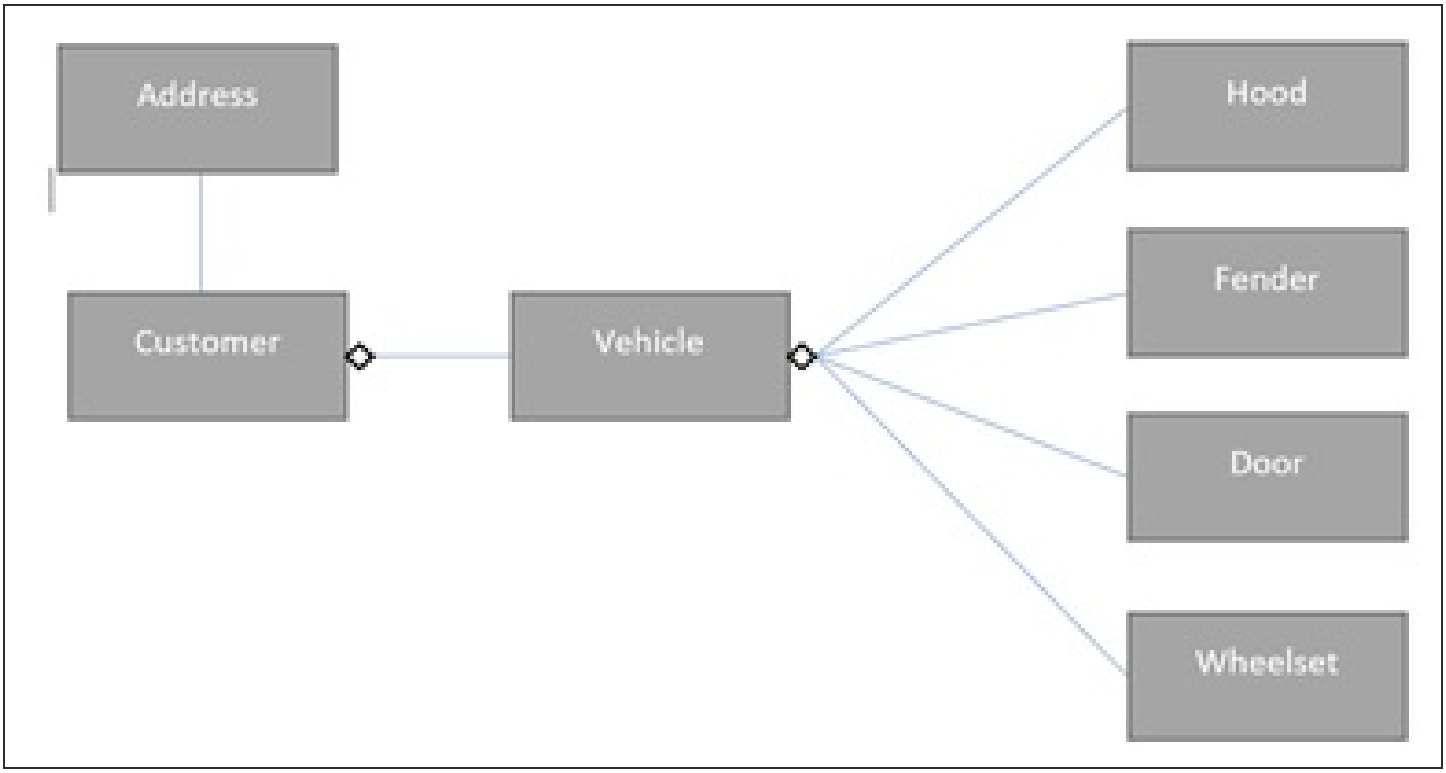
Due Nov 11, 2020 by 11:59pm **Points** 100 **Submitting** a file upload **Attempts** 1
Allowed Attempts 3 **Available** Nov 10, 2020 at 5pm - Dec 19, 2020 at 11:59pm about 1 month

This assignment was locked Dec 19, 2020 at 11:59pm.

Your Midterm Test will start at 5:00 PM and you will have till Midnight to submit your assignment. This is an individual test to be solved by yourself. You can look at lecture notes, your book, or your previous assignments, etc.

You are being asked by a custom car modifying shop to build a system where they can create different types of vehicle objects which can be customized by selecting the options that the customer want's. The vehicle object will calculate the price for the whole configured vehicle. A vehicle is made of many parts and it is vital that you design each part as a class. The following are the parts that the custom shop customizes on a given vehicle. However, you are being requested to only create the Vehicle object with the following listed parts (Hood, Fender, Doors, and Wheelset). The second phase of the project will deal with completing other configurable parts of the vehicle (out of scope for this project).

IMPORTANT: If something is not very clear to you then you can do one of the two; either ask me via Text or Make assumptions, however do list the assumptions in your code.



UML System Diagram

Hood

(HINT: you may want to look at the announcements where I have posted a sample application that shows how to create, use, and pass enum to methods.)

enum HoodType = Regular, Sports, Lifted, None

enum Color = Red, Blue, Black, Silver, Green, Yellow

Hood type price Regular=$499.00, Sports=$599.00, Lifted=$699.00, None=$0.00

double getHoodPrice()

enum getHoodColor()

setHoodColor(enum Color)

enum getHoodType()

setHoodType(enum)

String toString()

{

Print the contents of the class as per requirement in the results

listed at the bottom

}

Fender

enum FenderType = Regular, Sports, Carbon Fiber

Color enum color choices (Red, Blue, Black, Silver, Green, Yellow)

Price for Items: Regular = $100.00, Sports = $200.00, Carbon Fiber = $1000.00

double getFenderPrice()

enum getFenderColor()

setFenderColor(enum Color)

enum getFenderType()

setFenderType(enum)

String toString()

{

Print the contents of the class as per requirement in the results

listed at the bottom

}

Doors

Color Enum color choices (Red, Blue, Black, Silver, Green, Yellow)

Price $599.00

enum getDoorColor()

setDoorColor(enum Color)

String toString()

{

Print the contents of the class as per requirement in the results

listed at the bottom

}

Wheelset

Wheelset constructor should take all as parameters

Enum WheelsetType = Support all listed models listed in the drawing provided above

WheelsetType price All supported are for $1299.00, and no cost if not selected=$0.00

double getWheelsetPrice()

enum getWheelsetType()

setWheelsetType(enum)

String toString()

{

Print the contents of the class as per requirement in the results

listed at the bottom

}

Vehicle

//Vehicle constructor should take all as parameters

Vehicle (String vehicleMake, String vehicleModel, String year, Hood h, Fender f, Door d, Wheelset ws);

Hood hood;

Fender fender;

Door door;

Wheelset wheel;

Double totalPrice; //this should contain the total price of all the selected options

Double getTotalPrice();

String toString()

{

Print vehicleMake, vehicleModel, year plus

Call the toString methods of all the car parts here.

}

Address

String addressLine1, addressLine2, city, zip, state

String getAddressLine1( );

String getAddressLine2( );

String getCity( );

String getZip( );

String getState( );

setAddressLine1(String address1);

setAddressLine2(String address2);

setCity(String city);

setZip(String zip);

setState(String state);

String toString()

{

Print the contents of the address object as per requirement in the results

listed at the bottom

}

Customer

String FirstName, MdddleName, LastName

Address address

String studentPhone

Vehicle customerVehicle

getCustomerFirstName()

getCustomerMiddleName()

getCustomerLastName()

getCustomerPhoneNumber()

Address getCustomerAddressHome()

Address getCustomerAddressWork()

Vehicle getCustomerVehicle()

```
setCustomerFirstName(String sFirst)
setCustomerMiddleName(String sMiddle)
setCustomerLastName(String sLast)
setCustomerPhoneNumber(String phone)
setCustomerAddressHome(Address obj)
setCustomerAddressWork(Address obj)
setCustomerVehicle(Vehicle obj)

String toString()
{
        Print the contents of the customer object including address as per
        requirements listed in the result.
}
```

In the main method create the following two customers.

Customer customer1 = new Customer (“Syed”, “Ali”, “Naqvi”, “12345 Good Ave”, “Number 1”, “Hastings”, “MN”, “55022”)

Customer customer2 = new Customer (“Gloria”, “J”, “Redford”, “499 Apple Street”, “”, “Eagan”, “MN”, “55123”)

Create a Vehicle Object for Ali’s requirements as follows and call it vehicle1. You need to call the Vehicle constructor to pass all the following objects to it. Remember that the Vehicle object resides inside the CustomerClass.

Make Tesla, Model Model 3, Year 2019

Needs the following:

Hood = Lifted, Color=Silver

Fender = Carbon Fiber, Color = Black.

Doors Color=Black

Wheelset = Paint-coated

Create a Vehicle Object for Gloria's requirements as follows and call it vehicle2. You need to call the Vehicle constructor to pass all the following objects to it.

Make Ford, Model F150, Year 2016

Needs the following:

Hood = None, Color=no color option

Fender = Carbon Fiber, Color = Black.

Doors Color=Yellow

Wheelset = Powder-coated

Now call the following methods

Print Customer1

Print vehicle1

Double customer1Price = Customer1.getTotalPrice();

Print Customer2

Print vehicle2

Double customer2Price = Customer2.getTotalPrice();

Your result for Customer 1 Should look like the following

Syed Ali Naqvi

12345 Good Ave, Number 1

Hastings, MN 55022

Make: Tesla

Model: Model 3

Year: 2019

Customer selected the following options

Hood: Lifted in Silver color, Price: $699.00

Fender: Carbon Fiber in Black color, Price=$1000.00

Doors: Black color, Price: $599.00

Wheelset: Paint-coated, Price: $1299.00

Total Price: $3,597.00

What you need to submit via the midterm:

All your source code files and the screenshot of your results.

Midterm Rubric

Criteria	Ratings		Pts
Write the Hood class	**10 pts** **Full Marks**	**0 pts** **No Marks**	10 pts
Write the Fender class	**10 pts** **Full Marks**	**0 pts** **No Marks**	10 pts
Write the Door class	**10 pts** **Full Marks**	**0 pts** **No Marks**	10 pts
Write the Wheelset class	**10 pts** **Full Marks**	**0 pts** **No Marks**	10 pts
Write the Vehicle class	**10 pts** **Full Marks**	**0 pts** **No Marks**	10 pts
Write the Address class	**10 pts** **Full Marks**	**0 pts** **No Marks**	10 pts
Write the Customer class	**10 pts** **Full Marks**	**0 pts** **No Marks**	10 pts
Write the Main method	**10 pts** **Full Marks**	**0 pts** **No Marks**	10 pts
Fully Running Program	**10 pts** **Full Marks**	**0 pts** **No Marks**	10 pts
Formatted Output Results	**10 pts** **Full Marks**	**0 pts** **No Marks**	10 pts
			Total Points: 100